

# STAFF REPORT

Report #CAO2007-36

**To:** His Worship the Mayor and Members of Council

**From:** Jeff Carswell, Chief Administrative Officer

**Re:** Drainage Master Plan Review

**Date:** November 2, 2007

## **Background:**

This report attempts to provide some focus for dealing with the Tavistock Master Drainage Report, comments from the Public Meeting and comments from Council. Page iii from the executive summary is attached. It contains a list of the main recommendations that the Township should pursue. The CAO, Public Works Manager and Drainage Superintendent have met several times with respect to formulating specific actions in response the Drainage Master Plan. This report attempts to provide some specific discussion points and recommendations for Council consideration.

## **Discussion:**

The main recommendations from the Drainage Master Plan include Policy Changes, Lot Level Controls, Conveyance and Storage.

### ***Policy Changes***

Staff are currently reviewing the proposed policy changes and will provide a report and proposed by-law to implement those changes shortly. It should be noted that some of the recommendations are already Township Standards, so it is unclear as to why they were shown as recommendations. While the proposals from the Master Drainage Plan appear appropriate to provide maximum protection, the proposals may not be realistic if the Township ever wants development. Generally, as you increase the standards, that also increases the costs for the developer, which in turn could make the price of a lot higher than the market will bear. There was not any discussion in the Master Drainage Report about whether the proposed standards will result in a significant reduction in development potential. Before putting forward changes to the Development Standards, staff believes there should be additional investigation to ensure the proposals will not effectively stop all development.

It should also be noted the Township is moving forward on policies related to

site plan and development controls. A recent meeting with the Planning Department indicated a draft proposal should be available shortly. This policy guideline would provide significant assistance and guidance when dealing with individual development matters.

### ***Lot Level Controls – except Disconnects***

Many of the recommendations with respect to lot level controls are reasonable and some are currently included in development proposals the Township deals with. For example, parking lot storage is often used for commercial development. Many of these proposals will only work in specific situations and will have to be evaluated individually. For example, directing sump pumps to a rear yard may not be the preferred option if it only creates a wet, soggy area that cannot be used or affects a neighbour. This may work well in some areas of the Township but not others. The Township's current standard to provide a Private Drain Connection that must be pumped into likely provides a better level of service. Lot level controls will also be addressed in the site plan guidelines which are being developed.

With respect to lot level controls, a public education program may also be beneficial. For example, many properties could be better protected with proper grading away from the house, installation of window wells, fixing foundation cracks and other property maintenance. There are also innovative ideas in the community such as using sump pump discharge for lawn watering. Information such as this may be beneficial and provide much needed information to the public. It may also help to encourage residents to take responsibility for their property. Development of this information may be possible with Township resources.

### ***Lot Level Controls - Disconnects***

As this area also provides significant benefits to the County's wastewater system, it is suggested the Township initiate discussions with the County Public Works Department on options to try and increase disconnects from the storm system. It is suggested that the CAO, Public Works Manager and Drainage Superintendent meet with Public Works Staff and report back to Council on options or programs that could be developed. The group could also include political representation, if deemed necessary by Council. This task could be initiated quickly; however, development of a program in conjunction with the County could take time. It would make sense that if a program beyond the current interest free loan program is developed, that it be put in place by spring 2008 to facilitate disconnects taking place over the spring and summer. Discussion with the County should also include the County's preference on "dual connections". These are situations where

footing tiles were legally connected to the sanitary sewers, but have the potential to create significant, unnecessary flows into the sanitary system.

### ***Conveyance – except Overland Flow***

Staff believe some items need more investigation, such as the suggestion to restrict flow to the 1:2 year storm. Doing so will leave more water on the surface and if there are not private connections into a storm system, there is no need to restrict the flow to that level. This matter needs to be looked at individually for each area and may not make sense as a policy as properties are disconnected. It would make sense in areas where there are still connections to the storm system though.

Replacement of storm sewers to the suggested standard makes sense and could be incorporated into future reconstruction projects. As stated in the report, it is not possible to go in and replace storm sewers, unless it is part of a larger reconstruction project. It is normal practice for the Township to consider all underground services when completing a reconstruction project, so the recommendation regarding replacement of sewers is a normal practice.

### ***Storage & Overland Flow***

With respect to Overland Flow and Storage, there seems to be some debate about which should be the primary focus. Overland flow routes through an existing built up area will be difficult and expensive to secure. As well, it will likely take many years to secure all of the land that would be required to make a significant impact. There has also been the observation that there was little water damage from the overland flows into windows and doors. Often improvements to the structure and lot grading around the building would help to protect against flooding. These are items that every property owner needs to have consideration for and should be a property owner's responsibility. The Township often provides information on lot grading issues and whenever possible, requires proper lot grading through development agreements. The Township does not have the resources to proactively investigate and recommend on lot grading issues for all properties in the Township. As suggested above, an education program may provide some benefits. From this observation, would it make more sense to focus on storage initially?

Staff believe storage would likely provide the quickest, most significant benefit. Storage is required in all new developments and where possible, it could provide benefits to existing developments. Staff requires additional time to gather additional information on how to proceed in this area and

Council needs to allocate time on a future agenda to fully discuss the matter and develop a clear direction that staff can follow. As well, these two matters will be very expensive and take a substantial amount of time to complete. The likely location of any storage facilities would be on private property, outside of the Township and County. As well, there is some discussion about whether storage facilities should be constructed under the Municipal Drainage Act or as part of a storm sewer system.

Before proceeding to engage an engineer to develop detailed proposals for storage or overland flow routes, staff believes there needs to be a thorough discussion by Council and clear direction provided to staff. There also needs to be consideration with respect to the 2008 budget. These two items will incur significant engineering costs before any work is started. As discussed below, staff believe future engineering projects need to be more manageable and better defined in scope.

#### **Other Matters:**

##### ***Engineering Costs***

In looking back at some of the recent drainage works, staff believe that future engineering tasks need to be better defined and smaller in scope. While the Township tries to monitor the work of the engineers, it can be a difficult task, especially with larger projects. There needs to be a certain element of trust in these situations, as the Township does not have the expertise or time to micro-manage engineering work. In an effort to try and contain future engineering costs, it is suggested that we try to create smaller more manageable projects that Township staff can better supervise and ascertain the work completed. As well, it would be beneficial to more clearly identify the deliverables up front and try to obtain competitive quotes for the work required. This is the Township's normal process; however, due to desire to move quickly with respect to the Drainage Master Plan and some other works, the Township engaged RJ Burnside for these activities.

##### ***Mutual Agreement Drains***

The Township has entered into agreements and constructed two mutual agreement drains. The Janelle Drive work agreement was signed in November 2006 and the Westwood work agreement was signed in August 2007. These agreements were for 5 years in duration. It is suggested that the performance of this work be carefully monitored, and unless other works are completed that modifies or incorporates this work into another more permanent drainage system, that these systems be "transitioned" into a more permanent drainage system. Staff will have to investigate the options

available; however, the existing agreements provide some time for this activity to take place. As well, there continues to be increased demands on staff with respect to drainage matters, so it is suggested this activity can be identified as future work. If we work backwards from November 2011 (end of agreements), if nothing else has been done with these systems, fall of 2009 would be an appropriate time to initiate work on this project. It should be pointed out this provides a set time to trigger work on these systems, only if other work is not completed. In all likelihood, other work may lead to changes to these systems before November 2009 or the end of the agreements.

### ***West of Janelle Drive***

There continues to be significant debate about the watershed area west of Janelle Drive. Accounts from the storm events suggest there is a much larger area that drains into Tavistock than what is currently identified on drainage maps. Knowing exactly what area flows towards Tavistock will be critical for any work related to storage or overland flow routes. To determine the area, there should be additional surveying completed in this area. In addition to being required to consider retention and overland flow options, Adam Brooks' GIS project would greatly benefit from having this information sooner than later. Adam is pursuing several leads on whether this information currently exists. There is some possibility similar information has been collected and may be available for the Township to use. Obtaining this information should be less than \$10,000 to complete. If the data is not available, it is suggested that the PW Manager be authorized to obtain proposals from engineers that have the ability to complete this work and proceed as soon as possible.

### ***Staff Impacts***

Drainage continues to have a significant impact on staff resources. Engaging RJ Burnside to provide assistance with project management and investigating individual situations was helpful, but many situations still created additional work for Township staff. For example, investigation of individual situations often resulted in calls to Jim or Dennis and the requirement for Township involvement. The recent drainage works and master drainage plan while handled by engineers, also required significant involvement from Township. Township staff often provided the in-the-field, practical observations about what will work and what is going on. As well, it appeared there were a number of situations where engineering work needed to be modified after the fact, due to input from staff. This is both frustrating, time consuming and expensive. It is also hoped that more specific engineering engagements could help to better control these costs.

It is anticipated drainage matters will continue to have a high profile with significant demands. These demands are also created by the public perception that the Township is responsible for anything related to drainage. This also seems to be the case in more and more Public Works areas. It seems like the Township is being looked upon to solve many individual issues that have historically been looked after privately or were tolerated. While the Township does have the expertise and knowledge to assist, there is the concern with time required and the balance between assisting and actually doing the work.

### ***Tavistock Water Table Level***

There seems to be constant discussion about the level of the water table in Tavistock and Bender Subdivision in particular. While it can be agreed that the level of the water table has a significant impact on drainage matters, staff are not sure what the Township can realistically do and what we have the authority to do. Individual property owners can petition for drainage improvements if they so wish and property owners can tile and drain their land.

It has been observed that the Tavistock Municipal Drain 2006 may be helping with the water table level; however, it may also be due to a dry summer. This area becomes particularly concerning as it consumes a tremendous amount time to investigate and discuss theoretical options, but not much can be done. The matter could be studied by engineers, but it has the potential to cost a significant amount of money, with little benefit. At this time, staff would suggest maintaining the current position that options are available under the drainage act for people to request drainage improvements through a petition.

### ***Funding***

A significant item related to all of the above matters is funding. All of the actions cited above cost money, either directly for outside consultants or indirectly through use of existing staff time. At present, the Township capital forecast anticipates additional expenditures related to drainage improvements in Tavistock; however, it is unlikely the level of funding is adequate depending on the projects that are undertaken.

With recent work on the Tavistock Drain 2006 being completed and the subsequent billing, there have been numerous complaints about the charges for drainage. They include suggestions no one should pay, only certain people should pay (ie. Only those that haven't disconnected), suggestions that everyone in Tavistock should pay, suggestions that only those that have

had water problems should pay and many other variations. What is often apparent is the lack of understanding that the Township's money comes from property owners. To date, the Township's costs have been paid from the general levy. The Tavistock Municipal Drain 2006 was assessed to individual property owners, with approximately \$210,000 being paid for by the general levy. As the Township proceeds with projects that are not covered under the Municipal Drainage Act, there will not be direct billing to those that benefit directly from the improvement. There may be options under the Municipal Act to levy special charges or develop a fund from area specific charges. If Council is interested in such a financial strategy, staff could be directed to investigate the options.

### ***Conclusions***

It should be noted this report is not meant to be the only recommendations from staff on the Drainage Master Plan. It is meant to be a start. Some items are specific and actionable, while others simply call for additional discussion and direction from Council over time. It is anticipated that work having a more significant direct cost will be more fully discussed in conjunction with development of the 2008 budget.

### **Recommendations:**

1. That Council instruct staff to prepare amendments to the Township's Development Standards and submit to Council for review and approval as quickly as possible.
2. That Council concur with the recommendation to try and create smaller, more manageable engineering engagements and further that where possible, a competitive process be used to engage engineering services.
3. That Council concur with the discussion on the Mutual Agreement Drains and timeline to take action in that area should there not be other work completed.
4. That Council authorize the Public Works Manager to obtain proposals and engage a suitable engineering firm to provide topographical survey information from the area west of Janelle Drive, if required.
5. That Council authorize staff to meet with County Public Works Officials to discuss, develop and propose options for increasing the number of storm sewer disconnects and the necessity to deal with unwanted connections into the sanitary system.

6. That Council concur with the principles contained in the Master Drainage Report for Lot Level Controls and further require that consideration for these and other lot level controls that will improve drainage be included, where feasible and practical, in future development agreements.
7. That Council further consider and provide comments and direction to staff on the relative priority and preferred direction with respect to storage and overland flow options identified in the Master Drainage Plan.
8. That Council concur with the idea of the development of educational information related to proper lot grading and property protection and authorize staff to attempt developing appropriate information.
9. That Council provide direction on the requirement for additional information related to options for funding future drainage works.

Report prepared  
and submitted by:



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Jeff Carswell, AMCT  
Chief Administrative Officer



Recommendations  
adopted November  
7, 2007

### Policy Changes

- The contributing drainage area should allow for the post-development runoff flows from the 1:100 year storm to be attenuated to the 1:2 year pre-development flows.
- Water should not extend beyond local road ROW and desirably not overtop road curbs where practical.
- Basement floor elevations should be set above groundwater level.
- Roof leaders should discharge to surface in all cases.
- Flow should not cross roads except for in major storms.
- Sump pumps shall not under any circumstances be connected to the sanitary sewers. **No PDC should have a gravity connection** beneath the house footing. The PDC must pump water up and over the foundation wall as outlined in the current Township Development Standards.
- Theoretical hydraulic grade lines should be calculated for all new sewers.

### Lot Level Controls (not limited to those outlined below)

- Disconnect all gravity PDC and reconnect in accordance with current standard.
- Rear yard storage – depressions or restrictor plates in rear yard catchbasins.
- Parking lot storage – depressions or restrictor plates in catchbasins.
- Direct roof leaders to rain barrels.
- Direct roof leaders to rear yard ponding area or soakaway pits.
- Direct sump pumps to pump to rear yard ponding area.
- Infiltration trenches along rear lot lines.
- Where possible create vegetated buffers along flow paths.

### Conveyance

- Replace existing trunk sewers with sewers that can convey the 1:10 year flow.
- Provide restrictor plates on catchbasins to restrict flow to the 1:2 yr storm.
- Overland flow routes should be properly identified and, where necessary, improved to provide positive drainage for major storm events.

### Storage

- Provide storage for the external areas to the north/northwest of Tavistock restricting flow into the sewers to a 1:2 year pre-development flow rate.