

MEMORANDUM

July 15, 2013

TO: Karie Friling – Director of Development Services

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FROM: Thomas T. Burke, Jr., PhD, PE
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SUBJECT: Cook County Watershed Management Ordinance (WMO)
Summary of Stormwater and Floodplain Regulations

This memorandum summarizes the stormwater and floodplain regulations contained in the Draft Cook County Watershed Management Ordinance (WMO) that would have impacts on development in Cook County. Although these regulations are more restrictive than those regulations contained in the effective Sewer Permit Ordinance (SPO), the majority of the revisions would make the WMO more comparable with the stormwater ordinances of surrounding counties. The most recent version of the Draft WMO is dated June 24, 2013 and was released for public comment on June 28, 2013. The anticipated effective date of the WMO is January 1, 2014.

The significant WMO stormwater/floodplain regulations that were identified include:

- More restrictive requirements for detention; based on the results of the Economic Impact Study (EIS), the amount of required detention storage will increase from approximately 0.34 ac-ft/acre to 0.52 ac-ft/acre. These more restrictive requirements for detention include:
 - Using Bulletin 70 rainfall depths instead of Technical Paper (TP-40) rainfall depths for determining the required stormwater detention volume. The Bulletin 70 rainfall depths are significantly higher than those prescribed by TP-40; for example the 100-year, 24-hour Bulletin 70 rainfall depth is 7.58 inches, as opposed to 6.00 inches under TP-40. *In our opinion, it makes sense to use more current rainfall data, although Bulletin 70 is already about 25 years old. TP-40 rainfall data was developed over 50 years ago in 1961.*
 - The allowable release rate for stormwater detention facilities is proposed to be phased-in over a 5-year period from the effective date. For the 5-year period following the effective date of the WMO, an allowable release rate of



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0.30 cfs/acre will be used. Following five years, the allowable release rate will be 0.15 cfs/acre. Using the methodology currently prescribed by the SPO, the average allowable release rate translates to approximately 0.30 cfs/acre.

- Using the 100-year flood elevation for a receiving stream as a tailwater condition.
- Volume control practices must be provided for the first inch of runoff over the impervious area of development. The control volume is to be provided through either retention-based or flow-through practices. The detention volume, if required, can be reduced by the control volume provided.
- The flood protection elevation (FPE) for proposed structures is to be two feet above the Base Flood Elevation (BFE). *This was one of our recommended revisions to earlier drafts that specified the FPE as one foot above the BFE. As we have seen from recent storm events, the FPE is the last line of defense for overland flooding of homes.*
- Compensatory storage for fill in the floodplain will be required incrementally at a 1.1:1 ratio. The volume between the 0 – 10-year and 10 – 100-year intervals must be replaced at a 1.0:1 ratio, while the additional 0.1 volume can be replaced at any increment. *It should be noted that previous drafts prescribed a compensatory storage ratio of 1.5:1.*
- Soil erosion and sediment control (SE/SC) practices will be required for all development that requires a Watershed Management Permit (disturbs greater than 0.5 acres, impacts a wetland, or is located in the floodplain).
- Developments that impact wetlands or their buffers must mitigate those impacts (jurisdictional wetlands still permitted through US Army Corps of Engineers). Mitigation ratios vary from 1.5:1 to 3:1, depending on whether the wetland is classified as high-quality. Standard isolated wetland impacts less than 0.1 acres do not require mitigation.
- Setbacks will be required for development adjacent to wetlands: 30 ft for isolated waters, 50 ft for jurisdictional, and 100 ft for high-quality.

A more detailed comparison of the SPO and WMO stormwater/floodplain regulations is provided in Table 1, which is included as an attachment to this memorandum. Based on our review of the Draft WMO, CBBEL also has recommended several revisions to the proposed language, which include:

- For the design of stormwater detention facilities, use the 10-year flood elevation of the receiving stream as a tailwater condition. We believe this is a conservative



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approach that reflects the water surface elevations in a waterway during the time the pond is reaching a maximum elevation for a single storm event.

- Add language that relaxes regulations for the development of bike paths/recreational trails in buffers and riparian areas.
- For roadway developments, only require stormwater detention if one acre of new impervious area is created per linear mile of development.
- Add clarification to language regarding wetland impacts and wetland hydrology.

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Table 1
Comparison of WMO and SPO Stormwater/Floodplain Regulations

Sewer Permit Ordinance (SPO) (Currently Effective)	Watershed Management Ordinance (WMO) (Anticipated Effective Date January 1, 2014)	Orland Park Land Development Code
<u>Rainfall Depths:</u>		
<ul style="list-style-type: none"> • Technical Paper 40 (TP-40), published by US Weather Bureau in 1961 • Lower rainfall depths (6.00" for 100-year, 24-hour storm event) 	<ul style="list-style-type: none"> • Bulletin 70, published by Illinois State Water Survey in 1989 • Consistent with collar counties • Higher rainfall depths (7.58" for 100-year, 24-hour storm event) 	<ul style="list-style-type: none"> • Bulletin 70
<u>Allowable Release Rate:</u>		
<ul style="list-style-type: none"> • Gross allowable release rate from Schedule D a function of: <ul style="list-style-type: none"> • Stormwater runoff from the area in its natural undeveloped state • Three (3) year frequency with a runoff rate coefficient of 0.15 • Any unrestricted release rates • (~ 0.30 cfs/acre) 	<ul style="list-style-type: none"> • Phased allowable release rate: <ul style="list-style-type: none"> • 0.30 cfs/acre for five (5) years from effective date of Ordinance (January 1, 2014 anticipated effective date) • 0.15 cfs/acre effective after five (5) years 	<ul style="list-style-type: none"> • 0.15 cfs/acre
<u>Method for Determining Stormwater Detention Volume:</u>		
<ul style="list-style-type: none"> • Modified Rational Method 	<ul style="list-style-type: none"> • Event hydrograph methods (TR-20, HEC-1, etc.) • Use 100-year tailwater from receiving stream 	<ul style="list-style-type: none"> • Hydrograph Method • Tailwater to be accounted for but value not specified
<u>Developments that Require Stormwater Detention:</u>		
<ul style="list-style-type: none"> • Any development on property where contiguous land ownership is greater than or equal to five (5) acres 	<ul style="list-style-type: none"> • Single or two-family residential subdivision development on parcel(s) ≥ 5 acres • Non-residential or multi-family residential parcels ≥ 3 acres with new development on the parcel(s) that totals either individually or in aggregate $\geq 25,000$ ft² after the effective date of WMO 	<ul style="list-style-type: none"> • No minimum but generally over 1 acre

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	<ul style="list-style-type: none"> Roadway developments that create ≥ 1 acre of new impervious area (where practicable) 	
<u>Flood Protection Elevation (FPE)</u>		
<ul style="list-style-type: none"> Not addressed 	<ul style="list-style-type: none"> Two feet above the Base Flood Elevation (BFE) 	<ul style="list-style-type: none"> Not specified but generally applied as two feet
<u>Base Flood Elevation (BFE):</u>		
<ul style="list-style-type: none"> Not addressed 	Determined using higher of: <ul style="list-style-type: none"> Cook County Flood Insurance Study (FIS) MWRDGC Detailed Watershed Plan Inundation Elevation 	<ul style="list-style-type: none"> Cook County FIS
Sewer Permit Ordinance (SPO) (Currently Effective)	Watershed Management Ordinance (WMO) (Anticipated Effective Date January 1, 2014)	
<u>Compensatory Storage:</u>		
<ul style="list-style-type: none"> Not addressed 	<ul style="list-style-type: none"> 1.1 times volume displaced 1.0 volume provided in 0-10-yr and 10-100-yr increments Remaining 0.1 volume provided in any increment 	<ul style="list-style-type: none"> 1.5 times volume incrementally between 10-10 and 10-100 year

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<u>Water Quality:</u>		
<ul style="list-style-type: none"> Not addressed 	<ul style="list-style-type: none"> WMO requires control volume for first inch of runoff over impervious area of development <ul style="list-style-type: none"> Residential development on parcels ≥ 1 acre Multi-family residential or non-residential development on parcels ≥ 0.5 acres Right-of-way development with ≥ 1 acre of new impervious area Control volume is to be provided through retention-based practices with quantifiable storage capacity Examples include: <ul style="list-style-type: none"> Infiltration basins and trenches Porous pavement Open channel with check dams Retention storage below outlet of detention basin Flow-through practices required to treat any portion of control volume that has not been treated by retention-based practices. Examples include: <ul style="list-style-type: none"> Vegetated swale Oil and grit separator 	<ul style="list-style-type: none"> Not specifically addressed but generally met with detention requirements
<u>Soil Erosion and Sediment Control (SE/SC):</u>		
<ul style="list-style-type: none"> Not addressed 	<ul style="list-style-type: none"> Required for all development that requires a Watershed Management Permit <ul style="list-style-type: none"> Disturbs ≥ 0.5 acres Located in a flood protection area Substantial improvements to 	<ul style="list-style-type: none"> Required for all developments over 5 acres but applied as 1 acre

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	<ul style="list-style-type: none"> structure in floodplain Results in wetland impacts 	
Sewer Permit Ordinance (SPO) (Currently Effective)	Watershed Management Ordinance (WMO) (Anticipated Effective Date January 1, 2014)	
<u>Wetlands and Riparian Areas:</u>		
<ul style="list-style-type: none"> Not addressed 	<ul style="list-style-type: none"> Provide protection to isolated wetlands within Cook County (jurisdictional wetlands under US Army Corps of Engineers) Mitigation required when wetland areas > 0.1 acres Mitigation ratios are 1.5:1 for standard isolated wetland impacts \geq 0.1 acres and 3:1 for high quality wetland impacts 	<ul style="list-style-type: none"> Protection but no mitigation standard
<u>Wetlands and Riparian Areas (continued):</u>		
	<ul style="list-style-type: none"> Prescribe setbacks based on type: <ul style="list-style-type: none"> 30 ft for isolated waters 50 ft for jurisdictional 100 ft for high quality 	<ul style="list-style-type: none"> 50 foot setback
<u>Community Certification:</u>		
<ul style="list-style-type: none"> Only MWRD has authority to issue permits 	<ul style="list-style-type: none"> Criteria is currently being developed to delegate permitting authority to communities 	<ul style="list-style-type: none">
<u>Grandfathering of Projects:</u>		
<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> For projects still in conceptual phase when WMO becomes effective, must comply with 	<ul style="list-style-type: none">

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	<p>WMO</p> <ul style="list-style-type: none">• Projects with a permit or applying for permit, it may be designed and developed under SPO• A list of grandfathered projects is to be compiled before effective date of WMO; submittal requirements to get on list is still being refined• Applicant has one (1) year to obtain permit for project, three (3) years to construct following effective date of WMO	
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