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**Date:** September 17, 2020

**To:** Mayor and Council

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**RE:** Subdivision Drainage Design and Compliance

**Report No.:** PS 2020-019

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## **AIM**

To provide the Mayor and Council with information on the steps taken to review satisfactory design for storm water drainage in new subdivisions and outline the steps taken to ensure compliance with the approved design.

## **BACKGROUND**

Notice of Motion 642-2019 requested the following:

‘That Council request a comprehensive report that includes Planning, Municipal Services (Engineering), and Building to demonstrate to Council:

- i) how the subdivision site plans are designed with levels of drains and catch basins;
- ii) how Subdivisions constructed are checked to ensure compliance with the engineered designs;
- iii) how Subdivisions constructed do not, or will not, have an adverse effect on adjacent property owners;
- iv) such report expected within ninety (90) days’

Storm water run-off and management has become a common concern at the approval stage of most developments and an ongoing issue as developments build out. There are a number of steps that lead up to approval and a number of ongoing review mechanisms in place which deal with this issue.

## DISCUSSION

All property owners in Kingsville are required to collect, control and direct their storm water within the limits of their property. Not controlling your water is a building code violation and is typically addressed by Building Services/Enforcement. To address the questions direct we provide the following:

- i) How the subdivision site plans are designed with levels of drains and catch basins;

Comment: A subdivision as a whole, when it is submitted for review and eventual consideration of approval does not have a site plan associated with it. The development of a subdivision requires a wide variety of different drawings including services, road design, grading, lot layout and storm water management. For drainage specifically there are up to three levels of detailed plans potentially prepared for any given subdivision. An overall plan, a plan for individual phases (if applicable) and a plan for each lot. The overall subdivision plan will include overall grading, drain locations, storm water pond design and outlet location. A phase plan is similar, but on a smaller scale. For each lot on a plan specific drain and catch basin details are included on a grading plan that shows the location and height of catch basins and drain elevations and in some cases retaining walls where there is a significant grade difference. All of these plans are prepared by a qualified engineer and based on measurements provided by an Ontario Land Surveyor. At the initial approval stage only the overall subdivision plan is prepared.

- ii) How Subdivisions are checked to ensure compliance with engineered designs;

Comment: Municipal Services provided the following regarding design.

Prior to the municipality assuming ownership of the sub-division the storm sewer manholes are inspected and the sewers/connections are flushed and videoed. The videos are reviewed for deficiencies by the department. At no time does the MS department inspect private infrastructure. As such we do not verify lot grading or rear yard catch basins. The Building Department is responsible for the review of lot grading and confirmation of rear yard catch basin installation. A detailed outline of that process has been prepared by Building and is included as Appendix A.

Rear year catch basins are designed to address the potential for changes in lot grading between various phases of a multi-phase development. We have no control over homeowners who choose to eliminate or alter them after the fact. However, if they convey overland water towards neighbouring properties it could be addressed through property standards or through the drainage act.

Drainage is designed in accordance with the Kingsville Development Standards Manual as well as the Windsor/Essex Regional Stormwater Management Standards Manual. The developer is required to procure a

reputable drainage engineer in order to prepare a design in accordance with these 2 manuals.

Developers are required to have their engineer/inspector on site during construction to confirm it is in accordance with the construction plans. MS also performs periodic inspection during the construction phase.

As noted above, engineers design in accordance with best practices (the 2 manuals) to mitigate flooding to the new development or adjacent. There are practical limitations however to stormwater management and flooding will always be possible in an extreme weather event. See below from the Windsor/Essex Manual.

#### 1.5.1 Defining Risk/Reliability

The acceptable risk for a project must ultimately consider the consequence of failure or capacity exceedance of the design. The minimum standard level of service has been defined herein as a 100-year design storm. This minimum standard does not guarantee that a given site will never flood but rather, it guides the design of mitigating measures to achieve a low risk of flooding.



At the individual lot development stage the Building Department requires the submission of a lot grading plan. The specific details of that process are outlined in Appendix A.

- iii) How subdivisions constructed do not, or will not, have adverse effect on adjacent property owners;

Comment: The intent of storm water management plans along with grading plans is to provide a view of how rain water is collected and directed on a subject property whether it is a single lot or a plan of subdivision. What is missing is what impact the new grading would have on existing abutting properties and how this would need to be addressed. For example older subdivisions often did not include rear yard catch basins or outlets and simply relied on unofficial overland flow to the abutting property. If the property remained undeveloped then there was no impact to the existing development. When new development is introduced this overland flow is interrupted and can potentially back up on the existing lots. The new subdivision may be in full compliance with its plans however the elevated grade is now stopping water from draining off the existing lot(s) and is viewed as flooding caused by the new development. Moving forward developers should be required to provide a greater level of detail on the grading and drainage between the proposed development and existing development including potential solutions for outletting. In addition developers will be required to address interim drainage between initial approval and final build out. This is one consideration that has not been directly addressed in the past. These items will need to be addressed during the pre-consultation stage of planning. Recent applications have already started this discussion.

Such report expected with ninety (90) days.

Comment: This particular issue has been one that is ongoing and involves different departments and a wide variety of different circumstances to consider in order to provide Council with a complete answer. The report has been in draft form and undergone several different versions since March of this year as more information and understanding have come forward.

What is seen as the best answer to the overall issue is that subdivision designs have to expand their field of consideration from a drainage standpoint. This means that development cannot be designed in isolation. For example consider other items that are often raised during the approval process such as increases to traffic, need for expanded infrastructure, and type of development, all are consideration that have impacts beyond the boundary of the subject parcel.

Additional consideration to keep in mind as we move forward is that not all property owners fully understand the importance of maintaining their individual storm water collection and drainage system nor do they fully understand how it is intended to work. There are examples of this throughout the Town and involve education on the part the Town but also need property owners to check with the Town before making significant alterations to existing drainage systems.

## **LINK TO STRATEGIC PLAN**

To become a leader in sustainable infrastructure renewal and development.

## **FINANCIAL CONSIDERATIONS**

There are no direct financial considerations for this item, however additional consideration at the initial stages of development will result in a reduction in future enforcement issues and potential Town based solutions that result in cost to the Town and potentially individual land owners.

## **CONSULTATIONS**

Building, Municipal Services and management staff

## RECOMMENDATION

That Council:

Direct administration to ensure that all pre-consultations on proposed development reinforce the importance of storm water drainage including:

- i) consideration for the impact of new development on drainage for existing abutting lands;
- ii) that new development must be able to demonstrate that any change to approved designs, i.e. draft plans of subdivision, site plan approval or basic lot creation, will not negatively impact on existing development.

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