



INFRASTRUCTURE SERVICES DEPARTMENT

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September 20, 2011

To: Waterloo Region Home Builders' Association
Conestoga Heavy Construction Association
Consulting Engineers of Ontario – Grand River Chapter
Grand River Conservation Authority
Kitchener-Wilmot Hydro
Utility Coordinating Committee
City Departments
Stakeholders

To Whom It May Concern:

**Re: City of Kitchener
2011 Development Manual Update
Final Wording**

The City of Kitchener have been coordinating with representatives of the Waterloo Home Builders Association and Consulting Engineers of Ontario – Grand River Chapter, on minor changes to the current standards and procedures outlined within the City of Kitchener Development Manual, adopted by Council in 2010. The attached document outlines changes to the Development Manual that have been finalized and executed by the Deputy CAO, Infrastructure Services Department.

The updated Development Manual will be available online for download from September 30, 2011.

Yours truly,

Binu Korah, MBA, P.Eng.
Manager, Development Engineering

BK/tj
Attach.
c: G. Murphy

Item	Section	Heading	Paragraph /Sentence	Content
1	A.5 page 6*	<u>Pre-Grading Request</u>	Last bullet point	Current: "That all areas that will not immediately be used for development purposes..." Change: Delete word "immediately".
2	A.8.3 page 8*	<u>Geotechnical Investigation and Soils Report</u>	3p/2s**	Change: Delete "Soil classification and ground water levels will not be recorded, if absent."
3	A.9.1 page 10*	<u>First Submission</u>	Table1: Submission Drawings Table	Change: To have a consistent drawing order as other sections, this section to list as the following: "• Title Sheet; • Existing Conditions and Removals plan; • Staging plan; • Erosion and Sedimentation Control plan; • Lot Grading plans; • General Plan of Services; • Streetscape Plan; • Signal Wiring Plan and Signalized Intersection Plan; • Sanitary Drainage Plans; • Storm Drainage Plans; • Stormwater Management Pond plan; • Park and Community Trail Development/Grading Plan (as required); • Plan and Profile Drawings; • Detail Sheet, and • General Notes."
4	A.9.1 page 11*	<u>First Submission</u>	3p**	Change: Delete first and second bullet points since already listed in Table 1 "• A storm drainage plan showing the entire drainage basin, including any external areas with major and minor system flow directions clearly delineated; • A sanitary drainage plan including the whole sanitary drainage area to be drained including external areas;" Change: Add bullet point "Stormwater Management Report" Change: Add bullet point "Geotechnical Investigation (one copy)"
5	A.9.2 page 11*	<u>Second and Subsequent Submissions</u>	1p**	Change: Add new sentence after the first paragraph's last sentence "After the revisions have been addressed from the first submission, the consultant shall circulate the second submission to all utility companies for comment. As part of the second submission, the consultant shall provide Engineering copies of the letters sent to the utility companies."
6	A.9.3 page 12*	<u>Final Submission</u>	New bullet point	Change: Add new bullet point "• Form 1 - Record of Watermains Authorized as a Future Alteration. The prescribed fee must be payable to the City of Kitchener;"
7	A.9.3 page 12*	<u>Final Submission</u>	6th bullet point	Current: "One (1) complete set of contract documents including tender form and specifications with insurance bonding and City of Kitchener named as the insured, and..." Change: Delete word "bonding".
8	A.9.4 page 12*	<u>As-Recorded Submission</u>	6p/2s**	Current: "These drawings will be submitted within two (2) months of Final Inspection along with the Maintenance Package. The initial reduction to the Letter of Credit (LOC) will not be processed until these drawings have been received." Change to: "These drawings will be submitted prior to the first Letter of Credit (LOC) Reduction Request. The LOC reduction will not be processed until the as-recorded information has been received and approved by Development Engineering. "

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** Read as follows: 3p/2s means third paragraph, second sentence.

Item	Section	Heading	Paragraph /Sentence	Content
9	A.9.4 page 13*	<u>As-Recorded Submission</u>	11p**	<p>Current: "For initial reduction to the Letter for Credit:</p> <ul style="list-style-type: none"> • Title Sheet; • General Servicing plans; • Sanitary Drainage Plan; • Storm Drainage Plan; • Watermain tie-ins; • Signal Wiring Plan and Signalized Intersection Plan (as required); • Plan and Profile Drawings; • Stormwater Management Pond plan; • Street Lighting and Electrical Distribution, and • Detail Sheet. <p>For final reduction to the Letter for Credit:</p> <ul style="list-style-type: none"> • Streetscape Plan • Lot grading plans • Composite Utility Plan; • Park and Community Trail Development/Grading Plan (as required); <p>The mylar copy "As-Recorded" submission will contain the following listed drawings:</p> <ul style="list-style-type: none"> • Lot grading plan; • General Servicing plan; • Streetscape plan; • Sanitary drainage plan; • Storm drainage plan, and • Plan and Profile drawings." <p>Change to: "For initial reduction to the Letter for Credit:</p> <ul style="list-style-type: none"> • Title Sheet; • Lot Grading Plans; • General Servicing plans; • Sanitary Drainage Plan; • Storm Drainage Plan; • Watermain tie-ins; • Signal Wiring Plan and Signalized Intersection Plan (as required); • Plan and Profile Drawings; • Stormwater Management Pond plan; • Street Lighting and Electrical Distribution (as required); • Detail Sheet; • Composite Utility Plan. <p>The mylar copy "As-Recorded" submission will contain the following listed drawings:</p> <ul style="list-style-type: none"> • Lot grading plan; • General Servicing plan; • Streetscape plan; • Sanitary drainage plan; • Storm drainage plan, and • Plan and Profile drawings."

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10	A.9.4 page 13*	<u>As-Recorded Submission</u>	14p	<p>Current: "In supplement to "As Recorded" drawings, a Microsoft Excel spreadsheet describing all stipulated infrastructure attributes must be completed and submitted in a CD to Development Engineering staff (link). All fields within the template must be complete if corresponding infrastructure was constructed, with the exception of bridges, which will require an OSIM standard form."</p> <p>Change to: "In supplement to "As Recorded" drawings, two separate AutoCAD files must be completed and submitted in a CD to Development Engineering staff (refer to the CAD standards manual under the Development Manual webpage) .</p> <p>Among the two required AutoCAD files is the "Asset Drawing" and Asset Data Tracking form (MS Excel spreadsheet). All fields within the tracking form must be complete if corresponding infrastructure was constructed, with the exception of bridges or culverts 3m or greater, which will require an Ontario Structure Inspection Manual (OSIM) standard form (pages 1 and 4 only).</p> <p>The Consultant shall refer to the Development Manual webpage to download the latest forms, manuals, and frequently asked questions."</p>
11	A.10.5 page 15*	<u>Drawings Package</u>	Bullet points	<p>Change: To be consistent with other sections in manual, each section to list the following:</p> <ul style="list-style-type: none"> "• Title Sheet; • Existing Conditions and Removals plan; • Staging plan; • Erosion and Sedimentation Control plan; • Lot Grading plans; • General Plan of Services; • Streetscape Plan; • Signal Wiring Plan and Signalized Intersection Plan; • Sanitary Drainage Plans; • Storm Drainage Plans; • Stormwater Management Pond plan; • Park and Community Trail Development/Grading Plan (as required); • Plan and Profile Drawings; • Detail Sheet, and • General Notes."
12	A.10.5.4 page 17*	<u>Composite Utility Plan</u>	Modify entire section	<p>Current: "In lieu of Municipal Consents and/or PUCC application for individual utilities, the applicant is required to submit Composite Utility Plans as an "As Recorded" document which are plan drawings at a scale of 1:500 showing; road layout, all underground services / utilities, all above ground appurtenances to the services, all street furniture including sidewalk, all street trees, driveways, community mail box locations, telecommunications pedestals, streetlight poles, conduits, ductwork, hydro vaults, gas valves and all utility crossings. The plan must include all utility structures / buildings.</p> <p>During the Design Phase, the Consultant shall copy the City with submissions to the utilities. In addition, the sign off from utilities are required as part of the Registration Package.</p> <p>Note: The City will not issue Building Permits until these letters have been submitted."</p>

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				<p>Change to: "In lieu of Municipal Consents and/or PUC application for individual utilities, the applicant is required to submit the Composite Utility Plan (CUP) showing as-built underground and road layout information, along with proposed above ground infrastructure (appurtenances to the services, all street furniture including sidewalk, all street trees, driveways, community mail box locations, telecommunications pedestals, utility structure/buildings, streetlight poles, conduits, ductwork, hydro vaults, gas valves and all utility crossings) as part of the Maintenance Package for Initial Acceptance of the undergrounds. The consultant is to include a letter with the CUP certifying the plan as correct (Professional Engineer's seal not required).</p> <p>The CUP is to be submitted in AutoCAD and ".pdf" format. The CAD line types and layering should follow either City standard or industry standard conventions. The .pdf version should clearly show the proposed location of all street trees, with use of a legible scale, as this will act as a planting plan for City street trees.</p> <p>The CUP will be circulated by Development Engineering to Parks staff for review of street tree locations.</p> <p>Prior to final acceptance of the street trees, the CUP is to be re-submitted to Development Engineering with as-built locations of all above/below infrastructure including as-built street tree locations.</p> <p>Upon approval of the final CUP, Development Engineering will submit the files to GIS to be archived, for operational availability."</p>
13	A.10.5.12 page 19*	<u>Lot Grading Plans</u>	3p**	<p>Current: "d) The corner of each building;"</p> <p>Change to: "d) The front and rear of each building;"</p>
14	A.10.5.12 page 19*	<u>Lot Grading Plans</u>	3p**	<p>Current: "f) The exterior grade at the front and rear of each structure;"</p> <p>Change to: "f) The top and bottom elevation of retaining structures;"</p>
15	A.10.5.12 page 19*	<u>Lot Grading Plans</u>	4p**	<p>Change: Add bullet point for Other Required Information shall show</p> <ul style="list-style-type: none"> • Minimum underside of footing elevation for lots close to groundwater".
16	A.10.5.13 page 20*	<u>Plan and Profile Drawings, Profile View</u>	4p**	<p>Current: "f) Provide existing (as needed) and proposed manhole information, including type which shall be shown in detail on the Detail drawing sheet, pipe inverts at entry and exit, drop structure details."</p> <p>Change to: "f) Provide existing (as needed) and proposed manhole information, including type which shall be shown in detail on the Detail drawing sheet, pipe inverts at entry and exit, catchbasin lateral inverts, drop structure details."</p>
17	A.15.1 page 27*	<u>Final Inspection</u>	2nd bullet point	<p>Current: "• Timing – inspection is conducted after a minimum of two year maintenance period or 95% build out of homes within the stage, whichever is the latter, and is initiated by the Subdivider's consultant."</p> <p>Change to: "• Timing – inspection is conducted after a minimum of two year maintenance period, and is initiated by the Subdivider's consultant. "</p>

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18	A.15.1 page 27*	<u>Final Inspection</u>	5p**	<p>Current: "NOTE: With respect to watermain inspections, Kitchener Utilities will charge the Subdivider for each additional inspection over the first three (3) inspections for the same street. Please ensure all water valves, water boxes, hydrants etc are in good working condition prior to requesting inspection of watermain services."</p> <p>Change to: "NOTE: With respect to watermain inspections, Kitchener Utilities will charge the Subdivider for each additional inspection over the first four (4) inspections for the same stage. The four inspections is a sum of two (2) initial and two (2) final inspections, not four for each. Please ensure all water valves, water boxes, hydrants etc are in good working condition prior to requesting inspection of watermain services. The valves/hydrants/etc can only be operated by Kitchener Utility staff, but a visual inspection can be completed as well as making sure the valve boxes are accessible, keys fit on, hydrants meet the standards (e.g. painting, break away flanges) prior to requesting an inspection of watermain services. During an inspection if it is apparent the contractor/consultant did not review the above mentioned details prior to the inspection, the inspection will not continue. The consultant needs to review the Watermain Inspection Guideline to understand what Kitchener Utilities looks for during an inspection."</p>
19	A.15.2.3 page 28*	<u>Stormwater Management Ponds</u>	New paragraph	<p>Change: Add new paragraph under heading "All infrastructure within a SWM pond is to be inspected and accepted together as a whole."</p>
20	A.15.3 page 29*	<u>Step 2A: Underground Services to Base Asphalt and/or Stormwater Management Pond Onsite Inspection</u>	10p**	<p>Current: "City staff shall send an email/ letter to Development Engineering Staff, within five (5) business days of the onsite inspection, confirming initial acceptance of inspected works related to their particular department:</p> <ul style="list-style-type: none"> • Kitchener Utilities - acceptance of the water distribution system; • Operations - acceptance of the underground infrastructure and/or SWM pond infrastructure; • Engineering – acceptance of CCTV inspection, and • Community Services/Parks - acceptance of walkway blocks, landscaping, SWM pond landscaping, buffers etc.. <p>In addition to forwarding these emails/ letters to the Consultant, Development Engineering Staff shall also follow up"</p> <p>Change to: "The consultant shall send an email/ letter to related City departmental Staff, within five (5) business days of the onsite inspection, confirming initial acceptance of inspected works related to their particular department:</p> <ul style="list-style-type: none"> • Kitchener Utilities - acceptance of the water distribution system; • Operations - acceptance of the underground infrastructure and/or SWM pond infrastructure; • Engineering – acceptance of CCTV inspection, and • Parks - acceptance of walkway blocks, landscaping, SWM pond landscaping, buffers etc.. <p>In addition to forwarding these emails/ letters to the Consultant, related City departmental Staff shall also follow up..."</p>

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21	A.15.3 page 30*	<u>Step 2B: Surface Works Onsite Inspection</u>	3p**	Current: "Note: Surface asphalt cannot be placed until the base asphalt has been given final acceptance. Also all manholes, catchbasins, valve boxes, etc. have to be raised to surface asphalt grade. Change to: "Note: Surface asphalt cannot be placed until the base asphalt and curb and gutter have been given final acceptance inspection clearance from Development Engineering, and 95% house build out is complete for the streets. Prior to placement of surface asphalt, all base asphalt and curb and gutter repairs are to be complete and inspected by Development Engineering. All manholes, catchbasins, valve boxes, etc. have to be raised to surface asphalt grade. During the initial acceptance inspection of the surface asphalt, all structures within the roadway will be checked for proper adjustment including gas valves. Water service curb stops will be inspected as part of the surface asphalt initial acceptance, and any related deficiencies will need to be rectified prior to surface asphalt initial acceptance."
22	A.15.3 page 30*	<u>Step 3 Maintenance Package Submission By Consultant</u>	3p**	Change: Add new sentence to beginning of paragraph: "Refer to the Maintenance Package Check List for instructions on submitting Kitchener Utilities required documentation prior to requesting watermain inspections."
23	A.15.3 page 31*	<u>Step 5 Request for Letter of Credit Reduction by Consultant</u>	2p**	Current: "Once the initial acceptance letter has been received by the Consultant, the process for requesting the Letter of Credit reduction can commence." Change to: "Once the initial acceptance letter has been received by the Consultant, and the As-Recorded information has been approved, the process for requesting the Letter of Credit reduction can commence."
24	A.15.3 page 31*	<u>Step 5 Request for Letter of Credit Reduction by Consultant</u>	3p**	Current: "The Subdivider may request the Letter of Credit be reduced to 15% of the accepted works and 100% of outstanding work OR \$5,000.00, whichever is the greater." Change to: "The Subdivider may request the Letter of Credit be reduced to 15% of the accepted works, and outstanding underground and aboveground works be adjusted to 110%. The remaining balance of the Letter of Credit will be reduced. The minimum value of a letter of credit to be held shall not be less than \$5,000."
25	A.15.4 page 32*	<u>Final Inspection and Remaining Letter of Credit Reduction Process</u>	1p**	Current: "Final inspections on items can only be requested at a minimum of two (2) years after the initial acceptance date or 90% build out of homes within the stage." Change to: "Final inspections on items can only be requested at a minimum of two (2) years after the initial acceptance date."
26	A.15.4 page 32*	<u>Final Inspection and Remaining Letter of Credit Reduction Process, Step 1 & 2</u>	New paragraph	Change: Add after last paragraph in Step 1 & 2 "All infrastructure within a SWM pond is to be inspected and accepted together as a whole."
27	A.15.4 page 33*	<u>Final Inspection and Remaining Letter of Credit Reduction Process, Step 1 & 2</u>	New paragraph	Change: Add after last paragraph in Step 1 & 2 "If initial or final acceptance of surface asphalt is requested by the consultant and the underground services have previously been assumed by the City, the surface asphalt acceptance inspection will include inspection for any deficiencies of the underground structures. Any deficiencies noted and related costs will be the responsibility of the Subdivider to rectify, in order to receive surface asphalt acceptance."
28	A.15.4 page 33*	<u>Step 5: Request for Letter of Credit Reduction by Consultant</u>	2p**	Current: "Once the final acceptance letter has been received by the Consultant, the process for requesting the Letter of Credit reduction can commence similar to Step 5 in Section A.15.3." Change to: "Once the final acceptance letter has been received from the Consultant, and the As-Recorded information has been approved, the process for requesting the Letter of Credit reduction can commence similar to Step 5 in Section A.15.3."

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29	A.15.4 page 33*	<u>Step 5: Request for Letter of Credit Reduction by Consultant</u>	New paragraph	Change: Add new paragraph after the second paragraph: "The surface asphalt LC calculation is to include: cost of surface asphalt, all estimated costs associated with raising structures and valves located within the pavement, the estimated cost to repair each water service curb stop for the street, the estimated cost to flush the storm sewers of the street twice annually for a span of five (5) years.
30	A.15.5 page 33*	<u>Obligations during Maintenance Period</u>	New bullet point after first bullet point	Change: Add new bullet point: "• Regardless if the underground sewers have received final acceptance, the Subdivider shall be responsible for sewer flushing maintenance until initial acceptance of the surface asphalt."
31	A.16.5 page 37*	<u>Insurance</u>	Entire section	Current: "The Contract Document shall include all addenda and the Form of Tender, five (5) million dollars liability insurance with the City and Consulting Engineer named as additional insured, performance bond, labour and material payment bond and Workplace Safety and Insurance Board." Change to: "The Contract Document shall include: all addenda and the Form of Tender, five (5) million dollars liability insurance with the City (and other affected local authorities) and Consulting Engineer all named as additional insured, contain a 30day written cancellation notice, and Workplace Safety and Insurance Board. In addition to the above, the Engineering Consultant shall submit an insurance certificate with: five (5) million dollars liability insurance with the City (and other affected local authorities) named as additional insured, 30day written cancellation notice, described for the particular project."
32	B.9.9 page 48*	<u>Stormwater Management (SWM)</u>	1p**	Change: Add after last sentence "MOE Certificate of Approvals are required if a development is zoned industrial, or directly discharges to a watercourse."
33	B.9.13 page 49*	<u>Fire Flow Analysis</u>	2nd Bullet point	Current: "• Detailed description of the building construction materials and intended use;" Change: Delete word "Detailed".
34	D Page 60	<u>Watermains</u>	1p/1s**	Current: "The City of Kitchener's Development Manual is a supplemental document to the Region of Waterloo and Area Municipal Design Guidelines and Supplemental Specifications for Municipal Services (DGSSMS). The DGSSMS shall be the primary source for standards utilized for all watermain designs unless otherwise specifically stated within the Development Manual. In the case that the Development Manual differs from the DGSSMS, the Development Manual will supersede the DGSSMS." Change: Change sentence to read as follows: "The City of Kitchener's Development Manual is to be read in conjunction with the Region of Waterloo and Area Municipal Design Guidelines and Supplemental Specifications for Municipal Services (DGSSMS). In the case that the Development Manual differs from the DGSSMS, the Development Manual will supersede the DGSSMS."
35	D.B.2.7 page 62*	<u>Hydrants</u>	New paragraph	Change: Add "For hydrant installation refer to City of Kitchener Standard Drawing 203.
36	D.B.2.12.7	<u>Metering</u>	New paragraph	Change: Delete "Refer to DGSSMS." Change: Add " Refer to Kitchener Utility Forms for standard meter set drawings. Kitchener Utilities does not permit the installation of water meters in chamber (pits), see Kitchener Utilities Policies for Meter Pits . For properties requiring multiple meters, see Properties Requiring Multiple Meters ."

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37	E Page 71*	<u>Sanitary Sewers</u>	1p/1s**	Current: "The City of Kitchener's Development Manual is a supplemental document to the Region of Waterloo and Area Municipal Design Guidelines and Supplemental Specifications for Municipal Services (DGSSMS). The DGSSMS shall be the primary source for standards utilized for all sanitary designs unless otherwise specifically stated within the Development Manual. In the case that the Development Manual differs from the DGSSMS, the Development Manual will supersede the DGSSMS." Change: Change sentence to read as follows: "The City of Kitchener's Development Manual is to be read in conjunction with the Region of Waterloo and Area Municipal Design Guidelines and Supplemental Specifications for Municipal Services (DGSSMS). In the case that the Development Manual differs from the DGSSMS, the Development Manual will supersede the DGSSMS."
38	E.B.3.1.2.1 page 72*	<u>Flow Calculations</u>	New paragraph	Change: Add "Person Per Unit (ppu) densities are not to be used for sanitary flow calculations."
39	E.B.3.1.3 page 72*	<u>Design Flow Calculations</u>	New paragraph	Change: Add "Trunk sewers to be designed to maximum 85% of full pipe capacity. Local sewers are not to be designed over 95% of full pipe capacity."
40	F Page 76*	<u>Storm Sewers</u>	1p/1s**	Current: "The City of Kitchener's Development Manual is a supplemental document to the Region of Waterloo and Area Municipal Design Guidelines and Supplemental Specifications for Municipal Services (DGSSMS). The DGSSMS shall be the primary source for standards utilized for all storm designs unless otherwise specifically stated within the Development Manual. In the case that the Development Manual differs from the DGSSMS, the Development Manual will supersede the DGSSMS." Change: Change sentence to read as follows: "The City of Kitchener's Development Manual is to be read in conjunction with the Region of Waterloo and Area Municipal Design Guidelines and Supplemental Specifications for Municipal Services (DGSSMS). In the case that the Development Manual differs from the DGSSMS, the Development Manual will supersede the DGSSMS."
41	F.B.4.2.1 page 76*	<u>Pipework</u>	New paragraph	Change: Add "Trunk sewers to be designed to maximum 85% of full pipe capacity. Local sewers are not to be designed over 95% of full pipe capacity."
42	F.C.3.1 page 80*	<u>Pipe Materials</u>	New paragraph	Change: Add "PVC profile pipe is not permitted for City infrastructure."
43	G.2.1.1 page 82*	<u>Storm Sewers</u>	1p/2s**	Current: "In the absence of approved MDP's, storm sewers shall be designed to a minimum 1 in 5 year, un-surcharged standard (i.e. 85% of full pipe capacity)." Change to: "In the absence of approved MDP's, storm sewers shall be designed to a minimum 1 in 5 year return storm event. Trunk sewers to be designed to maximum 85% of full pipe capacity. Local sewers are not to be designed over 95% of full pipe capacity."
44	G.2.1.3 page 83*	<u>Foundation Drains</u>	2p/1s**	Change: Delete "The Consultant shall establish the basement floor elevation a minimum of 1.0 m above the hydraulic grade line."
45	G.5.1.3 page 95*	<u>End-of Pipe Techniques, Oil Grit Separators</u>	New paragraph	Change: Add "The type of Oil/Grit Separator unit that is currently accepted by the City of Kitchener is Stormceptor unless approved otherwise by the Director of Engineering. Further any proposed unit is required to meet a monitoring program to the satisfaction of the Director of Engineering. Failure to comply with the program or failure to meet the program will result in the removal of the proposed unit. All works and related costs of the removal and of such unit, and replacement with an approved unit, will be responsibility of the property owner."
47	G.6.1 page 98*	<u>9. Sediment Drying Area</u>	1p/1s**	Current: "A sediment drying area shall be provided..." Change to: "A sediment drying area can be provided..."

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48	I page 119*	<u>Natural Gas</u>	1p**	Current: "In the City of Kitchener, Kitchener Utilities is responsible for natural gas servicing." Change to: "In the City of Kitchener, Kitchener Utilities is responsible for natural gas servicing, except for a portion of the Pioneer Tower east area, where Union Gas has jurisdiction."
49	J.3 page 121*	<u>Rear Yard Catchbasins</u>	1st bullet point	Current: "• The maximum distance from the swale high point to the rear yard catchbasin or between rear yard catchbasins shall be the lesser of 50.0m or three (3) single family lots" Change to: "• The maximum distance from the swale high point to the rear yard catchbasin shall be the lesser of 50.0m or three (3) single family lots"
50	J.4 page 122	<u>Swale Depth</u>	2nd bullet point	Change: Delete "• Maximum swale depth of 300mm."
51	J.6 page 122*	<u>New heading Groundwater</u>	New paragraph under a new heading	Change: Add new heading " <u>Groundwater:</u> " Minimum 0.6m separation is required between the under side of the footing to seasonally high groundwater elevation. Subdivision applications are to demonstrate difference of elevation between seasonally high groundwater elevations to the underside of footing elevations. This is to be submitted at time of Draft Plan and updated during detailed design (minimum two year groundwater elevation monitoring at time of detailed design submission, however some sites may require additional monitoring requirements). Where lots are proposed within an area of concern, the geotechnical consultant shall provide the minimum underside of footing elevation for those lots, and is to be shown on the lot grading plan. A letter is required from the geotechnical consultant certifying the minimum elevations as correct. Infiltration systems that will be assumed by the City are to be accepted as a whole for the subdivision after 95% build out, or as outlined in the Subdivision Agreement."

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