



The documents below are required to be uploaded into ePlan in support of an Engineering Drawings submission.

Filenames for supporting documents must be in accordance with the standard provided below. To ensure readability the documents should be:

- converted from the original file to PDF where possible; or
- scanned at a high resolution.

<b>Document Type</b>	<b>File Names</b>
<b>Overall</b>	
Cover letter	D001-001-COVER LETTER
Submission Correspondence (if applicable)	D001-002-CORRESPONDENCE
<b>Calculations</b>	
Catch Basin Calculations	D002-001-CB
Storm Sewer Calculations	D002-002-STM
Sanitary Sewer Calculations	D002-003-SAN
Swale Calculations (if applicable)	D002-004-SWALE
Water Balance Calculations (if applicable)	D002-005-WATER BALANCE
Miscellaneous Drainage Calculations (if applicable)	D002-006-MISC CALCS
Joint Restraint Calculations (if applicable)	D002-007-JOINT RESTRAINT
Thrust Block Calculations (if applicable)	D002-008-THRUST BLOCK
Voltage Drop Calculations (if applicable)	D002-009-VOLTAGE DROP
Pipe Thermal Impact Calculation (if applicable)	D002-010-THERMAL



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<b>Reports</b>	
Geotechnical Report	D003-001-GEOTECH
Slope Stability Report (if applicable)	D003-002-SLOPE STABILITY
Environmental Impact Assessment (if applicable)	D003-003-EIA
Erosion and Sedimentation Control Report	D003-004-ESC
Neighbourhood Design Report (NDR)	D003-005-NDR
NDR Amendments (if applicable)	D003-006-NDRA (MO/YR)
Drainage Servicing Report (if applicable)	D003-007-SERVICING RPT
Site Location Study (if applicable)	D003-008-SLS
Water Pipe Inventory (can be included on the drawings)	D003-009-WATER PIPE
Approved Hydraulic Network Analysis (HNA) showing updated pipe sizes as per approval conditions	D003-010-HNA
Additional HNA (if applicable)	D003-011-ADD HNA
Supplementary Geotechnical Report (if applicable)	D003-012-SUPP GEOTECH
Street Lighting Design Folder	D003-013-STL FOLDER
Natural Area Management Plan (if applicable)	D003-014-NAMP
Roundabout Design Submission Requirements (if applicable)	D003-015-ROUNDABOUT



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<b>Permissions</b>	
Pipeline Crossing Permits (if applicable)	D004-001-PIPELINE XING PMT
Environmental Permits (if applicable)	D004-002-ENVIRONMENTAL PMT
Right of Way, Ministerial Consent plans (if applicable)	D004-003-MIN CONSENT

The following information is meant to assist in determining what supporting documentation needs to be submitted in support of Engineering Drawings.

**Cover Letter**

A cover letter must include the following:

- a description of the work in general terms;
- confirmation that all Servicing Agreement conditions outlined in the Subdivision Authority Approval have been met;
- if no street lighting is required, a statement indicating that “No street light installations, removals, relocations or cable work required”;
- if proposed walkways do not have proposed walkway lighting, a formal explanation is required;
- if “enhanced” secondary lighting is proposed outside of private property a statement confirming that electrical plan and proposed infrastructure details has been uploaded into ePlan;
- a listing of all design elements that do not meet the City’s Design and Construction Standards or high level documents such as the NDR, HNA, Concept Plans, etc. including justification or explanation; and
- a summary of any previous discussions or decisions made respecting the project.

**Submission Correspondence**

In the event that one or more Subdivision Authority Approval Servicing Agreement conditions is deemed no longer required by a reviewing agency, the corresponding email documentation confirmation will need to be submitted.



### **Water Balance Calculations**

Water Balance calculations are required pursuant to the Natural Area Management Plan to preserve/sustain an existing natural area or tree stand.

### **Miscellaneous Drainage Calculations**

These calculations may include submerged sewer calculations, culvert design calculations, trench loading calculations, pipe deflection calculations, hydraulic jump calculations and head loss calculations for sewer pipes, and will be required depending upon the circumstance.

### **Joint Restraint Calculations**

Joint Restraint Calculations are required by EPCOR Water Services for any location where a water main, regardless of size, will fall within disturbed soil due to topsoil removal, adjacent sewer installation, or the placement of engineered fill that has not been pre-consolidated (i.e. with extra soil placed on top that is removed after sitting a minimum of 2-3 years).

### **Thrust Block Calculations**

Thrust Block Calculations are required by EPCOR Water Services for any location where soil bearing strengths are less than 72kPa, butterfly valve installations or other details using a thrust 2 wall, or non-standard details that require some form of thrust blocking (i.e. HDPE to PVC transitions). Details of the thrust block construction, layout with respect to the main and appurtenances and any special items that are needed for the thrust block to work such as collars and rebar, and formwork layout showing where the concrete's bearing areas will be against virgin soil and showing the calculated bearing areas must also be included.

### **Voltage Drop Calculations**

Voltage Drop Calculations are required for lots with secondary over 100A, with entrance features, or bank metering.

### **Pipe Thermal Impact Calculations**

Pipe Thermal Impact Calculations are required for any proposed directional drilled or cased watermains.



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## **Geotechnical Report**

The geotechnical report submitted must be signed and stamped by a Professional Engineer and cover the area being subdivided. If not, a supplementary geotechnical report may be requested prior to circulation of Engineering Drawings.

For Development Engineering and Drawing Review, the report must include trench and backfill recommendations, a recommended pavement structure, recommendations on foundation drainage, roof leaders, trenching, bedding, backfilling, slope stability, surface grading, liner for SWMF, soil permeability and side slope stability for SWMF and need for sulphate resistant concrete pipe.

For EPCOR Water Services the report must include a section dedicated to the suitability of soils at the depth of the water main installation for the thrust resistance using EPCOR's standard thrust blocks. The report must also address groundwater conditions and identify any areas where hydrant drain ports are required to be plugged.

## **Slope Stability Report**

The slope stability report is required by Development Engineering and Drawing Review in developments within top-of-bank areas and must include a slope stability assessment and top-of-bank set back requirements for drainage facilities.

## **Environmental Impact Assessment**

An Environmental Impact Assessment (EIA) is required for any construction, including outfalls and roadways, within the area covered under the [North Saskatchewan River Valley Area Redevelopment Plan](#) (Bylaw 7188). In some cases, City Council approval of the EIA and a Site Location Study may be required. The scope of the EIA, as well as Council approval requirements, should be identified at the concept design stage, or earlier, in consultation with the Urban Growth & Open Space Strategy section.

## **Drainage Servicing Report**

A Drainage Servicing Report is required to support proposed large scale infill developments or development in areas with no drainage system limitations, and may be required in site specific development in new neighbourhoods that do not warrant a full amendment to the NDR.

## **Site Location Study**

A Site Location Study (SLS) is required for some development within the area covered under the [North Saskatchewan River Valley Area Redevelopment Plan](#) (Bylaw 7188). In some cases,



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City Council approval of the EIA and an SLS may be required. The scope of the SLS, as well as Council approval requirements, should be identified at the concept design stage, or earlier, in consultation with the Urban Growth & Open Space Strategy section.

### **Supplementary Geotechnical Report**

A supplementary Geotechnical Report is required if a thrust block analysis is not part of Geotechnical Report.

### **Natural Area Management Plan**

A Natural Area Management Plan is required when natural areas are being subdivided, or if development is being proposed adjacent to a natural area.

### **Roundabout Design Submission Requirements**

It is recommended that roundabout designs be developed in accordance with Chapter 6 of [NCHRP Report 672 Guidelines](#) and the TAC Canadian Roundabout Guide.

1. Provide turning movements for the design vehicle and include:

- Speed vehicle is traveling
- Wheel path
- Swept path
- Fastest path and speed of vehicle (using design vehicle)

*Note:* Design vehicle for residential areas is a B-12 (bus). Roundabouts in industrial or commercial areas require a larger design vehicle to be used, depending on land use. Please contact Development Engineering and Drawing Review in advance of submission to determine which vehicle is appropriate.

Indicate if the roundabout is intended to be used as a bus turnaround and, if so, provide appropriate turning movements.

2. Provide within the drawing set, a single page to scale (suggested scale 1:200) and include the following information:

- All radii and grades for the inner circle and all outside radii
- Curve tables
- Dimension length of splitter islands
- Dimension inscribed circle diameter
- Dimension centre island diameter
- Dimension entry and exit widths



- Indicate entry angles
- Dimension circulatory roadway width
- Location and extent of truck apron

3. For any landscaping features within the roundabout, provide within the landscaping drawings:

- Provide location of any features exceeding 0.75 m in height
- Provide plant selection and indicate plant height and spread at maturity. Maximum plant height at maturity must not exceed 0.75 m.
- Provide stopping sight distance showing sight lines for features in centre. Refer to TAC Figure 9.10.1.