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Sent: Tuesday, December 02, 2014 7:58 AM

To: Planning; Kowalski, Matthew

Cc: JUDITH HANWAY; fburdick1@aol.com; William Higgins; kalousdian@comcast.net; greg; Cy Huffano<bc29spkr@comcast.net>; Eaton, Jack; Krapohl, Graydon; Raabmj@aol.com; Anita Yu; Richard Ballard; Lynn Lumbard; Elias, Abigail; Postema, Stephen; Frost, Christopher

Subject: 2250 Ann Arbor Saline Road; Access Road; Termination of MDEQ ACO

Dear Members of the Planning Commission,

Standing

I reside, with my wife, son and daughter, at 2099 Ascot Rd., located within 300 feet of the proposed project at 2250 Ann Arbor-Saline Road. I oppose this project, first, because it would fundamentally change the character of my street. There is currently no access from or to Ann Arbor Saline Road, and there hasn't ever been.

This project, however, proposes to pierce an established subdivision by connecting Ascot Rd **directly to** Ann Arbor Saline Road via an access road to and from my street. The access road would be one half block from my home.

The access road--from which the neighborhood is locked out--would make Ascot Rd an attractive short cut from or to Ann Arbor Saline Road, and from or to either Scio Church Rd or (via other streets, such as Lans Way and Delaware) from or to South Seventh St., including on game days.

The gate also strikes me as a fig leaf that is likely to malfunction or to be left open when the demand for ingress and egress through Ascot Road is heavy or when there is a great deal of snow on the ground or for a number of other reasons. The gates give the look of a private road to an intrusive public road, in my opinion.

The "Offset Mitigation Program" and MDEQ Administrative Consent Order ACO-SW03-003

My comments here, however, pertain primarily to approval of site plans based on the use of FDDs, whether by the 2250 project or any other project as "offset-mitigation" of new sanitary sewer inflows under the "Ann Arbor Offset Mitigation Program," which is referred to on Page 1 of the so-called "Developer Offset Mitigation Guidelines" generated in November 2005. To avoid confusion in this email, I refer to these as the "2005 Guidelines."

The Offset Mitigation Program was created directly under the terms of an administrative consent order (ACO-SW03-003) ("ACO") between the City and the Michigan Department of Environmental Quality **concerning FDDs and the use of FDDs as "offset mitigation."** The ACO is attached. The City implemented the required "Offset Mitigation Program" in 2003 by Resolution 362-8-3 (the text of which is attached from a Council Minute). This is the resolution referred to on page 1 of the DOM, which states:

Ann Arbor City Council approved a resolution on August 18, 2003, creating a set of **requirements** for new developments. **so that the ACO policies are met. These requirements** are summarized below[.]

The requirements then summarized in the 2005 Guidelines "so that the ACO policies are met" include almost all the language of the DOM Guidelines concerning single family FDDs. (My comments are limited to single family FDDs for purposes of this email.)

Indeed, the purpose of the Resolution was also stated in the first three "whereas" clauses of R-362-8-3 as follows:

Whereas, City Council approved a resolution (R-401-8-00) on August 7, 2000 that directed city staff to explore options to limit the potential for exacerbating sanitary sewer backups;

Whereas, The Michigan Department of Environmental Quality (MDEQ) and the City of Ann Arbor have negotiated an Administrative Consent Order (ACO) to resolve alleged violations of the Natural Resources and Environmental Protection Act, 1994 PA 451; and

Whereas, Compliance with the ACO **stipulates requirements for an Offset-Mitigation Program** to reduce sanitary sewer flows for new connections to the sanitary system.

The "stipulate[d] requirements for an Offset Mitigation Program" included all of the following specific resolutions, which (as one would expect) simply echo the requirements of the ACO:

RESOLVED, That all property developments within the City of Ann Arbor requiring site plan submissions must **offset-mitigate** estimated sewage flows from the development;

RESOLVED, That all property developments within the City of Ann Arbor requiring application for a Part 41 Permit must **offset-mitigate** estimated sewage flows from the development;

RESOLVED, That County, public schools, colleges, universities and other government facilities on properties located within the City of Ann Arbor must **offset-mitigate** estimated sewage flows for new development;

RESOLVED, That **offset-mitigation** for new sanitary system connections into capacity constrained sewage districts must be offset or mitigated in the collection system upstream of the capacity constrained location;

RESOLVED, That properties requiring site plan submissions must **disconnect on-site footing drains** from the sanitary sewer if an approved discharge location exists;

RESOLVED, That properties annexing into the city **must disconnect on-site footing drains** from the sanitary sewer if an approved discharge location exists[.]

Those requirements from the ACO for the Offset Mitigation Program were reflected in the first set of OMP Guidelines in 2003. These were contained in the short 2003 version attached to the current 2005 Guidelines. The 2005 Guidelines, in turn, stated clearly (also on page 1) as follows:

The purpose of this document is to establish a written policy for all aspects of the **City of Ann Arbor program to offset development sewage flows through sanitary flow removal (offset-mitigation)**. This document will be accessible for City of Ann Arbor staff, developers, contractors, and others involved with offset-mitigation activities. ...

The City of Ann Arbor **Offset-Mitigation Program** was established to aid in protecting the health and safety of our community and environment by not allowing new development to exacerbate sewage collection system capacity issues or "MDEQ permitted" overflows of partially treated sewage by our treatment plant to the Huron River.

The 2005 Guidelines (the so-called "DOM Guidelines"), then, were merely a second version of the OMP Guidelines. The 2005 Guidelines still refer to the underlying program as the "Offset Mitigation Program" from the ACO. The 2005 guidelines include substantial elaborations on the 2003 version, but based apparently on internal policies, not ACO requirements.

Both sets of Guidelines and R-362-8-3, especially when read together, are very clear that any purported authority they represented was entirely derivative of the MDEQ's authority and dependent on the scope of the ACO. None of these documents mentions the FDD Ordinance or any other authority or power. The two sets of guidelines were essentially just two versions of a regulation purporting to implement the ACO at the City level.

Termination of the ACO and MDEQ Confirmation Email

On November 3, 2009, however, MDEQ terminated the ACO by Notice of Termination ("NOT"), requested by the City a month earlier. The NOT is attached. The ACO, paragraph 3.5, states unambiguously that "[t]he O-MP shall terminate upon the expiration date of this Consent Order," which was no later than November 3, 2009.

According to the NOT, "[t]he DEQ agrees that the City has satisfactorily completed all requirements of the Consent Order' and that "the issuance of this NOT ends the City's obligations under the Consent Order."

I asked MDEQ recently whether the ACO had been somehow revived. They responded to me by email (not attached) as follows:

As stated in the DEQ's letter, the DEQ reviewed the City's request to terminate the Consent Order and agreed that the City satisfactorily completed all the requirements. The City's request was granted and the Consent Order was terminated. It is the DEQ's position that the November 3, 2009, [sic] accurately reflects the status of the Consent Order.

This is no small problem. To illustrate graphically the effect on the 2005 Guidelines of the termination of the ACO in November 2009, I attach the portion of the text of the 2005 Guidelines relevant to single family FDDS, but with all language struck through that ceased to be operative (if it ever was) when the NOT rendered the ACO a dead letter. There's not much left of the 2005 Guidelines for single family FDDs and there is no stated basis left in the Guidelines that is still operative other than "city policy."

The same is true of R-362-8-3. The statement from one of its whereas clauses quoted above--that "[c]ompliance with the ACO stipulates requirements for an Offset-Mitigation Program"--is no longer operative and the reference to that resolution in the 2005 Guidelines is also no longer operative. My understanding is that the Planning Commission has relied only on the 2005 Guidelines in calculating how many FDDs to require from the 2250 project and in then requiring (and accepting) FDDs as sanitary sewer mitigation by that project and that the 2005 Guidelines are also the authority relied on for all projects since the NOT in 2009.

Assuming that is true, and as I am focusing here only on the effects of the NOT, I would limit my position to stating that it appears that the Planning Commission has lacked authority since at least November 3, 2009, to require or allow a developer to perform FDDs as offset mitigation or to allow or require a developer to trade a promise to perform FDDs for the Planning Commission's agreement that a given project will satisfactorily mitigate its new sanitary sewer inflows.

Two Misconceptions at Work

Two circumstances appear to have given rise to the situation I am pointing out here.

Existence of the NOT is Not Known at the City. The first problem, obviously, is that **the mere fact** of the termination of the ACO five years ago does not seem to be known very widely at City Hall. Even recently, the City Council appeared surprised by the news of the termination of the ACO in 2009 from a PSA spokesman when it came up at a Council Meeting last spring. One Council Member's statements and questions on video, in particular, indicated that he had understood the existence of the ACO as the basis for at least some actions by Council after the NOT.

Rather than inform itself about the NOT, however, the City (as an institutional problem) has on multiple occasions after the NOT represented the ACO, in different forms and forums, **as a document that was still operative.** Three examples will suffice.

- The City's FY 2010 SRF Plan from PSA, submitted to MDEQ for \$112 million eight months after the NOT, referred to the ACO (as support for \$2.75 million in FDDP capital funding from EPA sources) as if it were an operative document.

The SRF Plan includes a copy of the ACO attached as an Exhibit without a copy or mention of the NOT. The Offset Mitigation Program and the 2005 Guidelines are discussed at some length (as further support for FDDP funding) with no mention of the NOT or its effect on either the Program or the Guidelines.

- City staff and contractors for the Sanitary Wet Weather Evaluation study created confusion months ago among members of the Citizens Advisory Committee about the effect of the ACO. The attached slide from a presentation to the CAC states "775 FDDs Required by ACO," as if the ACO still required 775 FDDs. Meanwhile, the "DOM" has been analyzed and discussed extensively with the CAC. To my knowledge, however, none of the City contractors or City staff who worked with the CAC told the CAC about the termination of the ACO in 2009 or the NOT's effects on the City's Offset Mitigation Program. This includes City staff who very likely were aware of the NOT. As a result, the CAC has been misled and has actually made recommendations for changes to an "Offset Mitigation Program" that ended with the NOT.
- The SSWWE has also misinformed the public (while promoting itself) about the ACO and claimed it as a basis for FDDs. Attached is a SSWWE Project Handout, with two City engineers names at the close, stating in January 2013 that "[o]ne of the items contained in the ACO was that the City must implement an Offset-Mitigation Program." It goes on that "[t]he purpose of this program **is to prevent** new developments **from exacerbating** sewage collection system capacity issues. Before receiving a Certificate of Occupancy for a new development, a developer **is required** to have mitigated the increase in sanitary sewage flow from the new development **by removing existing** flow from the city sanitary system." This is abuse of authority--MDEQ's authority, that is.

Programs Under the ACO Were Short-Term Only. The ACO gives no indication that it was intended as a program of unlimited duration, and an NOT ended that duration. The OMP was **never** intended to be an endless source of mitigation of sanitary sewer inflows by means of FDDs. Yet the Offset Mitigation Program has become a permanent program based entirely on a set of staff-generated Guidelines, with no operative administrative or legislative pedigree, purporting to implement "ACO policies" that have been inoperative for years because the ACO no longer exists except in history.

This shows a grave misinterpretation of the ACO in many quarters of the City that have been involved in the administration of the ghost of the Offset Mitigation Program, including at the Planning Commission. As discussed here, the ACO in 2003 did not purport to create any permanent "FDD" or "Offset Mitigation" programs that would still be running in late 2014. Rather, the ACO (among other things) created two distinct but related remediation programs, **both of expressly limited in extent and duration:**

1. The ACO, first, created a **limited remediation program** (the "ACO FDD Program") **requiring** FDDs only as mitigation for the specific sanitary sewer overflows at the Waste Water Treatment Plant between 1998 through 2002 listed in the ACO, **and no other future SSO's. The ACO FDD Program NEVER "required" more than 799 FDDs in total.** 179 FDDs had been performed "by

- the City" prior to the ACO, which started a four-year program requiring 155 FDDs per year, for a fixed total of 620 "required" FDDs after the ACO went into effect.
2. The ACO also created a separate mechanism--the "Offset Mitigation Program"--for mitigation of inflows from new development connecting to the sanitary sewers, but such mitigation was required only **during the term of the ACO, not into the indefinite future.**
 3. Under the OMP, for each development adding inflows to the sanitary sewer system **during the term of the ACO**, the City was required to prove to MDEQ the adequacy of the "offset-mitigation" for the project. The amount of mitigation required (in gallons per day of water at peak flow) was calculated based on the OMP tables in the ACO in an amount specific to different types of buildings.
 4. The OMP **permitted (it did not require) the City to use fdds for offset mitigation purposes.** The ACO specifically stated that mitigation "**may be** achieved through the removal of illegitimate connections, **the removal of footing drains**, roof drains, parking lot drains or other approvable [sic] actions that remove flow from the City's sanitary sewer system." The City, for example, could have proposed porous pavement as mitigation, but it would have had to show its calculations on a case by case basis of the mitigation created by that action.
 5. Instead, the City negotiated an OMP that was heavily skewed toward the City's **discretionary use** of FDDs for offset mitigation. MDEQ agreed that each discretionary FDD would result in an offset-mitigation "credit" equal to 4 gallons per minute peak flow. For example, the OMP provisions of the ACO state that 350 gallons **per day** (peak flow) had to be eliminated for each new "single family residential unit" adding flow to the sanitary sewers. Under the ACO, one FDD, at 4 gallons **per minute**, equated to 5,760 gallons **per day**. That could provide "offset -mitigation" (at least on paper) for multiple "single family residential units," **but only as long as the ACO continued in effect.**
 6. The City was limited to the credits it could earn before expiration of the ACO. The City had 179 credits "banked" for "offset mitigation" under the OMP from 179 FDDs done **before** the ACO was signed.

As previously noted, Paragraph 3.5 of the ACO states unambiguously that "the OMP shall terminate upon the expiration date of this Consent Order." The OMP "terminated" when the "expiration date" of the ACO occurred on the NOT date of November 3, 2009, as did the legal effect of the 2003 OMP Guidelines and of the 2005 ("DOM") Guidelines. Like R-362-8-3, those guidelines were completely dependent on the continued effectiveness of the defunct ACO. In effect, the City, including the Planning Commission, has had no valid and operative program for developer mitigation of sanitary sewer inflows since at least November 2009. The Offset Mitigation Program under the ACO was all the City had as even apparent authority, and that expired with the NOT.

What Should the Planning Commission Do Now?

Given the apparent lack of knowledge until last spring about the NOT even at the City Council (which has approved many site plans since 2009), it is more than a fair question

whether the Planning Commission was also unaware of the NOT prior to this email and whether it has incorporated the termination of the ACO into its procedures and its understanding of its own authority relative to FDDs and "offset mitigation." I see no signs of that judging either by the agenda and links for the December 2 Planning Commission proceedings or by the Planning Commission's approval after the NOT of projects where mitigation was or is being required (and was or would be accepted by the City) in the form of a required number of FDDs.

Unless the Planning Commission or staff can refute the arguments and plain facts in this email, the Planning Commission members have (at the least) ethical and civic obligations, in my view, to consider refraining from acting on additional offset-mitigation requirements until it has considered the impact of the NOT on its powers, procedures and proceedings in this particular regard. This includes consideration of whether past or ongoing projects (such as 413 East Huron) were improperly approved premised on City officials' **beliefs** in their authority to require and accept "offset mitigation" of sanitary sewer flows by FDDs (which was a deal from MDEQ with a limited term), rather than by actual, provable mitigation by other means.

Respectfully,

Irvin A. Mermelstein

Guidelines for Completion of Footing Drain Disconnections

City of Ann Arbor –~~Developer Offset Mitigation Program~~

Updated November 30, 2005

Purpose

~~The purpose of this document is to establish a written policy for all aspects of the City of Ann Arbor program to offset development sewage flows through sanitary flow removal (offset mitigation). This document will be accessible for City of Ann Arbor staff, developers, contractors, and others involved with offset-mitigation activities.~~

Introduction

~~The City of Ann Arbor Offset Mitigation Program was established to aid in protecting the health and safety of our community and environment by not allowing new development to exacerbate sewage collection system capacity issues or "MDEQ permitted" overflows of partially treated sewage by our treatment plant to the Huron River.~~

In structures built prior to 1981 [sic], footing drains were most often connected directly to the sanitary sewer system. Studies have shown that footing drain flows during rain events are the major cause of system capacity concerns and increase collection system flows by as much as 10-20 times the normal dry weather flow. In several instances, the sewer system has exceeded its capacity, causing basement backups in some neighborhoods. It was determined that even homes with no current basement backup problems were significant contributors to the basement backup problem for neighboring homes. The City decided on a solution, as required by an Administrative Consent Order (ACO) with the Michigan Department of Environmental Quality (MDEQ), to implement a comprehensive citywide footing drain disconnection (FDD) program in order to reduce the amount of rainwater flowing into the sanitary sewer system.

Beyond the implementation of the FDD program, the ACO also requires that the City of Ann Arbor demonstrate on a project-by-project basis, offset mitigation for *new development* in a manner consistent with MDEQ guidelines to effect a net reduction in flow to the sanitary collection system. Before receiving a Certificate of Occupancy for a new development, a developer may be required by state ACO directives and city policy to remove existing I/I (Infiltration/Inflow) flow from the city sanitary system to offset the estimated sanitary sewage flow for the proposed development. The goal of the program is to offset sewage flow added to the sanitary sewer system by new development and to gradually gain back lost system capacity through application of a 20% System Recovery Factor as part of the ~~requirement [MI]~~.

Ann Arbor City Council approved a resolution on August 18, 2003, creating a set of requirements for new developments, so that the ACO policies are met. These requirements are summarized below:

**Guidelines for Completion of Footing Drain Disconnections
City of Ann Arbor - Developer Offset-Mitigation Program
Updated November 30, 2005**

I. Applicable Developments

All property developments, within the City of Ann Arbor, requiring Site Plan submissions or application for a Part 41 Permit from the MDEQ, are required to offset mitigate estimated sewage flows from the new development. In addition:

- ~~County, public schools, colleges, universities and other government facilities on properties located within the City of Ann Arbor must offset mitigate estimated sewage flows for new development.~~
- ~~Properties requiring site plan submissions must also disconnect on-site footing drains from the sanitary sewer.~~
- ~~Properties annexing into the city must disconnect on-site footing drains from the sanitary sewer.~~

~~Where a township contributes flow and where adequate transport capacity, within the city, has not been purchased or constructed, the townships must agree to institute policy equivalent to the city policy for offset mitigation of new sanitary sewer flow. If the mitigation takes place within the City of Ann Arbor, city FDD program staff will verify the disconnection, but will not provide compliance tracking. The township will be responsible for coordinating a compliance tracking and reporting procedure, that is equivalent to the guidelines in Section IV of this document, and that will provide the City of Ann Arbor with assurance that the disconnections were completed in accordance with the ACO requirements. Additionally, the township is responsible for communicating with the MDEQ regarding all requirements and verification activities for their developments and the associated mitigations.~~

~~New sanitary sewer system connections for parcels currently using on-site sewage disposal systems shall be exempt from offset mitigation requirements. New sanitary system connections for flow additions less than the equivalent flow from a duplex residential unit (average daily flow less than 700 GPD) and not requiring a Part 41 Permit application shall be exempt from offset mitigation requirements. If subsequent flow additions for the same site result in cumulative flows over 700 GPD being added to the system after August 18, 2003, the offset mitigation requirements must be met for all of the additional flow added after August 18, 2003.~~

II. Disconnect Requirements and Calculation

~~The number of disconnections required for any particular mitigation is calculated based on a city document titled SANITARY FLOW OFFSET MITIGATION FOR DEVELOPMENT. The City of Ann Arbor uses the procedures in this document to determine consistent and reasonable values for the sanitary flow added to the sanitary system based on the scope of proposed development and for the estimated "clean water" removal from the sanitary by reducing storm and ground water I/I sources.~~

~~The information in this document, for a single residential footing drain connection, includes:~~

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- ~~Design dry weather flow rate of 350 GPD/unit~~
- ~~Peaking factor of 4~~
- 20% recovery factor
- ~~4 GPM/home peak wet weather footing drain flow~~

Please see this entire document (attached) for additional details on determining the number of footing drain disconnections required. The peaking factor, recovery factor, and estimated peak footing drain flows are all constants. The design dry weather flow rate will vary based on the type and size of the development.

~~In order to obtain mitigation credits by any method other than footing drain disconnections, the detailed method for sanitary flow removal must be proposed to the FDD project manager, approved by the City of Ann Arbor, and ultimately accepted by the MDEQ. This includes situations where an existing non-residential property is altered such that the flow to the sanitary sewer system is reduced or eliminated. In this case, a developer may be able to obtain credits based on the design flow rates of the existing configuration compared to the altered configuration. These credits could then be used:~~

- ~~For a new development on the same site~~
- ~~For development at another site~~
- In trade with another developer or contractor

~~All mitigation credits, whether obtained through FDD or through other means, must be used to offset development within two years, unless a longer time limit has been approved by the FDD project manager.~~

III. Available Disconnection Locations

In some areas of the Ann Arbor sanitary sewer system, capacity problems may be observed during peak flow conditions. These "problem areas" have been identified through the 1995 Trunk Sewer Study and the 2001 SSO Study Report. Because of these problem areas, offset mitigation for new developments must be completed in designated areas of the city. The location requirements are based on having the entire sanitary sewer system divided into three main districts. These districts are shown on the attached map and are labeled as North, South, and West. The mitigation requirement will be based on a percentage location distribution rule as follows:

For developments within any of the three districts, 80% of the mitigation credits must be obtained from disconnections located within the same district as the development. 20% of the mitigation credits may be obtained from anywhere in the City of Ann Arbor.

Developments connecting to the Ann Arbor sanitary sewer system from outside of the City of Ann Arbor limits must also follow the 80% / 20% distribution rule for their sewer district, but may choose to mitigate either within the city or in their township. Developments within the city must be mitigated within the city limits.

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In some cases, if the city has completed disconnections in the areas where mitigation is required, there may be opportunities for trading these disconnections between districts. The developer can then receive credit for a home in the correct district, while the city will receive credit for a disconnection to reduce Ann Arbor Wastewater Treatment Plant (WWTP) flows. The following guidelines will regulate the tracking of these trades:

- FDD district trades will only be allowed for developments that are located within the City of Ann Arbor.
- Homes for FDD district trades may not be available in all sewer districts. If homes are available, the City can only provide up to 20% of the completed homes in a single district for trades.
- FDD district trades must be approved in advance by the FDD project manager. The developer should contact the FDD project manager to explain the location of the development, and he/she will determine if FDD homes are available in the correct sewer district, and will approve a set number of trades to be allowed. The number of trades allowed will not necessarily equal the total number of required mitigations for a developer.
- Once approved, the developer must complete all of their district trades within 12 months, after which any untraded homes will be available again to all developers on a first-come, first-serve basis.

Additional consideration will be given to properties that are classified as Priority 1 for the City of Ann Arbor FDD Program. These properties are considered at risk for basement backups and are scheduled to be included in the FDD program by 2006. To avoid confusion and/or conflict between the FDD program and developer offset-mitigation activities, **a Priority 1 or 2 home cannot be completed for offset-mitigation credit if the home is scheduled to be part of the FDD program in the next 6 months.**

Future scheduling of both priority 1 and 2 homes will be tracked based on work zones already identified throughout the city. Each work zone consists of 30-60 homes, generally completed within a 2-3 month time period. To meet the 6-month requirement, homes in the current work zone and the next two sequential work zones are not eligible to be used for mitigation credit.

Once included in the FDD program, a priority 1 or 2 home will not be eligible for mitigation credit again, unless their incentive funding from the city has expired. In some cases, a property initially identified as Priority 1 or 2 will not meet the FDD program requirements and will be made available for developer offset mitigation.

The two most common examples are (1) homes that were built after 1981 and (2) homes that do not complete the footing drain disconnection within the required timeline. In both cases, since the properties are not eligible for FDD program funding, they may be completed for offset mitigation credit. For priority 1 properties, installation of check valves on lower level sanitary features should be included. The

current work zone and a listing of homes that are ineligible for development offset-mitigation can be obtained from the FDD program construction manager. Any exceptions must be approved by the FDD project manager.

The remaining properties in the City of Ann Arbor are classified as Priority 2 and are not considered at risk for basement back-ups. Developers may complete footing drain disconnections for any of these properties that are not included in any of the next two sequential work zones. New curb drain is not scheduled for installation in many of these areas until future years, but may be installed in advance by the City's curb drain contractor (at the developer's expense) if requested. See section VI for additional explanation of curb drain discharge locations. Check valves will not be required for these properties unless required by City of Ann Arbor building code.

Please contact the FDD Program Construction Manager to obtain a current listing of FDD Program homes and priority classifications, as described above.

IV. Work Specifications and Verification

The detailed specifications for typical single-family residential buildings used by the City of Ann Arbor FDD program are available from the Construction Manager (CM). These specifications should be used for developer mitigation when working in single family residential structures. All work with floor tiles must be done in conformance with the Asbestos tile removal regulations available from the City.

A **footing drain disconnection** is defined as identifying all direct connections between a footing drain and the sanitary drain piping of a property, removing the connection(s), and directing the footing drain flows to an approved stormwater discharge location.

The FDD credit applicant is responsible for taking care of the following items to verify the disconnection for a single family residential FDD credit:

- Arrange an on-site inspection with the CM after the disconnection has been made and restoration is nearly complete. The contractor in charge of the work must be present to answer questions
- Provide photos of the pre-existing condition of the property and intermediate photos confirming a disconnection was made
- Provide closed building permits for plumbing and electrical work
- Provide discharge permits (county drain or right-of-way) as needed
- Complete photo or video as-built documentation of any installed curb drain
- Notify the CM of any other relevant information
- Provide design documents and calculations for building other than typical single-family residential buildings (see Section V, below)

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Any exceptions to the verification items above need to be approved by the FDD Project Manager.

V. Multi-Unit and Commercial Disconnections

The purpose of this section is to establish a standard policy for determining the number of credits granted for FDDs completed at multi-unit and commercial structures. It also presents the requirements for the discharge system needed at these locations, which can vary significantly in size and configuration from single-family structure. Generally, these structures include apartment complexes, duplexes, townhouses, commercial and industrial buildings.

Equivalent Disconnection Credits

Compared to a typical single-family residence, multi-unit residential or commercial structures have widely varying footprints and will have correspondingly different contributions of footing drain flows during wet weather conditions. This section establishes a policy for calculating the disconnection credits for these non-single-family structures if FDD work is performed for these locations.

A typical single-family residence in Ann Arbor contains 1,200 square feet of footprint area, most often with a standard basement depth of 5' to 8'. These structures have been found to generate an average of 4 gallons per minute (gpm) from monitoring data within the City during peak wet weather conditions.

After reviewing the mechanism for generation of flows into footing drains, it has been determined that the number of credits provided for non-single-family structures will be based on both the footprint area and basement depth of the structure compared to the typical single-family residence. For each building, the number of credits will be calculated as follows:

$$\text{Credits} = (\text{Building Footprint Area}) / (1200 \text{ sq ft}) * (\text{Depth Factor})$$

The average depth of the basement for a structure will be used to determine the depth factor, where the depth factor is 1 for a standard full-height basement. For structures with multiple basement levels, a location-specific policy will be created by the City. The following table describes the basement depth factor for structures with single basement levels:

<u>Basement Depth Range</u>	<u>Depth Factor</u>
(Measured from highest finish grade outside of the building to the basement floor)	
< 2'	0.25
2' - 5'	0.5
>5'	1.0

The number of credits calculated above must then be rounded to the nearest whole number. Note that this formula cannot be applied to any single-family structures.

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Multiple credits can only be obtained for non-single-family residential structures that have documented connections of footing chains and/or roof drains to the sanitary sewer system.

The FDD credit applicant is responsible for providing "Preconstruction Multi-Unit FDD Calculations" to the City FDD Project Manager as a proposal prior to starting the disconnection work. The City will then respond to the proposal and confirm or deny the request for multiple FDD credits.

Direct Surface Connections to Foundation Drain

If there are direct surface connections to the foundation drainage system, these must be removed. These include area drains, stairwell drains, roof downspout discharges, and similar connections. An inspection report must be provided as part of each FDD credit application of all surface drainage around each structure. This surface drainage report must include:

- ~~Drainage Sketch – Provide a sketch of the surface drainage in relation to the structure(s), including the area of drainage toward the structure. Sketch shall be to scale with approximate dimensions provided.~~
- ~~Surface Connection Identification – Identify on the drainage sketch and provide photographs of all surface drainage inlets such as area drains, stairwell drains, roof downspouts, and similar connections.~~
- ~~Removal Verification – Verification of the removal of all surface drainage connections shall be provided in the form of clearly identified photographs of the modification. In the case of stairwell drains, disconnection is recommended, but not required. If stairwell drains are not disconnected, surface flow must be directed away from the stairwell with a minimum 6" curb around the stairwell.~~
- ~~Flow removal credit for 25%, 50% or a maximum of 75% of the flow removed from eliminating these illicit connections to the sanitary can be granted by the FDD Project Manager based on applying the 20% Recovery Factor and the cost percentage of the average FDD cost for removing 4 gpm from a single family dwelling.~~

Discharge System Design

Because non-single-family residential structures will likely produce more footing drain flow than a typical single-family residence, the standard FDD sump and sump pump specifications developed by the City of Ann Arbor may not provide sufficient capacity. In some cases, a larger sump, a larger pump, or even a multiple pump system may be required to handle the larger flows that would be anticipated.

If possible a gravity discharge line from the footing drains to a catch basin, nearby curb drain, creek, or other approved discharge location would be the preferred. If a gravity drain is not feasible, the following guidelines are provided to aid the developer's engineer to estimate the required capacity for the FDD sump system:

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City of Ann Arbor – Developer Offset-Mitigation Program
Updated November 30, 2005**

Sump Pump Capacity

All footing drainage systems are different and have varied conditions that they must accommodate. The sizing of the gravity drainage or sump system must take into account these varied conditions. The entity preparing the FDD credit application for the purposes of Development Mitigation must certify that the installed system takes into account these site conditions. Evidence of this assessment of site conditions must be provided as part of the FDD credit application in the form of calculations and site condition assessment. These calculations must be signed by a Professional Engineer.

At a minimum, the peak pumping of the sump pump(s) or flow capacity of the gravity discharge must be consistent with the following formula:

$$Q_{\text{peak}} = \text{Perimeter}_{\text{mut}} * 0.25 \text{ gpm/ft}$$

Where:

Q_{peak} — Minimum peak flow (gpm) capacity of the installed sump pump(s)

$\text{Perimeter}_{\text{mut}}$ — Perimeter (ft) of the structure foundation drain leading to the discharge sump

An example of the calculation of the pump capacity for each unit, and the determination of the FDD credit is included in Appendix A.

Sump Location

Sumps may be located internally or externally, and must be installed according to all applicable codes. External sumps require safety features to prevent entrapment of repair personnel, children or pets.

Sump Volume

With the installed sump pump capacity calculated by the applicant, the sump system in which the sump pump(s) is located shall be sized to allow the installation of at least two sump pumps at the same elevation, even if only one is installed. In addition, the sump system shall be sized so that at the design capacity of the sump pump(s) and using the design levels of the controlling float switches, the operation of the sump pump (s) does not cycle in excess of the recommended number of starts per hour at the peak projected flow rate. Providing a sump volume that causes starting more frequently than pump manufacturer recommendations is not acceptable.

It is acceptable to utilize multiple sumps to provide the required sump volume as long as the sumps are capable of housing the correct number of pumps, and are hydraulically connected such that the sumps maintain the same level during all pumping operations.

Sump Cover

The sump(s) shall be equipped with a bolt down cover that has all penetrations in the cover adequately sealed around each discharge connection and electrical connection.

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Interconnections to Sanitary System

All connections between the foundation footing drainage system and the sanitary plumbing and sewer system for a building where FDD is being performed must be disconnected as part of the FDD process. Documentation of the nature and location of all of these interconnections must be provided as part of the FDD credit application as well as verification that the disconnection was performed for all of these interconnections. This documentation must include photographs of the disconnection work.

Pump Discharge Line

The pump pressure discharge line shall be of a size recommended by the manufacturer of the sump pump.

Gravity Discharge Line

The gravity discharge line must be a minimum of 4" PVC if installed using an open cut method or 2" PVC or HDPE if installed using a boring method. The slope of this discharge line shall be a minimum of 1" per 10' of length, and the required flow capacity must be provided in an open channel flow mode of operation. There is not a maximum slope requirement. Minimum cover requirements are 24" for 2" discharge pipe, 18" for 4" and larger pipe.

At the discharge from each structure into the discharge line, there must be an air gap to separate the in-structure pump discharge piping from the gravity discharge line. In addition, a cleanout must be provided at each entry point into the gravity discharge line.

After installation, the gravity discharge line shall be inspected for negatively sloped areas to verify proper installation. The FDD credit applicant shall provide verification using one of the following methods:

Open Cut Review - After the open cut has been performed and the pipe placed, the FDD credit applicant must demonstrate the proper cover and slope with photographs and field notes.

- CCTV Inspection - At the option of the FDD credit application, the completed gravity discharge line can be inspected from the upper end to the discharge point by CCTV to demonstrate positive slope. The necessary documentation is a written report as well as a continuous CCTV inspection video tape or DVD disc of the discharge line. This inspection video tape or DVD disc must include documentation of the addition of water (at least 1 volume of the discharge line) after the insertion of the CCTV camera. The addition of water must appear on the inspection video tape or DVD disc followed by the inspection of the entire length of the discharge line.

The gravity discharge line shall be constructed to only accept the flow from footing drains. No area drains or other surface drainage sources shall be connected to this discharge line.

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Inspection cleanouts shall be installed at every upstream point in this discharge line, and at all changes in direction that exceed 30 degrees, and at maximum distances of 300'. All cleanouts must include magnetic Locators. In addition, the curb drain system must include tracing wire along the entire length of the discharge line.

Gravity Discharge Line Capacity

The gravity discharge line provided must be adequately sized to accommodate the discharge from all installable pumps upstream from each segment of line. Each segment of this discharge line must be sized to flow by gravity with the maximum installable capacity of all the discharges operating simultaneously. This calculation must be performed by a professional engineer. Calculations to support this capacity must be provided in the FDD credit application. An example of this calculation is provided in Appendix A.

Pump Redundancy

If an installed sump serves 2 or more FDD equivalents, then a redundant sump pump system shall be installed. If a redundant sump pump system is installed, each of the installed pumps shall be of equal size, and the operation of the sump pumps shall be alternated to equalize pump wear. If there is a failure of either of the pumps, then the failure must be alarmed with an internal visual and audible alarm system as well as an external visual alarm system. The AC powered alarm shall sound if there is a failure of either pump, or if both pumps are operational and the water level continues to rise.

Electrical Power

The electrical power provided for the sump pump system shall be on an independent circuit that includes a single electrical box. This electrical circuit must have a rating of a minimum of 20 A. This circuit can be used for powering a backup sump pump as well as the primary sump pump(s). If the pumping system requires electrical power in excess of 20A, then a properly sized circuit shall be provided to power all installed sump pumps. If alarming is provided, then an independent circuit shall be provided for the alarming.

Summary

The FDD credit applicant is responsible for taking care of the following items to receive credit for the disconnection for multi-unit structures:

- ~~Preconstruction Multi-Unit FDD Calculations – Calculation of the proposed site credit, with City approval required prior to construction~~
- ~~Discharge System Design Calculations (Example in Appendix A, to be included as part of the FDD Credit Application)~~
- ~~Surface Drainage Report – Part of FDD Credit Application~~
- ~~Arrange an on-site inspection with the CM after the disconnection has been made and restoration is nearly complete.~~

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- ~~Provide photos of the pre-existing condition of the property and photos confirming a disconnection was made~~
- ~~Provide closed building permits for plumbing and electrical work~~
- ~~Provide discharge permits (county drain or right-of-way) as needed~~
- ~~Complete video verification and as-built documentation of any installed curb drain or discharge line.~~
- ~~Notify the CM of any other relevant information~~
- ~~Provide any additional design documents and calculations for structures~~

Any exceptions to the verification items above need to be approved by the FDD Project Manager.

VI. ~~Discharge Locations~~

~~For properties that have an on-site storm water discharge location for connection (including curb inlets, manholes, storm drains, etc.), or one fronting the property in a public right-of-way or easement, the contractor should tap into this structure with the sump pump discharge line (or approved surface discharge to open channel storm drain). In many cases, a storm water discharge location is unavailable. For the FDD program, the City of Ann Arbor employs a curb drain contractor, who installs a shallow drainage network of HDPE pipe to service the properties scheduled for disconnection. The City of Ann Arbor will install curb drain when requested for developer mitigation using our existing curb drain contract based on the following conditions:~~

- A. ~~The developer pays for the curb drain based on our current construction and CM services costs per foot for installed curb drain across the entire frontage for properties where the property owners have agreed to have the FDD development mitigation work performed. Curb drain costs must be paid to the city before curb drain will be installed or before FDD mitigation credit will be given for certificates of occupancy for curb drain previously installed by the city.~~
- B. ~~Property frontages that must be crossed to install curb drain between an FDD development mitigation property and a connection to a curb inlet structure will be funded 50% by the developer. If these property owners later decide to participate in the developer mitigation the additional 50% must also be reimbursed to the city by the developer for performing FDD work at these properties.~~
- C. ~~If it makes good construction/economic sense to extend the curb drain beyond properties initially participating in the developer mitigation (item A.) then the city will pay for the cost of installing curb drain across the frontages of properties up to the point the curb drain section terminates (cleanout). If developers later convince these property owners to participate in their FDD~~

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~~development mitigation efforts the entire cost must be reimbursed to the city for actual footage of curb drain installed across the properties prior to receiving FDD mitigation credit for certificates of occupancy.~~

~~D. The development mitigation areas are not deemed FDD program areas until specifically designated by FDD project staff and property owners not participating in development mitigation will not be required to perform FDD work in accordance with the program guidelines until such time as this area is designated for FDD program work.~~

~~E. If a property owner decides to perform the footing drain disconnection (without participation of a developer) in advance of the "development mitigation" area being designated as a "program" area, the property owner may do so and will be reimbursed by the city in the next city budget cycle (up to 18 months). Credit for FDD development mitigation will not be granted to developers for these footing drain disconnected properties. Property owners will be reimbursed by the city and curb drain paid for by the city for these homes.~~

~~The steps that a developer should take to request this curb drain are as follows:~~

~~Contact the CM by letter or email with a list of properties to be disconnected and a proposed curb drain layout. The CM will visit the site(s) and evaluate the proposed layout to ensure the above requirements are met, and that the installation is feasible for the curb drain contractor. Before construction, the final layout and estimated costs will be reviewed with the contractor and/or developer. After payment to the city, the CM will then forward the request to the curb drain contractor and will arrange for the work to be completed on a date such that the FDD schedule is not negatively impacted. The anticipated completion date will depend on the progress of the curb drain contractor on FDD work, and on their ability to mobilize effectively to the new area. When construction is complete, the CM will document the condition and as-built measurements of the pipe.~~

~~Curb drain may also be installed by a contractor not affiliated with the FDD program, but any layouts for this work must be approved in advance by the FDD project manager and construction manager to ensure that no interference with future FDD program curb drain installation will occur. In addition, any curb drain installed must meet the requirements of the City of Ann Arbor building department and all necessary permits must be obtained. As-built drawings including pipe offset and depth measurements must be included and pipe slope verification via televising must be performed and submitted to the FDD construction manager.~~

~~As an alternative to installing curb drain, the developer/contractor may choose to manage the sump pump discharges on the property. Some options include the installation of an acceptable infiltration system, a surface discharge, or a sump garden designed to handle these flows. For this to be approved for a credit, the contractor must show the CM that a design was created that will effectively manage the water~~

**Footing Drain Disconnections City
of Ann Arbor - Developer Offset-
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on-site, without causing any nuisance flows for the property owner, neighboring properties, or the city right-of-way/easement. The City of Ann Arbor Building Department must also approve any on-site sump flow management.

SANITARY FLOW OFFSET MITIGATION FOR DEVELOPMENT

The Offset Mitigation Program was established to aid in protecting the health and safety of our community and environment by not allowing new development to exacerbate sewage collection system capacity issues or "MDEQ permitted" overflows of partially treated sewage by our treatment plant to the Huron River. The goal of the program is to offset sewage flow added to the sanitary sewer system by new development and to gradually gain back lost system capacity through applying a 20% System Recovery Factor as part of the requirement. Studies have shown that footing drain flows during rain events are the root cause of system capacity concerns and increase collection system flows by as much as 10-20 times the normal dry weather flow. Removing these footing drain flows has been the key method selected by developers to meet offset mitigation requirements.

Calculation Examples :

Site 1: 48-Appartment Units (each apartment is 900 sf - then from Table A Design Flow = 275gpd/unit)

48 units x 275 GPD/unit = 13200 GPD

Peak flow = 13200 GPD x 4 (peaking factor) x 1.2 (System Recovery Factor) = 63360 GPD (63360 GPD x 1day/24hours x 1hour/60minutes = 44 GPM peak flow)

Using 4 GPM/home footing drain flow (Value based on sump pump flow monitoring)

Footing Drains to Disconnect = 44 GPM/4 GPM per footing drain = 11 FDD: This development would be required to disconnect eleven footing drains from the sanitary sewer system.

Site 2: Office Building (non-medical) 60,000 sf gross area - then from Table A Design Flow = 0.06 gpd/sf gr floor area

Proposed development has 60,000 sf x .06 gpd/sf = 3600 GPD

Peak flow = 3600 GPD x 4 (peaking factor) x 1.2 (System Recovery Factor) = 17280 GPD (17280 GPD x 1day/24hours x 1hour/60minutes = 12 GPM peak flow)

Using 4 GPM/home footing drain flow (Value based on sump pump flow monitoring)

Footing Drains to Disconnect = 12 GPM/4 GPM per footing drain = 3 FDD: This development would be required to disconnect three footing drains from the sanitary sewer system.

TABLE A

TYPE OF FACILITY OR USE	DESIGN DRY WEATHER FLOW RATE
Single Family Residence	350 gpd
Two Family Residence	700 gpd
Apartment to a single family unit (up to 400 sq. ft)	200 gpd
Motels with kitchenettes, apartments, condos, mobile homes, trailers, co-ops, etc. up to 600 sq. ft. of gross floor area	200 gpd/unit
Motels with kitchenettes, apartments, condos, mobile homes, trailers, co-ops, etc. up to 601 — 1200 sq. ft. of gross floor area	275 gpd/unit
Motels with kitchenettes, apartments, condos, mobile homes, trailers, co-ops, etc. greater than 1200 sq. ft. of gross floor area	350 gpd/unit
Motel unit less than 400 sq. ft.	100 gpd/unit
Motel unit greater than 400 sq. ft.	150 gpd/unit
Hospital (without laundry)	150 gpd/bed
Hospital	300 gpd/bed
University housing, rooming house, institutions	75 gpd/capita
Cafeteria (integral to an office or industrial building)	2.50 gpd/capita
Non-Medical Office space	0.06 gpd/sf gr. floor area
General Industrial Space	0.04 gpd/sf gr. floor area
Medical Arts (doctor, dentist, urgent care)	0.10 gpd/sf gr. floor area
Auditorium/Theater	5 gpd/seat
Bowling alley, tennis court	100 gpd/crt - alley + food
Nursing Home	150 gpd/bed
Church	1.50 gpd/capita
Restaurant (16 seat minimum or any size with dishwasher)	30 gpd/seat
Restaurant (fast food)	20 gpd/seat
Wet Store - Food processing	0.15 gpd/sf gr. floor area
Wet Store no food (barbershop, beauty salon, etc.)	0.10 gpd/sf gr. floor area
Dry Store (no process water discharge)	0.03 gpd/sf gr. floor area
Catering Hall	7.50 gpd/capita
Market	0.05 gpd/sf gr. floor area
Bar, Tavern, Disco	15 gpd/occupant + food
Bath House	5 gpd/occ. + 5gpd/shower
Swimming Pool	20 gpd/capita
Service Stations	300 gpd/double hose pump
Shopping Centers	0.02 gpd/sf gr. sales area
Warehouse	0.02 gpd/sf gr. area
Laundry	425 gpd/laundry machine
Schools, nursery and elementary	10 gpd/student
Schools, high and middle	20 gpd/student
Summer Camps	160 gpd/bed
Spa, Country Club	0.30 gpd.sf. gr. floor area
Industrial Facility, Large Research Facility	"Determined by Authority of
Others (car wash, etc.)	Water Utilities Director"

*** Values in Table A (above) are from or derived from the following sources:**

Michigan Guidelines for Subsurface Sewage Disposal, 1977
 Schedule of Unit Assignment Factors, 1988, Oakland County Public Works (Michigan)
 Basis of Design, Scio Township (Michigan)
 Sewer Design, 1992, Los Angeles Bureau of Engineering
 Equivalent Residential Unit Determination, University of Central Florida
 Standard Handbook of Environmental Engineering, 1989, Robert Corbitt



STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
LANSING



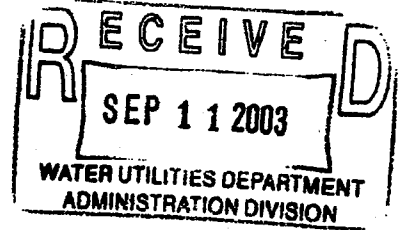
JENNIFER M. GRANHOLM
GOVERNOR

STEVEN E. CHESTER
DIRECTOR

September 8, 2003

CERTIFIED MAIL 7000 0520 0016 5014 9710

Ms. Sue McCormick, Director of Utilities
City of Ann Arbor
P.O. Box 8647
Ann Arbor, Michigan 48107-8647



SUBJECT: Administrative Consent Order ACO-SW03-003

Dear Ms. McCormick:

Enclosed please find a fully executed Administrative Consent Order (Consent Order) for the City of Ann Arbor (City). This Consent Order was entered into between the Department of Environmental Quality (DEQ) and the City on September 4, 2003. Payment of the cost reimbursement and the civil penalty, payable to the DEQ, as required in the Consent Order, was received on September 2, 2003.

Please contact me if you have any questions. Thank you.

Sincerely,

Jodie N. Taylor, Environmental Engineer
Enforcement Unit
Field Operations Section
Water Division
517-373-8545
517-373-2040 Telefax

Enclosure

cc/enc: Mr. Jon Russell, DEQ
Ms. Edwyna McKee, DEQ

SEP 19 2003

CITY ATTORNEY'S
OFFICE

**STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
WATER DIVISION**

In the matter of administrative
proceedings against:

ACO-SW03-003
Date Entered: September 4, 2003

City of Ann Arbor
100 North Fifth Avenue
P.O. Box 8647
Ann Arbor, Michigan 48107

ADMINISTRATIVE CONSENT ORDER

This proceeding results from allegations by the Water Division (WD) of the Department of Environmental Quality (DEQ). The DEQ alleges that the City of Ann Arbor (City), which owns and operates a wastewater treatment plant (WWTP), located at 49 South Dixboro Road, Ann Arbor, County of Washtenaw, Michigan, is in violation of Part 31, Water Resources Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA) MCL 324.3101 et seq.; and the rules promulgated under Part 31. The City and the DEQ agree to resolve the violations set forth in the Findings section of this Consent Order and to terminate this proceeding by entry of this Consent Order.

I. STIPULATIONS

The City and the DEQ stipulate as follows:

- 1.1 The NREPA, MCL 324.101 et seq. is an act that controls pollution to protect the environment and natural resources in the state.
- 1.2 Article II, Pollution Control, Part 31, Water Resources Protection, of the NREPA (Part 31), MCL 324.3101 et seq., and rules promulgated pursuant thereto, provides for the protection, conservation, and the control of pollution of the water resources of the state.
- 1.3 Section 3109(1) of Part 31 states: "A person shall not directly or indirectly discharge into the waters of the state a substance that is or may become injurious to: the public health, safety, or welfare; to domestic, commercial, industrial, agricultural, recreational, or other

- uses that are being made or may be made of such waters; to the value or utility of riparian lands, or to livestock, wild animals, birds, fish, aquatic life, or plants or to the growth or propagation, or the growth or propagation thereof be prevented or injuriously affected; or whereby the value of fish and game is or may be destroyed or impaired.”
- 1.4 Section 3112(1) of Part 31 states: “A person shall not discharge any waste or waste effluent into the waters of this state unless that person is in possession of a valid permit from the Department.”
 - 1.5 The DEQ is authorized by Section 3112(2) of Part 31 of the NREPA to enter orders requiring persons to abate pollution and, therefore, the Director has authority to enter this Consent Order with the City.
 - 1.6 The Director has delegated authority to the Division Chief of the WD to enter into this Consent Order.
 - 1.7 The City and the DEQ agree that the signing of this Consent Order is for settlement purposes only and does not constitute an admission by the City that the law has been violated.
 - 1.8 This Consent Order becomes effective on the date of execution (“effective date of this Consent Order”) by the WD Chief.
 - 1.9 The City shall achieve compliance with the aforementioned regulations in accordance with the requirements contained in Section III, Compliance Program, of this Consent Order.

II. FINDINGS

- 2.1 The City discharges treated municipal wastewater from its WWTP through outfall 001A to the Huron River authorized by National Pollutant Discharge Elimination System Permit Number MI0022217 issued by the DEQ on December 19, 2000.

- 2.2 The City completed a Sanitary Sewer Trunk Line Study in 1995. The study was undertaken to evaluate the major sewage transport system to determine what system improvements would be needed to meet the City's immediate and future sewage transportation needs. Sewer system improvements were identified. Specific modifications were prioritized and the work is ongoing.
- 2.3 During heavy rain events the City's sanitary sewer system experiences excessive inflow and infiltration resulting in Sanitary Sewer Overflows (SSOs). The following chart lists the dates and discharge volumes of SSOs that occurred between March 1997 and June 2002, from the City's sanitary sewer system and/or bypasses at the WWTP.

List of Dates and Volume of Discharges from the City of Ann Arbor Sanitary Sewer System:

Date of SSO	Volume Discharged (gallons)	Cause of SSO
March 31, 1997	200	Sewer blockage
September 5, 1997	Unknown	Sewer blockage
March 9, 1998	Unknown	Surcharging manholes at three separate locations due to heavy rains. Basement floodings also occurred.
July 8, 1998	150-200	Sewer blockage
August 6, 1998	168,000	Bypass at outfall 002 due to heavy rains. Hydraulic pumping capacity exceeded.
September 29, 1998	Unknown	Broken sanitary sewer line
March 30, 1999	Unknown	Sewer blockage
April 23-24, 1999	1,120,000	Bypass at outfall 005 due to heavy rains.
July 10, 2000	Unknown	SSO on Swift Run Trunk Line due to heavy rains.
July 6, 2001	Unknown	Sewer blockage caused by roots
October 17, 2001	2,000	Heavy rained caused flows to inadvertently enter influent channel at plant which was under construction and overflow to storm sewer.
April 22, 2002	200	Plugged sanitary sewer main
June 24, 2002	700	Force main break

III. COMPLIANCE PROGRAM

IT IS THEREFORE AGREED AND ORDERED THAT the City will take the following actions to work toward the elimination of SSOs and prevent further violations of Part 31 of the NREPA:

FOOTING DRAIN DISCONNECTION (FDD) PROJECT

- 3.1 In order to eliminate SSOs, flow must be removed from the sanitary sewer system. The primary method of flow reduction selected by the City is FDD. The scope of services for monitoring flow removals achieved by the FDDs is contained in Appendix A. Field investigation by City personnel revealed the range of footing drain flows to the sanitary sewer system to be 2–15 gallon/minute (gpm) per individual footing drain connection. Using an assumed average flow of 4 gpm per footing drain connection, the City shall perform FDDs within the sanitary sewer system at 620 locations. Footing drain connections at 155 locations will be removed from the City sanitary sewer system on or before **June 30, 2004 and every year thereafter by June 30 through June 30, 2007 or until 620 FDDs are completed as required by this Consent Order.**

Monitoring of flows from a representative sampling of FDDs will occur during the first two years of the project, from January 2001 to January 2003. The purpose of this monitoring is to confirm the flows being removed from the sanitary sewer system. Should the City fail to confirm that adequate flows are being removed from the sanitary sewer system flow monitoring shall continue at the discretion of the Jackson District Office Supervisor.

- 3.2 Flow monitoring and hydraulic modeling shall be conducted system-wide to certify that the system meets or will meet criterion based upon a corrective action plan. The criterion specified shall be the design criterion for transport throughout the sewer system of peak flows equal to the maximum hourly flow produced by a historically typical 25-year, 24-hour precipitation event during growth conditions and normal soil moisture and provide storage for subsequent treatment of excess flow which is generated by a 25-year, 24-hour precipitation event; or shall be the performance criterion of transport throughout the sewer system of peak flows produced by historically typical precipitation events resulting

in a predictable long-term average occurrence of SSOs no more frequently than one every ten years. This certification shall be submitted to the DEQ, WD, District Supervisor, 301 E. Glick Highway, Jackson, Michigan 49201, on or before **June 30, 2006.**

OFFSET MITIGATION PROGRAM

3.3 The City shall immediately implement an Offset-Mitigation Program (O-MP) that requires for each new premise connected to the system, that there shall be a reduction of 1,680 gallons per day (gpd) per residential equivalent unit of peak flow I/I in the City's sanitary sewer system. Pre-existing residential dwelling units served by on-site sewage treatment systems shall be exempt from required offset-mitigation. Each single-family residential unit (r.u.) shall be equivalent to 350 gpd. Dry weather flows for other uses shall be determined based on the city's Table A, which is contained in Appendix B. Credits shall be granted by the DEQ based on a 4-gpm rate for residential footing drains. Credits may be achieved through the removal of illegitimate connections, the removal of footing drains, roof drains, parking lot drains or other approvable actions that remove flow from the City's sanitary sewer system. The City shall submit to the DEQ the total number of credits achieved, the descriptions of actions taken, addresses where actions were taken and the calculations supporting those credits with each Part 41 permit application. The total number of credits granted to the City at the onset of this O-MP shall be 179, which is based upon the number of FDDs completed by the City since the start of the City's program in October 2000 and completed prior to June 30, 2003. The 179 is a credit bank and does not count against the 155 FDD per year required in Paragraph 3.1. Subsequent credits shall be granted to the City annually on June 30 each year based upon actual FDDs (155) completed during the previous 12 months with no credit being earned for the first 145 FDDs removed per year, for each year during the term of this Consent Order.

Where new premises are connected to the City system in areas outside the jurisdictional boundary of the City, the DEQ shall require the Part 41 permit applicant to demonstrate as a condition of the permit issuance that the collection system capacity exists or is being provided by a specific agreement with the City. The DEQ shall accept a statement with supporting documentation consistent with the Part 41 permit application process from the

City certifying that collection system capacity is available, along with supporting data, as sufficient demonstration for the permit applicant. Collection system capacity for premises connected in areas outside of the City's jurisdiction may be provided by contractual means, specified agreement or off-set mitigation as provided for in the O-MP contained herein.

- 3.4 An annual progress report detailing the number of footing drain locations disconnected and any additional flow removed to offset development from the City sanitary sewer system, including any flow monitoring data obtained to confirm flows, to confirm that the objectives of the FDD project are being met for the 12 months preceding June 30 shall be submitted to the DEQ on or before **July 30 of each year beginning July 30, 2004 and ending July 30, 2007.**

The DEQ will verify the data in the annual report in a timely manner after receipt of the report. Should the City fail to prove that the objectives of the FDD project and O-MP have been achieved, the DEQ reserves the right to delay issuance of Part 41 permits until the City can prove that said objectives have been met. The O-MP may be modified by mutual agreement at the request of the City or the DEQ. The O-MP shall terminate upon the expiration date of this Consent Order.

SWIFT RUN TRUNK PROJECT

- 3.5 The City shall submit an approvable work plan and accompanying schedule for improvements that are to be made to the Swift Run Trunk sewer in order to work toward the elimination of SSOs and to correct capacity issues to the DEQ on or before **June 30, 2005.** The approvable schedule shall be incorporated into this Consent Order as an enforceable requirement by reference. See Section IV for specifications regarding DEQ approval of the Swift Run Trunk submittals.
- 3.6 The City shall submit all reports, work plans, specifications, schedules, or any other writing required by this section to the District Supervisor, WD, DEQ, 301 E. Louis B. Glick Hwy., 4th Floor, Jackson, Michigan 49201. The cover letter with each submittal shall

Identify the specific paragraph and requirement of this Consent Order that the submittal is intended to satisfy.

IV. DEQ APPROVAL OF SUBMITTALS

- 4.1 All work plans, proposals, and other documents, excluding applications for permits or licenses, that are required by this Consent Order shall be submitted by the City to the DEQ for review and approval.
- 4.2 All work plans, proposals, and other documents required to be submitted by this Consent Order shall include all of the information required by the applicable statute and/or rule, and all of the information required by the applicable paragraph(s) of this Consent Order.
- 4.3 In the event the DEQ disapproves a work plan, proposal, or other document, it will notify the City, in writing, of the specific reasons for such disapproval. The City shall submit, within thirty (30) days of receipt of such disapproval, a revised work plan, proposal, or other document which adequately addresses the reasons for the DEQ's disapproval. Disapproval of the revised work plan, proposal and other document constitutes a violation of the Consent Order requirements and is subject to stipulated penalties according to Section IX.
- 4.4 In the event the DEQ approves with specific modifications, a work plan, proposal, or other document, it will notify the City, in writing, of the specific modifications required to be made to such work plan, proposal, or other document prior to its implementation and the specific reasons for such modifications. The DEQ may require the City to submit, prior to implementation and within thirty (30) days of receipt of such approval with specific modifications, a revised work plan, proposal, or other document which adequately addresses such modifications. If the revised work plan, proposal or other document is still not acceptable to the DEQ, the DEQ will notify the City of this disapproval. Disapproval of the revised work plan, proposal and other document constitutes a violation of the Consent Order requirements and is subject to stipulated penalties according to Section IX.

- 4.5 Any delays caused by the City's failure to submit an approvable work plan, proposal, or other document when due shall in no way affect or alter the City's responsibility to comply with any other deadline(s) specified in this Consent Order.
- 4.6 No informal advice, guidance, suggestions, or comments by the DEQ regarding reports, work plans, plans, specifications, schedules or any other writing submitted by the City will be construed as relieving the City of its obligation to obtain written approval, if and when required by this Consent Order.

V. EXTENSIONS

- 5.1 The City and the DEQ agree that the DEQ may grant the City a reasonable extension of the specified deadlines set forth in this Consent Order. Any extension shall be preceded by a timely written request to the Jackson District Supervisor at the address in paragraph 3.2, and shall include:
- a. Identification of the specific deadline(s) of this Consent Order that will not be met,
 - b. A detailed description of the circumstances which will prevent the City from meeting the deadline(s),
 - c. A description of the measures the City has taken and/or intends to take to meet the required deadline; and
 - d. The length of the extension requested and the specific date on which the obligation will be met.

The DEQ shall respond in writing to such requests. No change or modification to this Consent Order shall be valid unless in writing from the DEQ, and if applicable, signed by both parties.

VI. REPORTING

6.1 The City shall verbally report any violation(s) of the terms and conditions of this Consent Order to the Jackson District Supervisor by no later than the close of the next business day following detection of such violation(s) and shall follow such notification with a written report within five (5) business days following detection of such violation(s). The written report shall include a detailed description of the violation(s), as well as a description of any actions proposed or taken to correct the violation(s). The City shall report any anticipated violation(s) of this Consent Order to the above-referenced individual in advance of the relevant deadlines whenever possible.

VII. RETENTION OF RECORDS

7.1 Upon request by an authorized representative of the DEQ, the City shall make available to the DEQ all records, plans, logs, and other documents required to be maintained under this Consent Order or pursuant to Part 31 of the NREPA or its rules. All such documents shall be retained by the City for at least a period of three (3) years from the date of generation of the record unless a longer period of record retention is required by Part 31 of the NREPA, or its rules.

VIII. RIGHT OF ENTRY

8.1 The City shall allow any authorized representative or contractor of the DEQ, upon presentation of proper credentials, to enter upon the premises of the Ann Arbor WWTP at all reasonable times for the purpose of monitoring compliance with the provisions of this Consent Order. This paragraph in no way limits the authority of the DEQ to conduct tests and inspections pursuant to the NREPA and the rules promulgated there under, or any other applicable statutory provision.

IX. PENALTIES

9.1 The City agrees to pay to the State of Michigan **TWENTY-FIVE HUNDRED (\$2,500) DOLLARS** as partial compensation for the cost of investigations and enforcement activities arising from the discharge of sanitary sewage to waters of the state. Payment

shall be made within thirty (30) days in accordance with paragraph 9.5.

- 9.2 The City agrees to pay a civil penalty of **SEVENTY FIVE HUNDRED (\$7,500) DOLLARS** for the illegal discharge of sanitary sewage to waters of the state. Payment shall be made within thirty (30) days in accordance with paragraph 9.5.
- 9.3 The City agrees to pay stipulated penalties of **ONE THOUSAND (\$1,000) DOLLARS** per day for each failure to meet the requirements or dates of the corrective program set forth in Section III, Compliance Program of this Consent Order. The City shall pay accrued stipulated penalties by check made payable to the State of Michigan and delivered to the address in paragraph 9.5 no later than ten (10) days after the end of the month in which violations occurred and without request from the DEQ.
- 9.4 To ensure timely payment of the above civil fine, costs, and stipulated penalties, the City shall pay an interest penalty to the General Fund of the State of Michigan each time it fails to make a complete or timely payment. This interest penalty shall be based on the rate set forth at MCL 600.6013(6), using the full increment of amount due as principal, and calculated from the due date for the payment until the delinquent payment is finally made in full.
- 9.5 The City agrees to pay all funds due pursuant to this agreement by check made payable to the State of Michigan and delivered to the Michigan Department of Environmental Quality, Financial & Business Services Division, Revenue Control Unit, P.O. Box 30657, 525 West Allegan Street, 5th floor south, Lansing, MI 48909. To ensure proper credit, all payments made pursuant to this Order must include the **Payment Identification Number WTR3010**. All funds shall be paid within thirty (30) days of entry of this agreement unless otherwise noted.
- 9.6 The City agrees not to contest the legality of the civil fine or costs paid pursuant to paragraphs 9.1, and 9.2, above. The City further agrees not to contest the legality of any stipulated penalties or interest penalties assessed pursuant to paragraphs 9.3 and 9.4, above, but reserves the right to dispute the factual basis upon which a demand by the DEQ for stipulated penalties or interest penalties is made.

- 9.7 Any penalty not received by the DEQ for a violation under this Consent Order within the deadline defined herein constitutes a separate violation subject to additional stipulated penalties.

X. DISPUTE RESOLUTION

- 10.1 Unless otherwise provided in this Consent Order, the dispute resolution procedures of this section shall be the exclusive mechanism to resolve disputes arising under or with respect to this Consent Order. However, the procedures set forth in this section shall not apply to actions by the state to enforce obligations of the City that are not disputed in accordance with this section. Initiation of formal or informal dispute resolution shall not be cause for the City to delay the performance of any compliance requirements or response activity.
- 10.2 Any dispute that arises under this Consent Order shall in the first instance be the subject of informal negotiations between the parties. The period of negotiations shall not exceed twenty (20) days from the date of written notice by any party that a dispute has arisen, unless the time period for negotiations is modified by written agreement between the parties. A dispute under this section shall occur when one party sends the other party a written notice of dispute. If agreement cannot be reached on any issue within this twenty (20)-day period, the DEQ shall provide a written statement of its decision to the City and, in the absence of initiation of formal dispute resolution by the City under paragraph 10.3, the DEQ position, as outlined in its written informal decision, shall be binding on the parties.
- 10.3 If the City and the DEQ cannot informally resolve a dispute under paragraph 10.2, the City may initiate formal dispute resolution by requesting review of the disputed issues by the DEQ, WD Chief. This written request must be filed with the DEQ, WD Chief within fifteen (15) days of the City's receipt of the DEQ's informal decision that is issued at the conclusion of the informal dispute resolution procedure set forth in paragraph 10.2. The City's request shall state the issues in dispute; the relevant facts upon which the dispute is based; any factual data, analysis, or opinion supporting its position; and all supporting documentation upon which the City bases its position. Within twenty-one (21) days of the WD Chief's receipt of the City's request for a review of disputed issues, the WD Chief will

provide a written statement of decision to the City, which will include a statement of his/her understanding of the issues in dispute; the relevant facts upon which the dispute is based; any factual data, analysis, or opinion supporting her/his position; and all supporting documentation relied upon by the WD Chief's review of the disputed issues. The WD Chief's time period for review of the disputed issues may be extended by written agreement of the parties.

- 10.4 The written statement of the WD Chief issued under paragraph 10.3 shall be a final decision and is binding on the parties unless, within twenty-one (21) days under the Revised Judicature Act after receipt of DEQ's written statement of decision, the City files a petition for judicial review in a court of competent jurisdiction that shall set forth a description of the matter in dispute, the efforts made by the parties to resolve it, the relief requested, and the schedule, if any, within which the dispute must be resolved to ensure orderly implementation of this Consent Order.
- 10.5 An administrative record of the dispute shall be maintained by DEQ. The administrative record shall include all of the information provided by the City pursuant to paragraph 10.3, as well as any other documents relied upon by DEQ in making its final decision pursuant to paragraph 10.3. Where appropriate, DEQ shall allow submission of supplemental statements of position by the parties to the dispute.
- 10.6 In proceeding on any dispute as to whether the City has met its obligations under this Consent Order, and on all other disputes that are initiated by the DEQ, the DEQ shall bear the burden of persuasion on issues of both fact and law. In proceedings on all other disputes initiated by the City, the City shall bear the burden of persuasion on issues of fact and law.
- 10.7 Notwithstanding the invocation of dispute resolution procedures under this section, stipulated penalties shall accrue from the first day of any failure or refusal to comply with any term or condition of this Consent Order, but payment shall be stayed pending resolution of the dispute. Stipulated penalties shall be paid within thirty (30) days after resolution of the dispute. The City shall pay that portion of a demand for payment of stipulated penalties that is not subject to dispute resolution procedures in accordance

with and in the manner provided in Section IX (Penalties). Failure to make payment by the City within the 30-day deadline constitutes a separate violation of the agreement and is subject to additional stipulated penalties.

XI. FORCE MAJEURE

- 11.1 The City shall perform the requirements of this Consent Order within the time limits established herein, unless performance is prevented or delayed by events that constitute a "Force Majeure." Any delay in the performance attributable to a "Force Majeure" shall not be deemed a violation of the City's obligations under this Consent Order in accordance with this section.
- 11.2 For the purpose of this Consent Order, "Force Majeure" means an occurrence or non-occurrence arising from causes not foreseeable, beyond the control of, and without the fault of the City and that delay the performance of an obligation under the Consent Order, such as, but not limited to: an Act of God, untimely review of permit applications or submissions by the DEQ or other applicable authority, and acts or omissions of third parties that could not have been avoided or overcome by the City's diligence, such as, but not limited to strikes, lockouts, court orders and the unavailability of contractors to perform the work. "Force Majeure" does not include, among other things, unanticipated or increased costs, changed financial circumstances, or failure to obtain a permit or license as a result of the City's actions or omissions.
- 11.3 The City shall notify the DEQ, by telephone, within forty-eight (48) hours of discovering any event which causes a delay in its compliance with any provision of this Consent Order. Verbal notice shall be followed by written notice within ten (10) calendar days and shall describe, in detail, the anticipated length of delay, the precise cause or causes of delay, the measures taken by the City to prevent or minimize the delay, and the timetable by which those measures shall be implemented. The City shall adopt all reasonable measures to avoid or minimize any such delay.
- 11.4 Failure of the City to comply with the notice requirements and time periods under paragraph 11.3, shall render this Section XI void and of no force and effect as to the

particular incident involved. The DEQ may, at its sole discretion and in appropriate circumstances, waive in writing the notice requirements of paragraph 11.3, above.

- 11.5 If the parties agree that the delay or anticipated delay was beyond the control of the City, this may be so stipulated and the parties to this Consent Order may agree upon an appropriate modification of this Consent Order. If the parties to this Consent Order are unable to reach such agreement, the dispute shall be resolved in accordance with Section X (Dispute Resolution) of this Consent Order. The burden of proving that any delay was beyond the reasonable control of the City and that all the requirements of this Section XI have been met by the City rests with the City.
- 11.6 An extension of one compliance date based upon a particular incident does not necessarily mean that the City qualifies for an extension of a subsequent compliance date without providing proof regarding each incremental step or other requirement for which an extension is sought.

XII. GENERAL PROVISIONS

- 12.1 With respect to any violations not specifically addressed and resolved by this Consent Order, the DEQ reserves the right to pursue any other remedies to which it is entitled for any failure on the part of the City to comply with the requirements of the NREPA and its rules.
- 12.2 The DEQ and the City consent to enforcement of this Consent Order in the same manner and by the same procedures for all final orders entered pursuant to Part 31, MCL 324.3101 et seq.; and enforcement pursuant to Part 17, Michigan Environmental Protection Act, of the NREPA, MCL 324.1701 et seq.
- 12.3 This Consent Order in no way affects the City's responsibility to comply with any other applicable state, federal, or local laws or regulations.
- 12.4 The WD, at its discretion, may seek stipulated fines or statutory fines for any violation of this Consent Order. However, the WD is precluded from seeking both a stipulated fine under this Consent Order and a statutory fine for the same violation.

- 12.5 Nothing in this Consent Order is or shall be considered to affect any liability the City may have for natural resource damages caused by the City's ownership and/or operation of the Ann Arbor WWTP. The State of Michigan does not waive any rights to bring an appropriate action to recover such damages to the natural resources.
- 12.6 In the event the City sells or transfers the Ann Arbor WWTP, it shall advise any purchaser or transferee of the existence of this Consent Order in connection with such sale or transfer. Within thirty (30) calendar days, the City shall also notify the WD Jackson District Supervisor, in writing, of such sale or transfer, the identity and address of any purchaser or transferee, and confirm the fact that notice of this Consent Order has been given to the purchaser and/or transferee. The purchaser and/or transferee of this Consent Order must agree, in writing, to assume all of the obligations of this Consent Order. A copy of that agreement shall be forwarded to the WD Jackson District Supervisor within thirty (30) days of assuming the obligations of this Consent Order.
- 12.7 The provisions of this Consent Order shall apply to and be binding upon the parties to this action, and their successors and assigns. The City shall give notice of this Consent Order to any prospective successor in interest prior to transfer of ownership and shall notify the DEQ of such proposed sale or transfer.

XIII. TERMINATION

- 13.1 This Consent Order shall remain in full force until terminated by a written Notice of Termination issued by the DEQ. Prior to issuance of a written Notice of Termination, the City shall submit a request consisting of a written certification that the City has fully complied with the requirements of this Consent Order and has made payment of any fines, including stipulated penalties, required in this Consent Order. Specifically, this certification shall include:
- a. The date of compliance with each provision of the compliance program in section III, and the date any fines or penalties were paid,

- b. A statement that all required information has been reported to the District Supervisor; and
- c. Confirmation that all records required to be maintained pursuant to this Consent Order are being maintained at the Ann Arbor City Hall.

The DEQ may also request additional relevant information. The DEQ shall not unduly withhold issuance of a Notice of Termination.

Signatories

The undersigned CERTIFY they are fully authorized by the party they represent to enter into this Consent Order to comply by consent and to EXECUTE and LEGALLY BIND that party to it.

DEPARTMENT OF ENVIRONMENTAL QUALITY

Richard A. Powers
Richard A. Powers, Chief
Water Division

Richard A. Powers 9-4-07
Date

CITY OF ANN ARBOR

John Hieftje
By: John Hieftje, Mayor

8-25-03
Date

Kathleen M. Root
Kathleen M. Root, City Clerk

8-26-03
Date

Approved as to substance

Roger W. Fraser
By: Roger W. Fraser, City Administrator

8/21/03
Date

Sue McCormick
Sue McCormick, Director
Water Utilities Department

8/20/03
Date

Approved as to form

Stephen K. Postema *200*
By: Stephen K. Postema, City Attorney

8-20-03
Date

APPROVED AS TO FORM:

Alan F. Hoffman *8/28/03*
By: Alan F. Hoffman, Assistant Attorney General
For: A. Michael Leffler
Assistant Attorney General in Charge
Natural Resources, Environmental Protection and Agriculture Division
Michigan Department of Attorney General

APPENDIX A

Footing Drain Disconnection (FDD) Program Scope of Services and Other Activities

These final activities are performed to provide verification on removal of flows from the system and to assist with other public engagement needs.

Activity D1 Monitoring

Activity Objective: Coordinate sump pump discharge monitoring program. This effort will include the installation of sump pump monitors and collection of sump pump monitoring information as required. Install and collect information from rainfall gages. Provide 20 sump pump monitors for installation during the life of the project. Install half of the monitors for collection of data over an annual collection period and move the other half periodically (monthly) to gather data from a variety of sites. Install a total of five rain gages within the study areas. Provide analysis of the sump pump operational data and rainfall information. Calculate average footing drain flows from this monitoring information.

Approach and Work Plan

To assess the effectiveness of citywide implementation of the FDD program, footing drain discharges will be evaluated by monitoring the performance of the installed sump pumps. Sump pump monitors are recommended since a relatively small number of homes will be disconnected. Because of this, the flows in the sewer would be dominated by homes that are still connected and it would be difficult to determine the impacts of the disconnected homes using sewer monitoring. The CM will coordinate and install all sump pump discharge monitoring and rain gage monitoring equipment. This effort will include 20 sump pump event monitors and five tipping bucket rain gages installed, one in each of the five study areas.

The installed sump pump monitors will determine the on and off times of the sump pumps to within 0.5 seconds. During installation of the monitors, the pumping rates of the installed sump pump and discharge system will be measured for flow verification/calibration. From these two sources of information, the discharge rates versus time (hydrographs) will be developed. These will be evaluated based on the rainfall that took place for different storms. The sump pump monitors will be downloaded using a communication line installed to the outside of the home. The team will maintain 20 sump pump monitors during the life of the project. A total of 10 of these monitors will be installed at locations that are fixed for a year of monitoring and the remaining 10 monitors will be moved monthly. The fixed monitoring devices will remain in place to allow better understanding of the seasonal variation observed between the monitors. The remaining monitors will provide information on the variability of discharge throughout the areas that have FDD construction.

Statistics on the peak flows generated will be tied to GIS to determine whether spatial and/or topographic trends exist. If the GIS analysis indicates trends that can be extrapolated to the rest of the City, this analysis will be performed. If not, a general extrapolation of results will be made citywide with all assumptions documented. Through these monitoring efforts and extrapolation to the remainder of the City, a better understanding of how the long-term FDD program affects sanitary flows will be gained.

Products and Deliverables

- Provide raw and compiled data files from the monitoring work.
- Produce annual technical memoranda on sump pump performance.
- Provide a draft and final report that documents the collected information and evaluates program effectiveness at the end of the project. 6 – paper copies and 6 CD's of the final report will be provided with report in digital PDF and original format files.

**APPENDIX B
TABLE A**

TYPE OF FACILITY OR USE	DESIGN DRY WEATHER FLOW RATE
Single Family Residence	350 gpd
Two Family Residence	700 gpd
Apartment to a single family unit (up to 400 sq. ft)	200 gpd
Motels with kitchenettes, apartments, condos, mobile homes, trailers, co-ops, etc. up to 600 sq. ft. of gross floor area	200 gpd/unit
Motels with kitchenettes, apartments, condos, mobile homes, trailers, co-ops, etc. up to 601 – 1200 sq. ft. of gross floor area	275 gpd/unit
Motels with kitchenettes, apartments, condos, mobile homes, trailers, co-ops, etc. greater than 1200 sq. ft. of gross floor area	350 gpd/unit
Motel unit less than 400 sq. ft.	100 gpd/unit
Motel unit greater than 400 sq. ft.	150 gpd/unit
Hospital (without laundry)	150 gpd/bed
Hospital	300 gpd/bed
University housing, rooming house, institutions	75 gpd/capita
Cafeteria (integral to an office or industrial building)	2.50 gpd/capita
Non-Medical Office space	0.06 gpd/sf gr. floor area
General Industrial Space	0.04 gpd/sf gr. floor area
Medical Arts (doctor, dentist, urgent care)	0.10 gpd/sf gr. floor area
Auditorium/Theater	5 gpd/seat
Bowling alley, tennis court	100 gpd/crt - alley + food
Nursing Home	150 gpd/bed
Church	1.50 gpd/capita
Restaurant (16 seat minimum or any size with dishwasher)	30 gpd/seat
Restaurant (fast food)	20 gpd/seat
Wet Store - Food processing	0.15 gpd/sf gr. floor area
Wet Store no food (barbershop, beauty salon, etc.)	0.10 gpd/sf gr. floor area
Dry Store (no process water discharge)	0.03 gpd/sf gr. floor area
Catering Hall	7.50 gpd/capita
Market	0.05 gpd/sf gr. floor area
Bar, Tavern, Disco	15 gpd/occupant + food
Bath House	5 gpd/occ. + 5gpd/shower
Swimming Pool	20 gpd/capita
Service Stations	300 gpd/double hose pump
Shopping Centers	0.02 gpd/sf gr. sales area
Warehouse	0.02 gpd/sf gr. area
Laundry	425 gpd/laundry machine
Schools, nursery and elementary	10 gpd/student
Schools, high and middle	20 gpd/student
Summer Camps	160 gpd/bed
Spa, Country Club	0.30 gpd.sf. gr. floor area
Industrial Facility, Large Research Facility	"Determined by Authority of
Others (car wash, etc.)	Water Utilities Director"

Values in Table A are from or derived from the following sources:

Michigan Guidelines for Subsurface Sewage Disposal, 1977
 Schedule of Unit Assignment Factors, 1988, Oakland County Public Works (Michigan)
 Basis of Design, Scio Township (Michigan)
 Sewer Design, 1992, Los Angeles Bureau of Engineering
 Equivalent Residential Unit Determination, University of Central Florida
 Standard Handbook of Environmental Engineering, 1989, Robert Corbitt



City of Ann Arbor
Footing Drain Disconnect Program *and*
Sanitary Sewer System Flow Monitoring and
Wet Weather Evaluation project

Background and Purpose

The sanitary sewer system is designed to collect and move wastewater to the Ann Arbor Wastewater Treatment Plant (WWTP). Some stormwater also enters the sanitary sewer system by various means, such as flowing into the sanitary sewer manholes at street level, and seeping through small cracks in the underground pipes themselves. In addition, household footing drains present one of the most significant contributors of storm water entering the sanitary sewer pipes.

Footing drains are permeable pipes buried approximately at the level of a home's basement floor; set around the perimeter of a house, the drains divert storm- and groundwater away from the foundation to help keep the basement dry. Prior to the 1980s, footing drains were frequently connected directly to the sanitary sewer pipes, which are set at about the same depth. The problem with this arrangement is that during a heavy precipitation event, footing drains contribute an enormous volume of flow to the sanitary system, which can exceed the capacity of the system to move flows to the WWTP. When the sanitary sewer system is over-capacity, sewage may enter residents' homes through basement floor drains or through lower elevation plumbing fixtures, and sewage may overflow from manholes. Additionally, flow to the WWTP may exceed the plant's capacity and result in the discharge of partially-treated wastewater directly into the Huron River.

For many reasons, this situation is unacceptable. In 1999, after repeated instances of sanitary sewer basement backups occurring in homes throughout the City of Ann Arbor, a special task force – comprised of homeowners, city staff, and experts in related disciplines – was established. The “SSO Prevention Advisory Task Force” was charged with (1) defining the scope of sanitary sewer overflow (SSO) and sewage backup problems due to wet weather conditions, and (2) identifying and evaluating a range of potential solutions that would minimize future sewage backup events. Guided by an overarching principle of minimizing adverse impacts on public health, personal property, and the environment, the Task Force evaluated potential solutions – including replacing the existing sanitary sewer pipes with larger pipes, constructing local sanitary storage systems, and disconnecting household footing drains – using a variety of selection criteria including quality of life, cost, and construction impacts.

In June of 2001, the Task Force presented the results of their analysis in the “Sanitary Sewer Overflow (SSO) Prevention Study.” The document recommends the initiation of a comprehensive city-wide footing drain disconnection (FDD) program as the preferred solution. Though the program was designed for implementation throughout the city, five neighborhoods – representing about 5% of the geographic area and 50% of reported basement backup problems – were selected as “priority areas” where implementation would begin.

Also because of the sanitary sewer overflows at the WWTP, the City entered into an Administrative Consent Order (ACO) with the Michigan Department of Environmental Quality. One of the items contained in the ACO was that the City must implement an Offset-Mitigation Program. The purpose of



City of Ann Arbor
Footing Drain Disconnect Program *and*
Sanitary Sewer System Flow Monitoring and
Wet Weather Evaluation project

this program is to prevent new developments from exacerbating sewage collection system capacity issues. Before receiving a Certificate of Occupancy for a new development, a developer is required to have mitigated the increase in sanitary sewage flow from the new development by removing existing flow from the city sanitary system.

Ann Arbor City Council approved an ordinance initiating the Footing Drain Disconnection Program in October 2001, and approved a resolution establishing the Development Offset-Mitigation Program in August 2003. Since the inception of these programs, over 2,500 footing drains have been disconnected throughout the City, including nearly 98% of the homes in the Bromley and Orchard Hills priority areas, and nearly 80% in the Dartmoor priority area. Footing drains in approximately 60% of homes in the Morehead priority area, and approximately 55% of homes in the Glen Leven priority area, *have also been disconnected.*

Timeline

In September 2012, Ann Arbor City Council suspended the FDD program in the Glen Leven and Morehead (Lansdowne Neighborhood) areas to allow for an examination of the local stormwater system and existing surfacing flooding that residents are experiencing in that area. In addition, City Council directed City staff to conduct a review of certain aspects of the Footing Drain Disconnection Program during this suspension.

In November 2012, the City of Ann Arbor issued a Request for Proposals (RFP) to conduct a "Sanitary Sewer System Flow Monitoring and Wet Weather Evaluation." With the FDD program having been in place for over 10 years, it is appropriate to evaluate and document the effectiveness of the program on reducing the impacts of wet weather events on the City's sanitary sewer system. This review will allow the City to assess the sanitary basement backup risk that remains in the original five priority areas, and to identify other areas in the City that may require mitigation of their sanitary basement backup risk. In addition, advances in technology and wet weather control methodologies may have occurred over the past decade; therefore, the complete range of methods available for the future reduction of wet weather impacts will be reviewed and evaluated. In early February, a resolution will be sent to City Council to approve an agreement with a consultant to perform the study and the associated public engagement. The study will begin upon Council approval and last approximately 18 to 24 months.

For more information and/or to become involved, please contact:

Nick Hutchinson, Project Manager
Email: nhutchinson@a2gov.org
Phone: (734) 794-6430 ext. 43633

Cresson Slotten, Systems Planning Unit Manager
Email: cslotten@a2gov.org
Phone: (734) 794-6430 ext. 43701



JENNIFER M. GRANHOLM
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
LANSING

Ann Arbor WWTP
ACO

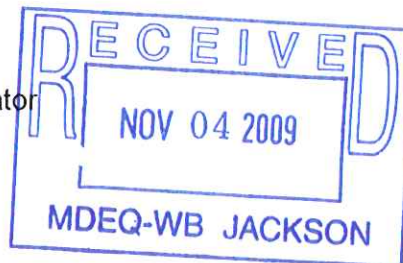


STEVEN E. CHESTER
DIRECTOR

November 3, 2009

CERTIFIED MAIL 7007 2560 0001 4602 8596

Ms. Sue F. McCormick, Public Services Area Administrator
City of Ann Arbor
Public Service Area
100 North Fifth Avenue
P.O. Box 8467
Ann Arbor, Michigan 48107



Dear Ms. McCormick:

SUBJECT: Notice of Termination (NOT)
Stipulation for Entry of Consent Order No. ACO-SW03-003 (Consent Order)

The Department of Environmental Quality (DEQ), Water Bureau (WB), has reviewed your letter dated October 7, 2009, requesting the termination of the Consent Order entered between the city of Ann Arbor (City) and the DEQ on September 4, 2003. The DEQ agrees that the City has satisfactorily completed all requirements of the Consent Order. The issuance of this NOT ends the City's obligations under the Consent Order.

The WB expects that the City will continue to operate its wastewater treatment plant in accordance with the City's National Pollutant Discharge Elimination System permit.

This NOT does not relieve the City of its obligation to comply with any applicable federal or state environmental laws, nor resolve any violations not specifically addressed in the Consent Order.

The DEQ appreciates your cooperation in this matter. If you have any questions about the NOT, please contact Ms. Karen Boase, Enforcement Specialist, Enforcement Unit, WB, at 517-241-0957, or you may contact me.

Sincerely,

William Creal, Chief
Water Bureau
517-335-4176

cc: Mr. Frank J. Baldwin, DEQ
Mr. Jon Russell, DEQ
Mr. Barry H. Selden, DEQ
Ms. Karen Boase, DEQ

775

Footing drain disconnections required by ACO

2013: Sanitary Sewer Wet Weather Evaluation Project begins with 3 goals:

1. Measure how much the FDD program reduced stormwater flow to the sanitary sewer system.
2. Assess the risk of future sanitary sewer basement backups.
3. Research and evaluate new ways to control the impacts of stormwater on the sanitary sewer system.

R-362-8-03 APPROVED

**RESOLUTION TO OFFSET DEVELOPMENT SEWAGE FLOWS THROUGH
SANITARY FLOW REMOVAL OR MITIGATION PRACTICES**

Whereas, City Council approved a resolution (R-401-8-00) on August 7, 2000 that directed city staff to explore options to limit the potential for exacerbating sanitary sewer backups;

Whereas, The Michigan Department of Environmental Quality (MDEQ) and the City of Ann Arbor have negotiated an Administrative Consent Order (ACO) to resolve alleged violations of the Natural Resources and Environmental Protection Act, 1994 PA 451; and

Whereas, Compliance with the ACO stipulates requirements for an Offset-Mitigation Program to reduce sanitary sewer flows for new connections to the sanitary system;

RESOLVED, That all property developments within the City of Ann Arbor requiring site plan submissions must offset-mitigate estimated sewage flows from the development;

RESOLVED, That all property developments within the City of Ann Arbor requiring application for a Part 41 Permit must offset-mitigate estimated sewage flows from the development;

RESOLVED, That County, public schools, colleges, universities and other government facilities on properties located within the City of Ann Arbor must offset-mitigate estimated sewage flows for new development;

RESOLVED, That offset-mitigation for new sanitary system connections into capacity constrained sewage districts must be offset or mitigated in the collection system upstream of the capacity constrained location;

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RESOLVED, That properties requiring site plan submissions must disconnect on-site footing drains from the sanitary sewer if an approved discharge location exists;

RESOLVED, That properties annexing into the city must disconnect on-site footing drains from the sanitary sewer if an approved discharge location exists;

RESOLVED, That new sanitary system connections for parcels currently using on-site sewage disposal systems shall be exempt from offset-mitigation requirements;

RESOLVED, That new sanitary system connections for flow additions less than the equivalent flow from a duplex residential unit and not requiring a Part 41 Permit application shall be exempt from offset-mitigation requirements;

RESOLVED, That in locations where Ann Arbor Township, Pittsfield Township or Scio Township contribute flow and adequate transport capacity within the city has not been

purchased by the township or constructed, the townships must agree to institute a policy equivalent to the City's policy for offset-mitigate of new sanitary sewer flow;

RESOLVED, That the Water Utilities Director has the authority to implement the Development Sewage Flow Offset-Mitigation Program and to modify calculation tables and factors to meet the ACO requirements; and

RESOLVED, That City Council authorize the City Administrator to take necessary administrative actions to implement this resolution.

Council Member Woods moved, seconded by Council Member Easthope, that the resolution be adopted.

On a voice vote, the Mayor declared the motion carried.