



# Consulting Engineer's Field Services Guidelines

Seventh Edition 2020

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## 1. Introduction and Objective

All lands – whether residential, commercial, or industrial – developed within The City of Calgary are done so under the [Development Agreement Terms and Conditions](#) (DATC). The DATC ensures that all development within city limits occurs in accordance with City policies, standards, and specifications. The T&C references the *Consulting Engineers Field Services Guidelines* (hereafter referred to as ‘these Guidelines’) under Part II General Construction Obligations and Part XII – Stripping and Rough Grading.

As defined in the DAT&C, the objective of the *Consulting Engineer’s Field Services Guidelines* is to govern the **minimum** level of field services to be performed by the consulting engineer relating to the construction, installation, and inspection of infrastructure. Infrastructure, as referred to in these Guidelines, includes those utilities<sup>1</sup>, improvements<sup>2</sup>, streetlights, boulevards, public utility lots, reserve parcels, and other elements designed and intended to service the development area. The term infrastructure also includes any such other lands and items as the Director of Calgary Approvals Coordination determines appropriate. Unless otherwise specified, the term *director* refers to the Director of Calgary Approvals Coordination or the individual authorized to act in his place.

These Guidelines are intended to ensure that the construction and installation of infrastructure during subdivision development are in compliance and in accordance with City of Calgary specifications and standards. The requirements, procedures and processes for the various inspections and documentations that are required for the Construction Completion Certificate (CCC) and the Final Acceptance Certificate (FAC) are outlined in detail.

These Guidelines contain the following sections:

- Contractual Relationships
- The Role of the Consulting Engineer
- Stripping & Rough Grading
- Underground Utilities
- Surface Improvements
- Forms

Note that this manual does not detail the technical specifications for subdivision construction drawings, which are available in The City of Calgary Design Guidelines for Subdivision Servicing. Most technical standards referenced in these Guidelines are available on The City of Calgary Urban Development website or otherwise as noted. <https://www.calgary.ca/pda/pd/urban-development/development-agreements.html>.

The form templates in Section 7 are for informational purposes only. Please visit [www.calgary.ca/cefsg](http://www.calgary.ca/cefsg) to access the most up-to-date versions of the forms.

Parks related items and issues are not included in these Guidelines, but are included in the current version of The City of Calgary Parks [Development Guidelines and Standard Specifications: Landscape Construction](#).

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<sup>1</sup>including but not limited to sanitary sewers, storm sewers, stormwater management facilities, water mains and hydrants, sewer and water service connections

<sup>2</sup>including but not limited to sidewalks, curbs and gutters and catch basins, paved roads, paved walkways, paved and/or gravelled lanes, surface drainage facilities, bridges, culverts, retaining walls, and stairways

## **2. Contractual Relationships**

### **2.1. City/Developer**

The contractual relationship between The City and the developer is defined through the [\*Master Development Agreement\*](#) (MDA), the special clauses agreement, and/or the development permit, through which the developer agrees to complete the construction of the infrastructure to the standards required by The City. Notwithstanding the specific circumstances set out below, the developer is ultimately responsible for the performance of all obligations, terms and conditions specified in the MDA

### **2.2. Developer/Consulting Engineer**

Part II, clause 2.03 (1) of the *Master Development Agreement* indicates that the developer shall employ a consulting engineer to design and supervise all work to be carried out under the agreement. The developer remains responsible for the full and proper performance of all obligations, terms, and conditions under the *Master Development Agreement*, special clauses agreement, or the development permit.

The consulting engineer retained by and acting on behalf of the developer, is to prepare design drawings, reports, and specifications based upon the particular location, ground form, site conditions and specific information pertaining to the subdivision to be constructed. The consulting engineer's designs and specifications are to meet or exceed City specifications, approved designs, provincial and federal regulations and legislations, or as otherwise required by the manager.

The consulting engineer's contract with the developer shall be defined such that the consulting engineer is obligated and responsible to provide at least the minimum level of field services as specified in each section of these Guidelines.

Subsequent to the issuance of the CCC(s), the consulting engineer, acting on behalf of the developer, shall continue to ensure the repair of deficiencies until the FAC for that specific infrastructure is accepted by The City.

Should the developer not fulfill their obligations, as set out in the special clauses agreement being performed under the terms and conditions of the *Master Development Agreement*, by abandoning the project, not completing the work, or electing not to correct the deficiencies identified by the manager or the consulting engineer, the consulting engineer shall not be held responsible to complete the construction of the infrastructure.

### **2.3. Developer/Contractor**

The developer shall draft its contract with the contractor based upon the approved construction drawing design and contract documents prepared by the consulting engineer. The contractor is responsible for the quality of work. Notwithstanding the above, the developer is ultimately responsible for the performance of all obligations, term and conditions specified in the *Master Development Agreement*.

#### **2.4. Consulting Engineer/City**

There is no direct contractual relationship between the consulting engineer and The City. However, as the consulting engineer is the representative of the developer, the manager has the right to request that the developer, through the consulting engineer, correct any deficiencies as they are observed.

The consulting engineer shall keep adequate records to satisfy the manager that the work is being constructed and installed in a safe and approved manner. The consulting engineer shall submit the CCC(s), prepare the FAC(s), and have any maintenance deficiency items dealt with expeditiously.

The City may, as specified in Part II, clause 2.05 of the *Master Development Agreement*, stop the construction and installation of the infrastructure. Should the consulting engineer not be available on site, The City may issue a field work order to the developer, with a copy of the field order given to the contractor to stop the work. Field orders are described further in Section 3.2 of these Guidelines.

#### **2.5. City/Contractor**

There is no direct contractual relationship between The City and the contractor. Any communications from the manager regarding the ongoing work will be addressed directly to the consulting engineer, unless as otherwise provided for in Section 2.4 of these Guidelines.

### 3. The Role of the Consulting Engineer

#### 3.1. Field Services

In order to perform the required field services, the consulting engineer shall retain consulting field inspectors to perform the necessary inspections and maintain current record keeping. The consulting field inspectors shall have the necessary qualifications and municipal construction experience as recommended by the development industry or the manager to perform such duties.

Field services are provided to certify that the contractor is supplying materials, constructing, and installing infrastructure in accordance with The City's standards and specifications, the approved reports, plans, and design or as otherwise required by the manager.

There are two levels of consulting engineer field inspectors, junior and senior. Junior inspectors are responsible for all activities within a particular site, and senior inspectors are responsible for the supervision of more than one junior inspector.

The consulting engineer's senior field inspector shall have one of the following qualifications:

- a) Be a Certified Engineering Technologist (C.E.T.), Professional Technologist (P. Tech.), or Registered Engineering Technologist (R.E.T.) registered with the Association of Science and Engineering Technology Professionals of Alberta (ASET), and have a minimum of three years experience in municipal construction,
- b) Have a minimum five years experience in related municipal construction, or
- c) Be a Member-in-training registered with APEGGA, and have a minimum of two construction seasons experience in municipal construction.

The consulting engineers' junior field inspector shall have one of the following qualifications:

- a) Be a Certified Engineering Technologist registered with ASET,
- b) Be an employee of the consulting engineer with a grade 12 or equivalent education and a minimum of three years experience in municipal construction,
- c) Be an employee of the consulting engineer and have completed at least two years of recognized university engineering undergraduate degree program with applicable municipal experience, or
- d) Post-secondary enrolment in a related field (engineering technology, geomatics, etc.) plus one year of municipal construction experience.

The consulting engineer's field inspector shall be completely familiar with the following:

- a) The approved construction drawings of the specific subdivision
- b) The approved erosion and sediment control (ESC) report and plan for the site
- c) These Guidelines

- d) The City's applicable specifications, standards, and procedures (Water Resources, Roads, and Parks)
- e) The proposed work schedule of the contractor(s) and the equipment to be used
- f) The requirements to obtain permission to construct infrastructure, clearance for the development permit, or authorization for stripping and rough grading
- g) Applicable municipal bylaws, provincial regulations, and federal legislation
- h) The Eco-Plan, if applicable (required for all City projects or work being done for City business units), and
- i) The City's procedures for field orders, stop work orders, and appeal procedures.

Environmental compliance, soil compaction, slope stability, material compliance, and other testing services are to be performed by the consulting engineer, or contracted engineering firms, to ensure and certify that the obligations to The City and any other regulatory agencies are met.

It shall be the responsibility of the consulting engineer to determine whether field services and testing levels in excess of the levels specified in these Guidelines are necessary, and to advise the developer and the manager accordingly.

### **3.2. Field Orders and Appeal Procedures**

Field orders are issued when, in the opinion of the City inspector, any materials, design, construction, installation, or inspection of the work does not meet or conform to City specifications, approved reports, guidelines, or standards. The *Development Field Order* form is used by Water Resources development inspectors and subdivision inspectors, as well as Roads subdivision inspectors. See Section 7 for a copy of the form.

The field order, issued by the City inspector, will detail the deficiency and the required action. The consulting engineer shall describe in the field order the corrective action that was taken to correct the deficiency. The consulting engineer shall return one copy of the completed field order to the City inspector who issued the order to confirm the correction of the deficiency. All field orders issued that are applicable to a specific infrastructure must be addressed and approved by the City inspector, prior to requesting a joint inspection (between The City and the consulting engineer) for certification (CCC or FAC) for that infrastructure.

If corrective action is not taken by the consulting engineer, the City inspector, on behalf of the manager, may immediately stop any work, as provided for under Part II, clause 2.05 of the [Master Development Agreement](#). In addition, if it is the opinion of the City inspector that unsatisfactory materials have been or will be used, the City inspector may order the removal of the material from the work area.

In accordance with established procedures, the developer or the consulting engineer may appeal the City inspector's decision to that inspector's supervisor. The consulting engineer may appeal any decision to the next level of supervision until the manager is reached. Any decision taken by the manager on a matter related to subdivision development will be considered final and binding.



#### **4. Stripping and Rough Grading**

As per The City of Calgary [Land Use Bylaw 1P2007](#), any area of land to be excavated, stripped, or graded over 1,000 m<sup>2</sup> requires the developer or landowner to obtain permission from The City. Permission for stripping and rough grading can be obtained either through a development permit, or at the discretion of the manager through the authority of a *Master Development Agreement* (MDA).

If a developer will be performing stripping and grading operations over multiple phases of development, a development permit for stripping and grading will be required. If the stripping and grading operations are limited to one phase of development, the stripping and grading can be performed under the authority of the MDA.

With both options, the required documents must be submitted and reviewed prior to approval and issuance of permission for stripping and rough grading. These requirements, as well as flowcharts outlining the stripping and grading application processes, can be found in Section 5.0 of The City of Calgary Water Resources' [Guidelines for Erosion & Sediment Control](#) (*ESC Guidelines*). The requirements for stripping and grading permissions under the MDA are also outlined in the [Design Guidelines for Subdivision Servicing](#).

The main component of a stripping and rough grading application is the review of the Erosion and Sediment Control (ESC) report and drawings. The ESC report shall outline measures to protect watercourses and adjacent lands from erosion and sediment pollution arising from the development of the subject area. These measures must be followed throughout the project: from prior to the commencement of initial stripping and grading operations, through to the completion of grading and site rehabilitation, which may be required until all FACs for the development are acknowledged by the manager. The consulting engineer shall ensure that the planning and implementation responsibilities outlined in Section 3.6 of the *ESC Guidelines* are being fulfilled. Best practices for the implementation of erosion and sediment control measures can be found in The City's [Field Manual for Erosion & Sediment Control](#).

##### **4.1. Development Permit Stripping and Grading**

Stripping and rough grading operations under the authority of a development permit have submission requirements that are outlined in the *Development Permit Complete Application Requirement List* (CARL), which can be found on The City of Calgary's [website](#).

##### **4.2. Master Development Agreement Stripping and Grading**

If stripping and rough grading is performed under a MDA the conditions and requirements are set out in Part XII of the *Master Development Agreement*, in the *Design Guidelines for Subdivision Servicing*, as well as outlined in Section 5.0 of the *ESC Guidelines*

### **4.3. Commencement of Work**

After receiving The City's approval to strip and rough grade under a development permit or a MDA, the consulting engineer, prior to the commencement of stripping and rough grading work, shall:

- a) Ensure that all sediment and erosion controls are in place as per the approved ESC report and drawings,
- b) Ensure that all required fencing has been erected,
- c) Ensure that all required "Private Property"/"No Trespassing" signs have been posted, and
- d) Contact the Water Resources ESC Inspector 48 hours in advance of commencing the work to arrange for a pre-construction site meeting.

Following this pre-construction meeting, if all conditions noted above have been completed to the satisfaction of the City inspector, written permission to commence stripping and rough grading will be given.

A City inspector may issue a stop work order using the *Development Field Order* found in Section 7 of these Guidelines for, but not limited to, the following conditions:

- a) Commencing stripping and rough grading operations prior to release of the development permit, or if under a development agreement, prior to approval from the manager
- b) Unauthorized stockpiling operations (major stockpiles of loam or subsoil)
- c) Failure to comply with City inspectors instructions to rectify erosion, sedimentation, dust, drainage issues, slope stability, perimeter protection, or danger to compromise environmentally sensitive areas

### **4.4. Compaction**

The consulting engineer shall ensure that the compaction tests taken are in compliance with The City's Water Resources and Roads standard specifications. Lab-testing results for Proctor testing, sieve analysis for granular soil, and soil sampling results for each subdivision are also required.

The consulting engineer, prior to submission of the compaction reports, shall review the compaction reports to ensure that all tests submitted have met the City compaction specifications and requirements. Test locations not meeting the City compaction specifications are to be re-compacted and re-tested. All testing results must be included in the final compaction report.

All compaction reports shall be forwarded to the attention of the Roads Material and Research Senior Compaction Technician. If compaction compliance has been met, the senior compaction technician will forward a compaction compliance letter to the developer, the consulting engineer and to the appropriate Roads inspector, stating that the compaction reports and tests are in compliance with City compaction specifications.

The CCCs for underground utilities and surface improvements will not be issued until all the compaction compliance letters have been issued by Roads. Compaction compliance letters will be required to be submitted at the field inspection construction completion stage.

#### **4.5. Maintenance and Inspection**

The consulting field inspector who is inspecting the stripping and rough grading operations must be thoroughly knowledgeable in the field of erosion and sediment control and ensure that the work carried out is in compliance with the latest approved ESC report and drawings for the site.

As a minimum, the site must be inspected every seven days, as well as during or within 24 hours of significant<sup>3</sup> rainfall or snowmelt. An approved copy of the ESC report and drawings and completed inspection logs are to be kept by the consulting field inspector, and are subject to audit. Should site conditions warrant an amendment to the ESC drawings, a revision must be submitted to the Water Resources Erosion Control Technician for approval. See Section 9.0 of the *ESC Guidelines* for further details.

#### **4.6. Drainage and Dewatering Permits**

As per the [City of Calgary Drainage Bylaw 37M2005](#), the developer and those under their control are responsible for ensuring that a drainage or dewatering permit is obtained from Water Resources, prior to discharging impounded runoff (caused by rainfall and/or snowmelt), seepage, or groundwater from construction site excavations or other areas to a storm sewer. The developer and those under their control are responsible for adhering to all conditions and requirements stipulated in the drainage or dewatering permit at all times. Contact the Water Resources Erosion Control Co-ordinator at 403-268-2655, or visit The City of Calgary [website](#), for downloadable drainage and dewatering permit applications and further information.

Under the [City of Calgary Wastewater Bylaw 14M2012](#), permission is required to dispose of groundwater or impounded surface water to The City's sanitary sewer system. For further information contact the Water Resources Industrial Monitoring Supervisor, at 403-268-4558.

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<sup>3</sup> 12+ mm in 24 hours

## 5. Underground Utilities

Underground utilities include, but are not limited to, sanitary sewers, storm sewers, stormwater storage facilities, water mains, hydrants, and sewer and water service connections. Also included are sewer lift stations and water booster pump stations. The specifications and standards for design, materials, installation, and inspection of the underground utilities are under the jurisdiction of The City of Calgary Water Resources.

All stormwater storage facilities (wet ponds, dry ponds, and/or wetlands) constructed on a site will require separate Construction Completion Certificates (CCCs) and Final Acceptance Certificates (FACs), since each stormwater facility has its own set of inspection requirements and procedures.

### 5.1. Permission to Install Underground Utilities

For underground utilities, one set of cover sheets and one full set of drawings (including block profiles) must be submitted to the Urban Development Technologist for permission to construct underground utilities. The required amount of inspector's sets must be included with the submission of the final set of construction drawings.

The *Permission to Construct* letter from the manager (of Urban Development) constitutes the written approval to install underground utilities. The requirements indicated below must be submitted, reviewed, and approved to the satisfaction of the manager in order to obtain the letter. Note that permissions for the construction of overland drainage facilities, catch basins, and leads are included in the surface improvements construction approval process detailed in Section 6 of these Guidelines, but are still under the jurisdiction of Water Resources.

The consulting engineer shall submit a written request to install underground utilities to the Development Technologist. This request letter shall include:

- a) The subdivision name and phase number
- b) The development agreement number
- c) The developer's name
- d) An 8½" x 11" plan outlining in red the boundaries of the subdivision phase

A separate request for construction permission is required for a stormwater management facility. In addition to the requirements set out above, the Alberta Environment approval letter for the stormwater facility must be forwarded from Water Resources to the Urban Development Technologist prior to the permission being granted.

Prior to Urban Development signing-off on the *Permission to Construct* letter for underground utilities, the following must be in place:

- a) The final circulation set of construction drawings, including all revisions, must be approved by Water Resources and Urban Development, ensuring that any surface improvement or line assignment issues that could affect the underground utilities have been resolved. Refer

to Water Resources' *Guide to Development Approvals Applications Construction* (available on The City of Calgary's [website](#)) for more information,

(Note that underground permissions can be granted from the preliminary set of construction drawings if the drawing set has completed a full circulation. The set must be clean and free of any major design errors at the discretion of the manager)

- b) Any markups on the City circulation set of drawings from Water Resources and Utility Line Assignments must be transferred onto the required inspector sets,
- c) Proof must be provided that geotechnical and environmental issues, if any, have been resolved,
- d) The performance security and indemnification for the subdivision phase must be provided,
- e) A copy of the certificate of insurance must be received by Urban Development,
- f) Proof must be provided to show that any other issues that could affect the installation of the underground utilities have been resolved,
- g) Letters of authorization (if necessary) must be received from Alberta Environment, and
- h) A tentative plan must be approved by Urban Development (the related Outline Plan and Land Use Re-designation must also have the appropriate approvals).

Once all of the conditions listed above have been met, the *Permission to Construct* letter to install the underground utilities and/or stormwater storage facilities will be issued by Urban Development and sent to the consulting engineer. A copy of this letter will also be forwarded to various City business units and to applicable utility companies.

## **5.2. Notification to Install Underground Utilities**

After receiving City approval for permission to install underground utilities, including stormwater storage facilities, the consulting engineer or contractor assigned by the developer shall notify Water Resources, Inspection Services by fax (403-537-3050), using the *Construction Commencement Notification* form in Section 7 of these Guidelines. The notification must include the following:

- a) The names of the developer, consulting engineer, and contractor, as well as their contact information
- b) The subdivision name and phase number
- c) The development agreement number
- d) The type of installation to occur
- e) The start-up date and time

Notification shall be made no later than 48 hours prior to construction. If construction commences prior to obtaining construction permission from The City, a stop work order as outlined in Section 3.2 of these Guidelines will be issued. Re-notification for inspection is required after 48 hours of construction inactivity, excluding Saturdays, Sundays, and statutory holidays.

### 5.3. Site Inspection

The city is divided into utility inspection zones for inspection by the Water Resources Inspection Services Subdivision Inspectors (further referred to as Water Resources inspectors). The zone boundaries and contact information for the corresponding Water Resources inspectors can be found in Section 7 of these Guidelines.

The city is also divided into zones for review of stormwater storage facilities by the Water Resources, Development Approvals Development Engineers (further referred to as Water Resources Development Engineers). The zone boundaries and contact information for the corresponding Water Resources Development Engineers can also be found in Section 7 of these Guidelines.

The consulting engineer shall supply to the appropriate Water Resources inspector one copy of the grade sheets for all sanitary sewers, storm sewers, water mains, hydrants, and sewer and water service connections prior to constructing the section of utility contained on the grade sheet.

Full time inspection of the project by the consulting engineer's field inspector shall be provided during the installation and maintenance work of the underground utilities with the exception of the following items:

- a) Repairs to the top box, bottom box, rod, and casing for water service connections
- b) Repairs where exposure of contaminants to the water supply would not occur
- c) Valve rods and casing repairs for water mains
- d) Cathodic protection repairs
- e) Cleaning and flushing of both sanitary and storm systems
- f) Thawing of services
- g) Manhole adjustments and repairs
- h) Catch basin and lead repairs

Although full time inspection might not be required during the performance of the specific items noted above, spot inspections are required by the consulting engineer's field inspector. Inspections over and above the minimum requirements outlined in this manual will be at the discretion of the consulting engineer. Full time inspection is required by the consulting engineer during the reinstallation of sewer services, sewer mains, and sewer surface appurtenances repairs.

For inspection of water services for a park related project, the Water Resources inspector shall only inspect from the water main to the flange at the water meter pit. The inspection of the water meter pit and beyond shall be carried out by the Parks inspector, as set out in the current Parks' [Development Guidelines and Standard Specifications: Landscape Construction](#).

The consulting engineer shall ensure adherence to the requirements set out in the "acceptance testing" section (403.13.00) of the current Water Resources [Standard Specifications: Sewer](#)

Construction. For the underground utilities where CCTV video, mandrel testing, bedding material, drop test, and/or grain size analysis reports are required, these reports must be submitted to the Water Resources inspector prior to the consulting engineer making the request for a joint inspection.

#### **5.4. Materials Compliance and Compaction Testing**

If required, the developer, at its sole expense, shall supply test results from an accredited testing company, of the soil's alkalinity and resistivity, to identify abnormal soil conditions that may require special design consideration for sanitary sewers, storm sewers, dry ponds, wet ponds, wetlands, and water mains. The results will be approved at the discretion of the manager.

The consulting engineer shall certify that the contractor is using only approved materials and employing only approved construction and installation procedures. All materials supplied and the construction and installation procedures shall comply with the current versions of the following Water Resources documents (available on The City of Calgary's [website](#)):

- a) *Standard Specifications: Sewer Construction*
- b) *Standard Specifications: Waterworks Construction*
- c) *Stormwater Management & Design Manual*

A copy of all concrete test results obtained during the underground utility installation process, as required in the design and construction specifications and standards, shall be forwarded to the appropriate Water Resources inspector for review and approval. The concrete test results are required to be submitted in order for the CCC(s) for that underground utility to be acknowledged by The City.

The consulting engineer shall ensure that the consultant retained for compaction testing has been notified and is on site during backfilling of the underground utility trenches, compaction of the base for concrete drainage gutters, and compaction of stormwater wet ponds.

After the completion of installation of all underground utilities, a report of the compaction test(s) taken shall be forwarded by the consulting engineer to the Roads, Material and Research Senior Compaction Technician for review. If the compaction tests (or retests) meet The City's standards and specifications, the senior compaction technician will forward a letter to the consulting engineer advising that the tests are in compliance.

#### **5.5. Construction Completion Inspection Procedures**

##### **5.5.1. Construction Completion Inspection Procedures for Underground Utilities, Excluding Storm Water Storage Facilities**

Once the installation of the specific underground utilities (excluding stormwater storage facilities) is complete, the following procedures are required prior to the consulting engineer submitting the CCC(s) to The City:

- a) The consulting engineer shall inspect the specific underground utilities, record any deficiencies and advise the contractor to repair them. After the contractor repairs the deficiencies, the consulting engineer shall carry out a further inspection to ensure they are satisfied with the corrections.
- b) All subdivision development field orders issued by the Water Resources inspector that are applicable to the underground utility must be resolved to the satisfaction of the said inspector.
- c) If applicable, submit to Water Resources inspector the bedding material drop test and grain size analysis report.
- d) Review the *Construction Completion Checklist Sheets* (see Section 7) outlining the essential and non-essential items for review for each utility.

If all of the above is complete, the consulting engineer shall arrange a joint inspection between the Water Resources inspector and the consulting engineer's field inspector. The joint inspection is to ensure that systems are fully functional, sewers are operational, water mains are pressure tested and chlorinated, roads are open, etc. The request for a joint inspection shall be made using the *Certificate Inspection Request and Appointment Confirmation* (see Section 7).

Note that in some cases, the Water Resources inspector may determine that a joint inspection is not required, and will conduct the inspection alone.

If any deficiencies are found during the joint inspection, a list of deficiencies will be recorded on the appropriate *Construction Completion Checklist Sheet* (see Section 7) by the Water Resources inspector and a copy will be faxed to the consulting engineer. After the contractor has repaired the deficiencies, a further inspection shall be made by the consulting engineer on the deficiencies to ensure they have been corrected as required. The consulting engineer shall then request another joint inspection.

After a successful joint inspection has taken place and all essential items listed in the *Construction Completion Checklist Sheet* have been completed, the *Construction Completion Inspection Approvals Sheet* (see Section 7) specific to that utility will be completed by the Water Resources inspector and signed by both the inspector and the consulting engineer. Note that a separate *Construction Completion Inspection Approvals Sheet* is required for each underground utility.

Any outstanding paperwork, reports, or non-essential items will be noted on the *Construction Completion Inspection Approval Sheet*. All non-essential items listed must be completed within 60 days of the date the *Construction Completion Inspection Approval Sheet* is signed, unless the signing date is after September 15; in that case, the work must be completed by the following June 30, unless otherwise approved by the Manager of Urban Development. In the event that the non-essential items are not completed and inspected at the times noted above, the maintenance period will be deemed to begin at the actual completion/inspection date of the outstanding non-essential items, or as otherwise approved by the manager.



### 5.5.2. Construction Completion Inspection Procedures for Surface Drainage Facilities

While surface drainage facilities consist of two components, concrete drainage gutters and grass swales, only one construction completion certificate is required to be submitted. The inspection procedure for surface drainage facilities shall follow the same procedure as that for underground utilities as set out in Section 5.5.1 of these Guidelines. However, additional items must be inspected during the joint inspection, as follows:

a) Concrete Drainage Gutters:

The joint inspection shall require that all of the concrete drainage gutters must be completed, including all ties to the sidewalk, the sidewalk swale portion, and/or to the curbs and gutters. Water drainage slope tests will be conducted in which water is placed into the swale at the high end and let flow to the low end to identify if any ponding is present. Any ponding areas as determined by the Water Resources inspector are to be replaced. As there will not be an FAC inspection for the concrete drainage gutters, any damage to the concrete drainage gutters must also be replaced at the CCC stage.

b) Grass Swales:

The joint inspection of the grass swale portion at the CCC stage ensures that the swales have been sloped and graded in accordance to the approved construction drawings. The inspection of the grass swales will also be made at the FAC inspection stage for surface drainage facilities.

Note also that any required emergency escape routes must be constructed to the approved elevations and grades, and must be functional prior to joint inspection.

### 5.5.3. Construction Completion Inspection Procedures for Stormwater Storage Facilities

The construction completion inspection process for stormwater storage facilities (dry ponds, wet ponds, and wetlands) is done by two separate Water Resources groups. Facility design and inventory are reviewed by Infrastructure Planning, Development Approvals (hereafter referred to as Development Approvals), while field inspections are completed by Infrastructure Delivery, Inspection Services (hereafter referred to as Inspection Services). Signoff is required from both groups before CCCs for stormwater storage facilities will be issued, and a separate inspection checklist is required for each stormwater storage facility.

To prevent the need for later pumping/draining of the stormwater storage facility, the consulting engineer shall complete the following **prior** to the CCC inspection stage and **before** water is allowed to enter the stormwater storage facility:

- a) Request an inspection from Inspection Services of items below the normal water level (NWL).
- b) Submit an as-built (record) survey of the pond to Development Approvals.

After completing the construction of the stormwater storage facility, the following must occur prior to the consulting engineer submitting the CCC to The City:

- a) The Consulting Engineer shall submit record drawings to Development Approvals for review and approval. The record drawings shall include all the items noted in the *Development Approvals Pond CCC Signoff – Checklist #7* (see Section 7, also available on The City of Calgary’s [website](#)). The Water Resources Development Engineer will notify the consulting engineer if the record drawings have been approved, or if revisions are required. Please note that record drawings are required for **all** stormwater storage facilities (dry ponds, wet ponds, and wetlands).
- b) The consulting engineer shall submit a letter to the Development Engineer from the alarm panel installer confirming that the system has been installed and is operating as intended. Once the letter is received, the Development Engineer will contact Water Resources, Field Services to confirm that the monitoring system is in good working order.
- c) The consulting engineer’s field inspector shall inspect the specific storm water storage facility, ensuring that all the items listed in the following checklists are complete:
  - *Development Approvals Pond CCC Signoff – Checklist #7*
  - *Dry Pond Inspection – Checklist #11 or Wet Pond/Wetland Inspection – Checklist #12*, whichever is appropriate.
- d) Once the stormwater storage facility has been inspected, all deficiencies shall be recorded and the contractor shall be advised to repair the deficiencies. After the contractor has repaired the deficiencies, an additional inspection shall be made by the consulting engineer’s field inspector to ensure that all deficiencies have been corrected.
- e) All subdivision development field orders issued by Water Resources inspectors that are applicable to the specific stormwater storage facility must be resolved to the satisfaction of Water Resources prior to requesting a joint inspection.

If all of the above is complete, the consulting engineer shall arrange a joint inspection with the Water Resources inspector to ensure that systems are fully functional, etc. The request for a joint inspection shall be made using the *Certificate Inspection Request and Appointment Confirmation* (see Section 7). Note that in some cases, the Water Resources inspector may determine that a joint inspection is not required, and will conduct the inspection alone.

If any deficiencies are found during the inspection, the Water Resources inspector will follow the same procedures as noted in Section 5.5.1 of these Guidelines. If the Development Approvals group has any deficiencies to note after reviewing the record drawings, the development engineer will provide a list of deficiencies to the consulting engineer via email. The consulting engineer shall correct the deficiencies and conduct a field check to ensure that all deficiencies have been corrected. Once Water Resources, Development Approvals receives confirmation that the deficiencies have been corrected, the *Construction Completion Inspection Approval Sheet for Stormwater Facilities – Development Approvals* (see Section 7) will be signed off by the Development Approvals Development Engineer and the consulting engineer.

After a successful joint inspection with the Water Resources inspector, the *Construction Completion Inspection Approval Sheet for Stormwater Facilities – Inspection Services* will be signed by the Water Resources inspector and the consulting engineer. It should be noted on the form if any paperwork, reports, and non-essential items are outstanding.

Please note the following:

- a) Separate *Construction Completion Inspection Approvals Sheets* are required for each stormwater storage facility.
- b) The Development Approvals and Inspection Services CCC Signoffs are not dependent upon each other (i.e. record drawings do not need to be submitted prior to the field inspection).
- c) Any queries regarding inspection status or other stormwater storage facility-related inquiries shall be made to the appropriate Water Resources group.

Note: Until FAC signoff, all utility and communication (telephone) bills are the responsibility of the developer. Refer to Water Resources' *Guide to Development Approvals Applications Construction* (available on The City of Calgary's [website](#)) for more information.

## **5.6. CCC Submission Procedures for Underground Utilities**

After the specific underground utility or stormwater storage facility has passed the joint inspection and the appropriate *Construction Completion Inspection Approval Sheet* has been signed off by all parties listed, the developer (through its consulting engineer) shall prepare and submit the Construction Completion Certificate (CCC). See Section 7 for a sample of the CCC. The CCC shall be duly signed, sealed, and certified by the signing officer of the consulting engineer.

The CCC shall be submitted to the Urban Development Subdivision Development Co-ordinator. The CCC submission package shall include the applicable items noted in the *Construction Completion Certificate Submission Checklist* (see Section 7).

Prior to submitting the CCC for water mains and hydrants, the consulting engineer shall issue a letter to the Fire Department that includes a plan certifying that the completed and operable hydrants constructed and located within the area are covered by the CCC. The letter and plan(s) shall be sent to:

Strategic Services Division  
The City of Calgary Fire Department  
4124 11 St SE  
Calgary, AB T2G 3H3  
Attention: Response Mapping

A copy of the letter and plan shall also be included with submission of the CCC package for the water mains and hydrants.

## **5.7. Maintenance Subsequent to Issuance of CCCs for Underground Utilities and Stormwater Storage Facilities**

Once The City acknowledges the CCC(s) for a specific underground utility or stormwater storage facility, the developer shall be responsible for any and all repairs and replacements to that infrastructure which, in the manager's sole opinion, may become necessary from any cause

whatsoever, until the FAC for that underground utility or stormwater storage facility has been accepted by The City, as set out in the terms of the *Master Development Agreement* and the following Water Resources documents (available on The City of Calgary's [website](#)):

- a) *Standard Specifications: Sewer Construction.*
- b) *Standard Specifications: Waterworks Construction.*
- c) *Stormwater Management & Design Manual.*

The projected earliest maintenance period expiry date will be entered in reference to the time frame set out in the *Master Development Agreement* or in the Special Clauses Agreement if the facility has been constructed such that the maintenance period is longer than what is set out in the MDA. The maintenance period commences from “date construction completed”, which is the date indicated on the *Construction Completion Inspection Approval Sheet* for the said underground utility or storm water storage facility.

## **5.8. Final Acceptance Inspection Procedures**

### **5.8.1. Final Acceptance Inspection Procedures for Underground Utilities and Surface Drainage Facilities (Excluding Stormwater Storage Facilities)**

Prior to submitting the request for the final acceptance inspection for sewer and water connections, Service Cards for the sewer and water services are to be completed by the consulting engineer and submitted to Water Resources. The City has moved to a fully electronic process for the submission of Subdivision Service Cards, and no longer provides or accepts paper form Service Cards. Further instructions can be found on the *Electronic Service Card Submission Customer Notice* in Section 7. The latest electronic Service Card template can be obtained by contacting the Water Resources Business Application Coordinator at 403-268-5676 or e-mailing [WA-ServiceFAC@calgary.ca](mailto:WA-ServiceFAC@calgary.ca).

As part of the Final Acceptance inspection procedure, the consulting engineer's field inspector shall first inspect the specific underground utility (or surface drainage facility), record any deficiencies, and advise the contractor to repair any noted deficiencies. After the contractor repairs the deficiencies, the consulting engineer's field inspector shall carry out an additional inspection. If all corrections have been satisfied, the consulting engineer shall arrange a joint inspection with the Water Resources inspector. The request for a joint inspection shall be made using the *Certificate Inspection Request and Appointment Confirmation* (see Section 7), on which it shall be indicated that the inspection is for Final Acceptance. In some cases, the Water Resources inspector may determine that a joint inspection is not required, and will conduct the inspection alone.

The joint inspection shall be requested no earlier than three months prior to the projected earliest maintenance period expiry date, as specified in the relevant CCC for the utility/facility in question. The consulting engineer shall also ensure that all the deficiencies listed on the CCC field inspection sheet have been corrected and approved by the Water Resources inspector prior to joint inspection.

If any deficiencies are found during the joint inspection, a list of deficiencies will be recorded on the FAC field inspection sheet by the Water Resources inspector and a copy will be faxed to the consulting engineer. After the contractor has repaired the deficiencies, a further inspection shall be made by the consulting engineer on the deficiencies to ensure they have been corrected as required. The consulting engineer shall then request another joint inspection.

Following a successful joint inspection of the specific underground utility (or surface drainage facility), the *Final Acceptance Inspection Approval Sheet* (Section 7) will be completed and signed by the Water Resources inspector and by the consulting engineer.

#### 5.8.2. FAC Inspection Procedures for Stormwater Storage Facilities

The FAC inspection procedure for storm water storage facilities shall be made in the same manner as the CCC inspection procedure for storm water storage facilities as set out in Section 5.5.3 of these Guidelines, with the exception of the following:

- a) The consulting engineer's field inspector shall inspect the specific stormwater storage facility, ensuring that all the items listed in the inspection checklists (available on The City of Calgary's [website](#) and outlined in Section 7) are complete, including:
  - *Development Approvals Pond FAC Signoff – Checklist #8*
  - *Dry Pond Inspection – Checklist #11 or Wet Pond/Wetland Inspection – Checklist #12*, whichever is appropriate.
- b) If the Water Resources Development Approvals group has any deficiencies to note, the development engineer will provide a list of deficiencies to the consulting engineer via email. The consulting engineer shall correct the deficiencies and conduct a field check to ensure that all deficiencies have been corrected. Once Development Approvals receives confirmation that the deficiencies have been corrected, the development engineer will sign off on the *Final Acceptance Inspection Approval Sheet for Stormwater Facilities – Development Approvals* (see Section 7). Inspection Services will complete the *Final Acceptance Inspection Approval Sheet for Stormwater Facilities – Inspection Services* form upon a satisfactory inspection.
- c) An as-built (record) survey of the pond must be submitted to Development Approvals.

Once FAC signoff has been received from all Water Resources groups, utility and communication (telephone) bills can be transferred to Water Resources. Refer to Water Resources' *Guide to Development Approvals Applications* (available on The City of Calgary's [website](#)) for more information.

### 5.9. FAC Submission Procedures for Underground Utilities and Stormwater Storage Facilities

At the end of the developer's maintenance period, and prior to The City accepting the FAC for the sewer infrastructure, the consulting engineer shall submit to the Water Resources inspector the

following (as per Section 403.13.05 relating to video inspection of the current Water Resources [Standard Specifications: Sewer Construction](#)):

- a) A declaration letter signed by a certified employee of the consultant stating that they have “reviewed the Sewer Inspection Report”. In addition, this letter shall; include a list of all defects and the corrective actions taken,
- b) Bound hard copies of inspection reports for both sewer mains and manholes,
- c) Digital video recordings of sewer mains on DVD or CD,
- d) Separate electronic data files of sewer main inspection reports on DVD or CD, and
- e) A copy of the PACP certification for each operator who carried out the inspection as well as the name and a copy of the certification of the consultant’s reviewer who certified the submission.

Note: All documentation above must be reviewed prior to submission by a reviewer with PACP certification.

After the specific underground utility or storm water storage facility has passed the joint inspection and the *Final Acceptance Inspection Approval Sheet* has been signed off by all parties listed, the developer, through its consulting engineer, shall prepare and submit the Final Acceptance Certificates (FACs). The FAC shall be duly signed, sealed, and certified by the signing officer of the consulting engineer. See Section 7 for a template of the FAC

The FAC shall be submitted to the Urban Development Subdivision Development Co-ordinator. The FAC submission package shall include the items noted in the applicable *Final Acceptance Certificate Submission Checklist*. See Section 7 for the appropriate checklists.

## 6. Surface Improvements

Surface Improvements include, but are not limited to, sidewalks, curbs, gutters, catch basins and leads, surface drainage facilities, regional pathways, parks features, paved roads, paved lanes, paved walkways, gravelled lanes, sound attenuation, and screening fencing.

### 6.1. Permission to Construct Surface Improvements

When requesting permission to construct surface improvements, the final set of construction drawings must be submitted to the Urban Development Technologist, along with the required amount of inspector's sets. For surface improvements, two sets of cover sheets and one full set of drawings (including block profiles) must be received. These sets are *in addition* to those received with the submission for underground permission.

Prior to receiving written approval for permission to construct surface improvements the requirements as indicated below must be submitted, reviewed, and approved to the satisfaction of the Manager of Urban Development. Note that permissions for the construction of overland drainage facilities, catch basins and leads are included in the surface improvements construction approval process, but are still under the jurisdiction of Water Resources.

Each subdivision phase requires an *Asphalt Pavement Road Structure Design Report* to ensure that the paved road structure meets The City of Calgary Roads [Standard Specifications: Roads Construction](#) for each type of road category being constructed in that phase. A certified Geotechnical Engineer shall prepare the *Asphalt Pavement Road Design Structure Report* as set out under Section 308.01 of the current *Standard Specifications: Roads Construction*. An original signed and sealed copy of the report to the consulting engineer shall be forwarded with a covering letter to Roads, Materials and Research, to the attention of the Quality Control Supervisor for review and approval. Once the report is approved, a letter from the Materials and Research Engineer will be forwarded to the consulting engineer, advising that the *Asphaltic Pavement Road Structure Design Report* has been approved. The letter notes the geotechnical report file number and the makeup of the pavement structure design.

The consulting engineer shall submit a written request to construct surface improvements to the Urban Development Technologist. This request letter shall include:

- a) The subdivision name and phase number
- b) The development agreement number
- c) The developer's name
- d) An 8 ½" x 11" plan outlining in red the boundaries of the subdivision phase
- e) A copy of the approval letter from Roads, Materials and Research approving the asphalt pavement road structure design

Prior to Urban Development signing off on the surface permissions to construct letter, the following must be in place:

- a) Permission to construct underground utilities (if applicable),
- b) The *Stormwater Management Report* must be approved,
- c) The final circulation set of construction drawings, including all revisions, must be approved by Water Resources, Roads, and Urban Development, ensuring that any Utility Line Assignment, Transportation, or Parks issues that may affect the surface improvements have been resolved.

Note that surface permission can be granted from the preliminary set of construction drawings if the drawing set has completed a full circulation. The set must contain a building grade plan and be clean and free of any major design errors, at the discretion of the Urban Development Manager.

- d) Any markups on the City circulation set of drawings from Water Resources, Roads, Parks, and Utility Line Assignment must be transferred onto the required inspector sets,
- e) Proof that geotechnical and environmental issues, if any, have been resolved,
- f) The performance security and indemnification for the subdivision phase must be provided,
- g) A copy of the certificate of insurance must be received by Urban Development,
- h) Proof must be provided that any other issues that may affect the construction of the surface improvements have been resolved (i.e. authorization letters from adjacent land owners for back sloping, authorization from Alberta Environment, etc.).

After all the conditions noted above have been met, the letter for permission to construct the surface improvements will be issued by Urban Development and sent to the consulting engineer. A copy of this letter will also be forwarded to various business units at The City and to utility companies.

## **6.2. Notification to Construct Surface Improvements**

After receiving City approval for permission to construct the surface improvements, the consulting engineer (or the contractor assigned by the developer) shall notify City of Calgary Roads using the *Construction Commencement Notification - Roads* form in Section 7 of these Guidelines. The notification includes the following:

- a) Developer, consulting engineer, and contractor name and contact numbers
- b) Subdivision name and phase number
- c) Development agreement number
- d) Work site location
- e) Type(s) of surface improvement to be constructed
- f) Start-up time and date



Notification to Roads shall be made no later than 24 hours prior to construction. If construction commences prior to obtaining construction permission from The City, a stop work order as outlined in Section 3.2 of these Guidelines will be issued. Re-notification for inspection is required after 48 hours of construction inactivity, excluding Saturdays, Sundays, and statutory holidays.

The city is divided into zones for Roads Development Acceptance inspection purposes. The [Roads Subdivision Officer Responsibility Areas](#) map can be in Section 7 of these Guidelines, and includes the name and contact information of the inspectors.

The inspection of the catch basins and leads is under the jurisdiction of Water Resources. When catch basins and leads are to be installed, construction notification must also be forwarded to the Water Resources inspector using the same process as outlined in Section 5.2 of these Guidelines. Please note that Water Resources requires at least 48 hours notice in advance of construction.

### **6.3. Site Inspection**

Full-time inspection by the consulting engineer and/or the consulting engineer's field inspector is required when more than 3 m<sup>3</sup> of Portland cement concrete is to be poured for sections of sidewalk, curbs, and gutters. The level of inspection required when less than 3 m<sup>3</sup> of Portland cement concrete is to be poured for sidewalks, curbs, and gutters shall be determined by the consulting engineer.

Full-time inspection by the consulting engineer shall be provided when placing more than 15 tonnes of asphaltic materials for roads, lanes, walkways, etc.

The consulting engineer or contractor assigned by the developer shall notify the Roads Materials and Research Engineer, as well as the area Roads inspector (subdivision officer), by telephone prior to all pours.

Regardless of whether or not the consulting engineer provides full-time inspection when placing sub-grade, the consulting engineer shall:

- a) Contact the appropriate Roads inspector prior to placing any granular fill and/or asphaltic material, and
- b) Maintain sufficient spot inspections during the placement of any granular fill materials to ensure that all granular materials placed comply with The City of Calgary [Standard Specifications: Roads Construction](#).

The consulting engineer is advised of the following requirements:

- Material testing required during the placement of any granular fill – including areas beneath the sidewalks, curbs and gutters, walkways, and roadways – shall be in compliance with the latest *Standard Specifications: Roads Construction*.
- Prior to asphalt level coursing, the consulting engineer shall prepare a report regarding repairs to settlement of utility trenches and other base failures. The extent of the inspection during level coursing will be determined by the consulting engineer.

- Inspection and quality control reports for roads, lanes, and walkways shall consist of compaction certificates and, where required by the consulting engineer, asphalt pavement core logs for thickness determination.
- The consulting engineer shall check the subgrade and arrange for soil density tests as necessary to certify adherence to *Standard Specifications: Roads Construction*.
- The consulting engineer shall arrange for compaction and density tests of fills and embankments during construction.
- The amount of inspection required during replacement or maintenance of sidewalks, curbs and gutters shall be determined by the consulting engineer.
- The consulting engineer shall provide spot inspection for sound attenuation and screening fencing.

#### **6.4. Material Compliance and Compaction Testing**

The concrete and asphalt material compliance testing will be done by the testing consultant(s) hired by The City's Roads Materials and Research Engineer. The Roads Materials and Research Engineer will forward any information relating to non-compliant materials and required corrective action to the consulting engineer.

Standard Proctor density compaction compliance testing of backfill and pavement structure materials shall be conducted by an accredited testing company as required under the [Master Development Agreement](#) and in compliance with The City of Calgary Water Resources and Roads specifications and standards.

##### **6.4.1. Request for Compliance Testing**

The consulting engineer or contractor assigned by the developer shall notify the Roads Materials and Research group of any upcoming surface work to schedule for compliance testing of the work. Notification shall be made no later than 3:00 PM of the preceding working day.

The cost of the materials compliance testing will be distributed to the appropriate subdivisions on the basis of materials placed. A portion of these costs for the testing is recovered from the developer's acreage assessments inspection fee.

Upon completion of all asphalt and concrete work, the consulting engineer shall request in writing a statement of the findings of the materials compliance test from the Roads Materials and Research group. The request shall include the subdivision name and phase, developer and contractor names, the last date of construction for concrete and asphalt, a map of the area, and a statement from the consulting engineer indicating that the work is complete.

Roads, Material and Research shall reply in writing to the consulting engineer either that all materials are compliant or indicate the areas of non-compliance and the necessary corrective actions.

Notwithstanding the above, the consulting engineer may contact the Materials and Research group at any time regarding the compliance of materials used in a specific area. The consulting engineer shall, upon request, provide the Materials and Research group with dates of placement and quantities of materials placed for the purpose of assessment of material compliance.

The consulting engineer shall ensure that all necessary corrective actions for non-compliance are to be completed prior to the issuance of any CCC.

#### 6.4.2. Testing Performed by The City's Contracted Testing Firm

##### 6.4.2.1. Concrete – Portland Cement

One test is taken per day per supplier or at a frequency as determined by the manager. Each test consists of testing of the concrete for slump, air content, and casting of three cylinders for compressive strength (28 days from casting), subject to cold weather and/or late season requirements. The developer shall provide for additional testing as deemed appropriate by the consulting engineer.

##### 6.4.2.2. Asphaltic Concrete

Prior to the use of any asphaltic hot mix, the consulting engineer shall arrange a 60-kg sample of the asphaltic hot mix for the Materials and Research group to test. The Materials and Research group shall arrange for the sample to be tested in order to determine the asphalt cement content, gradation, and Marshall properties of the sample. If the results of the sample tests comply with the requirements and specifications of The City, the asphalt hot mix will be considered acceptable mix.

Asphaltic hot mix is sampled at the site from the mat or hopper at least once per week for every major mix. A major mix is defined as one that is produced by a supplier for a day or more. The cost of the hot mix analyses is distributed among the users of the particular product on the basis of tonnage (i.e. between developers and City contractors). The sample is analyzed for aggregate gradation, A.C. gauge, and Marshall properties.

The consulting engineer shall note the following:

- Asphaltic cement content testing with a nuclear A.C. gauge and density testing with a nuclear density gauge is done on a daily basis.
- The frequency of testing will be determined by the Roads Development and/or Urban Development Manager to ensure compliance to the specifications.

- Laboratory verification of the results is necessary before action can be taken where non-compliance is indicated for A.C. content.
- Extensive coring is done early in the construction season to calibrate the nuclear density gauges. Occasional coring is done throughout the year to verify results.
- If the Roads inspector is not notified by the consulting engineer in advance of paving, the pavement shall be deemed non-compliant until verified by testing at the developer's expense.
- Additional testing may be done at the discretion of the consulting engineer and at the developer's expense.

### **6.5. Construction Completion Inspection Procedures for Surface Improvements**

After completing the construction of the specific surface improvements, and prior to the consulting engineer submitting the CCC(s) to The City, the following must be in place:

- a) The consulting engineer shall inspect the specific surface improvements, record any deficiencies and advise the contractor to repair them. After the contractor repairs the deficiencies, the consulting engineer shall carry out a further inspection to ensure they are satisfied with the corrections.
- b) All subdivision development field orders issued by Water Resources and Roads that are applicable to the surface improvement must be resolved to the satisfaction of the issuing inspector.
- c) The consulting engineer shall review the applicable *Construction Completion Checklist Sheets* (see Section 7). The checklists include the essential and non-essential items for both Roads and Water Resources. All essential items must be completed prior to submitting the CCC(s), and all non-essential items shall be resolved within 60 days of the CCC, or if installed after September 15, must be resolved prior to June 30 in the year following the date of the CCC application, unless otherwise approved by the Manager of Urban Development. In the event that the non-essential items are not completed and inspected at the times noted above, the maintenance period will be deemed to begin at the actual completion/inspection date of the outstanding non-essential items, or as otherwise approved by the Manager of Urban Development.

The consulting engineer shall contact the Roads inspector to request a joint inspection for the roads portion of the specific surface improvements. If the said surface improvements require Water Resources inspection, the Water Resources inspector shall be contacted **first** for a joint inspection. The consulting engineer shall request a joint inspection with Water Resources using the process as outlined in Section 5.5 of these Guidelines.

If any deficiencies are found during the Water Resources inspection, the Water Resources inspector will follow the same procedures as noted in Section 5.5 of these Guidelines. Following a successful joint inspection of the specific surface improvement, the *Construction Completion Inspection*

*Approvals – Water Resources* form, (see Section 7 of these Guidelines) will be completed and signed by the Water Resources inspector and by the consulting engineer. The Water Resources inspector will complete a separate *Construction Completion Inspection Approval Sheet* for each applicable surface improvement as indicated in the checklist for that specific surface improvement.

Upon successful inspection of the specific surface improvements by the Water Resources inspector, a joint inspection must be requested with the Roads inspector. After the joint inspection of the specific surface improvements have been completed and the work has been accepted by the Roads inspector, the *Field Inspection Sheet - Construction Completion* will be completed and signed by the Roads inspector and the consulting engineer. See Section 7 of these Guidelines for a copy of the form.

When construction of a portion of a specific surface improvement is delayed due to conflict with shallow utility installations, the consulting engineer may submit a CCC for that specific surface improvement and that portion may be omitted under the conditions contained in the [Master Development Agreement](#). The consulting engineer must first request for an approval from the manager for the omitted portion. The conditions and time frame to complete the omitted portion(s) shall be specified in the request. If approved, the approval letter and plan showing the location of the omitted section(s) must be attached to the CCC for that specific surface improvement.

#### **6.6. CCC Submission Procedures for Surface Improvements**

After the specific surface improvement has passed the joint inspection and both the *Field Inspection Sheet – Construction Completion* and *Construction Completion Inspection Approval Sheet – Water Resources* have been signed off by all parties listed, the developer, through its consulting engineer, shall prepare and submit the CCC(s). The CCC shall be duly signed, sealed, and certified by the signing officer of the consulting engineer. See Section 7 of these Guidelines for a template of the CCC form.

The CCC shall be submitted to the Urban Development Subdivision Development Co-ordinator. The CCC submission package shall include the items noted in the applicable *Construction Completion Certificate Submission Checklist*.

#### **6.7. Maintenance of the Surface Improvements Subsequent to Issuance of the CCC(s)**

Once The City acknowledges the CCC(s) for a specific surface improvement, the developer shall be responsible for any and all repairs and replacements to the infrastructure, which may, in the Manager of Urban Development’s sole opinion, become necessary from any cause whatsoever, until the FAC for that surface improvement has been accepted by The City, as set out in the terms of the [Master Development Agreement](#) and [Standard Specifications: Roads Construction](#).

The maintenance period commences from the date the Roads inspector signs the *Field Inspection Sheet – Construction Completion* (Section 7) for the said surface improvement.

During the maintenance period the consulting engineer shall inspect the subdivision and note any failures, settlements or other deficiencies in the work as well as respond to any “complaint” calls forwarded by The City to the consulting engineer.

Should there be any major failures, settlements or other deficiencies, the consulting engineer shall arrange for the contractor to undertake the repair.

#### **6.8. FAC Inspection Procedures for Surface Improvements**

As part of the Final Acceptance inspection procedure, the consulting engineer shall request a final acceptance joint inspection with the Roads inspector and the Water Resources inspector not more than three months prior to the projected earliest maintenance period expiry date as specified in the relevant CCC for the surface improvement. The City will make inspection staff available with five days notice for a joint inspection.

The request for the joint inspection shall only be made after all the deficiencies noted in a joint inspection of the surface improvements between the consulting engineer and the contractor have been corrected and the materials compliance letter has been issued by Roads, Materials and Research.

The Water Resources inspector shall be contacted first on all surface improvements that are applicable to Water Resources (catch basins, leads, and overland drainage facilities). The request by the consulting engineer for a final acceptance joint inspection shall be made using the process outlined in Section 5.5 of these Guidelines, indicating that the inspection will be for FAC. The consulting engineer shall also ensure that all the deficiencies listed on the CCC field inspection sheet have been corrected and approved by the Water Resources inspector prior to joint inspection with Water Resources.

If any deficiencies are found during the inspection, the Water Resources inspector will follow the same procedures as noted in Section 5.5 of these Guidelines. Following a successful final acceptance joint inspection of the specific utility, the *Final Acceptance Inspection Approval Sheet – Water Resources* (see Section 7) will be completed and signed by the Water Resources inspector and by the consulting engineer.

Once the Water Resources *Final Acceptance Inspection Approval Sheet* has been signed by both parties, the consulting engineer shall then contact the Roads inspector for a joint inspection.

The Roads inspector determines deficiencies that will require the replacement of the sidewalks, curbs, and gutters based on the criteria contained in Section 311.13 (Maintenance Standards) of the [Standard Specifications: Roads Construction](#).

There are usually two field inspections for the sidewalks, curbs, and gutters. In the first field inspection the deficiencies to be replaced or mud jacked are marked by the Roads inspector. After the contractor has corrected the marked deficiencies the consulting engineer shall contact the Roads inspector to request the second field inspection. If no deficiencies are found on the second inspection, the Roads inspector will sign the *Final Acceptance Field Inspection Sheet* (see Section 7).

There is no separate field inspection made for paved roads and walkways prior to the placement of the top lift asphalt. Inspection of the paved road is made during the field inspection for the sidewalk, curbs, and gutters. If a deficiency of the paved roads is found, the Roads inspector will mark the area of the deficiency. After the contractor has corrected the deficiencies that were marked, the consulting engineer shall contact the Roads inspector to request a field inspection on the repairs. If repairs made are acceptable to the Roads inspector, the top lift asphalt can be placed.

The top lift asphalt can only be placed after all the concrete repairs have been approved by the Roads inspector and the Water Resources FAC's have been signed.

Once the top lift asphalt has been placed and a successful joint inspection with the Roads inspector has occurred, the *Final Acceptance Field Inspection Sheet* (see Section 7) will be signed by both the Roads inspector and the consulting engineer.

## **6.9. FAC Submission Procedures for Surface Improvements**

After the specific surface improvement has passed the joint inspections and the *Final Acceptance Field Inspection Sheet* has been signed off by all parties listed, the developer, through its consulting engineer, shall prepare and submit the Final Acceptance Certificate (FAC). The FAC shall be duly signed, sealed, and certified by the signing officer of the consulting engineer. See Section 7 sample of the FAC form.

The FAC shall be submitted to the Urban Development Subdivision Development Co-ordinator. The FAC submission package shall include the items noted in the applicable *Final Acceptance Certificate Submission Checklist*. See Section 7 of these Guidelines for the appropriate checklists.

### **6.9.1. Top Lift Asphalt Performance Bonding**

The contractor, on behalf of the developer, shall submit to The City, as required under Clause 18.05 of the [Master Development Agreement](#), a performance security bond after the top lift asphalt is completed for the following roadways:

- Major Roads – A performance security bond for a period of two years
- Other Road Categories – A performance security bond for a period of one year if the road is top lift paved after September 15.

The amount of performance bond shall be the sum based on the number of square metres of top lift asphalt that was placed multiplied by the per square metre unit rates of the top lift asphalt, asphalt planning and tack coat. The unit rates to be used are for the year of *Master Development Agreement* applicable to the subdivision.

The performance security bond must be submitted to Urban Development prior to the approval of the FAC for paved roads.

#### 6.9.2. Builder Damage Security Deposit

In order to provide the information required for the builder damage security performance as set out under Clause 18.06 of the [Master Development Agreement](#), the consulting engineer and the Roads inspector shall, at the final acceptance field inspection stage for sidewalks, curbs, and gutters, undertake an undeveloped lot inventory. The consulting engineer shall indicate in red on the legal plan of the subdivision phase, all the undeveloped lots located within the boundaries of the subdivision phase. This plan shall be included as part of the sidewalk, curb, and gutter FAC package submitted to The City.

The builder damage performance security posted by the developer may be reduced as the lots are developed. The review for the performance security reduction is made in August of each year or upon completion of the last undeveloped lot.

#### **6.10. Street Lighting**

Street lighting procedures are not included in these Guidelines but are set out in The City of Calgary Roads [Standard Specifications, Street Lighting Construction](#) which outlines in detail the processes and requirements that are required from all consultants and contractors to adhere to when performing street lighting work. This also includes the CCC and FAC procedures and process. See also Part XV (Street Lighting and Walkway Lighting) in the *Master Development Agreement* for additional procedures and requirements pertaining to street lighting and walkway lighting.



## 7. Forms

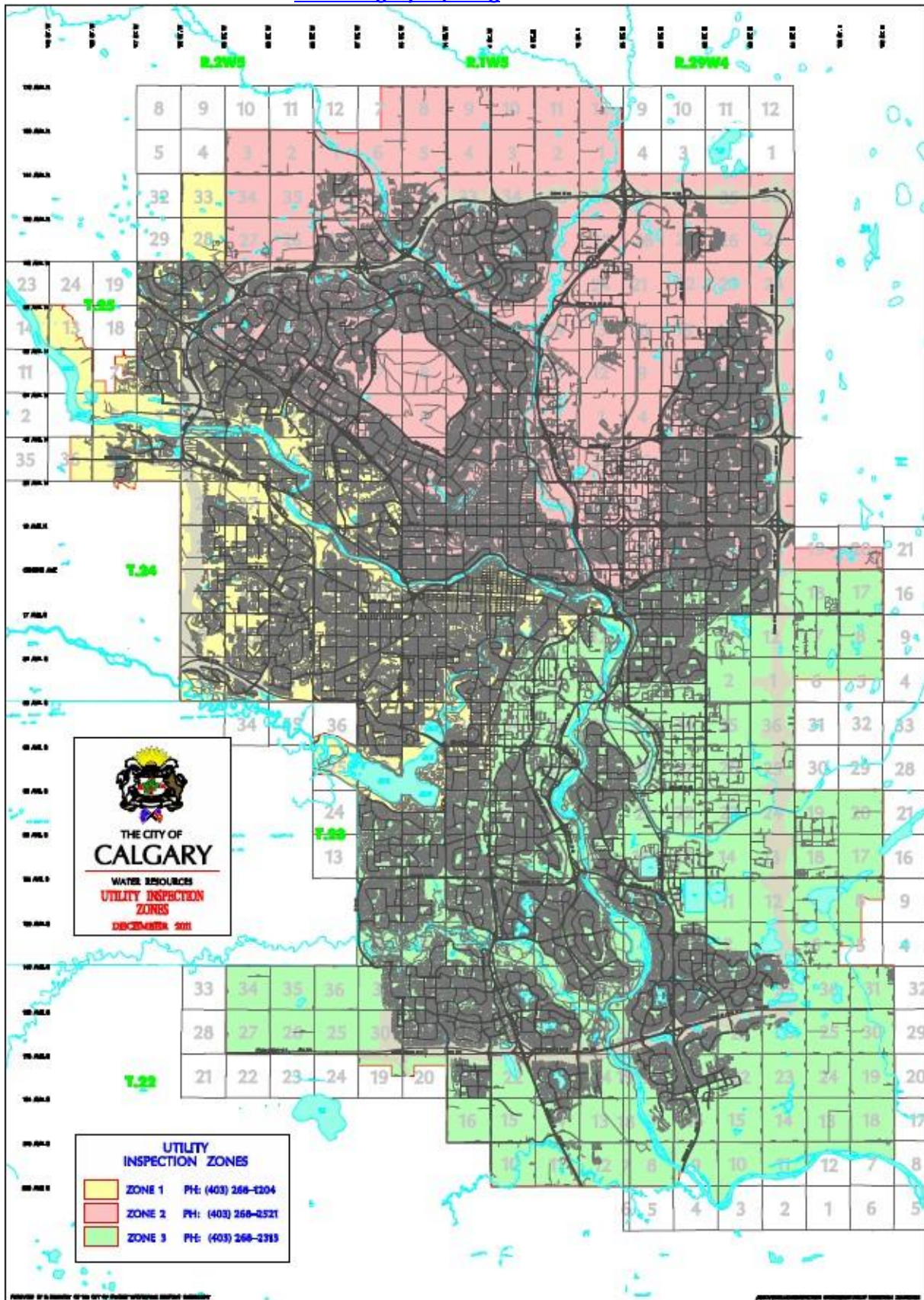
Templates of the forms relevant to these guidelines have been included in the following section. For the latest versions of the forms, please visit [www.calgary.ca/cefsq](http://www.calgary.ca/cefsq).

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# SAMPLE ONLY

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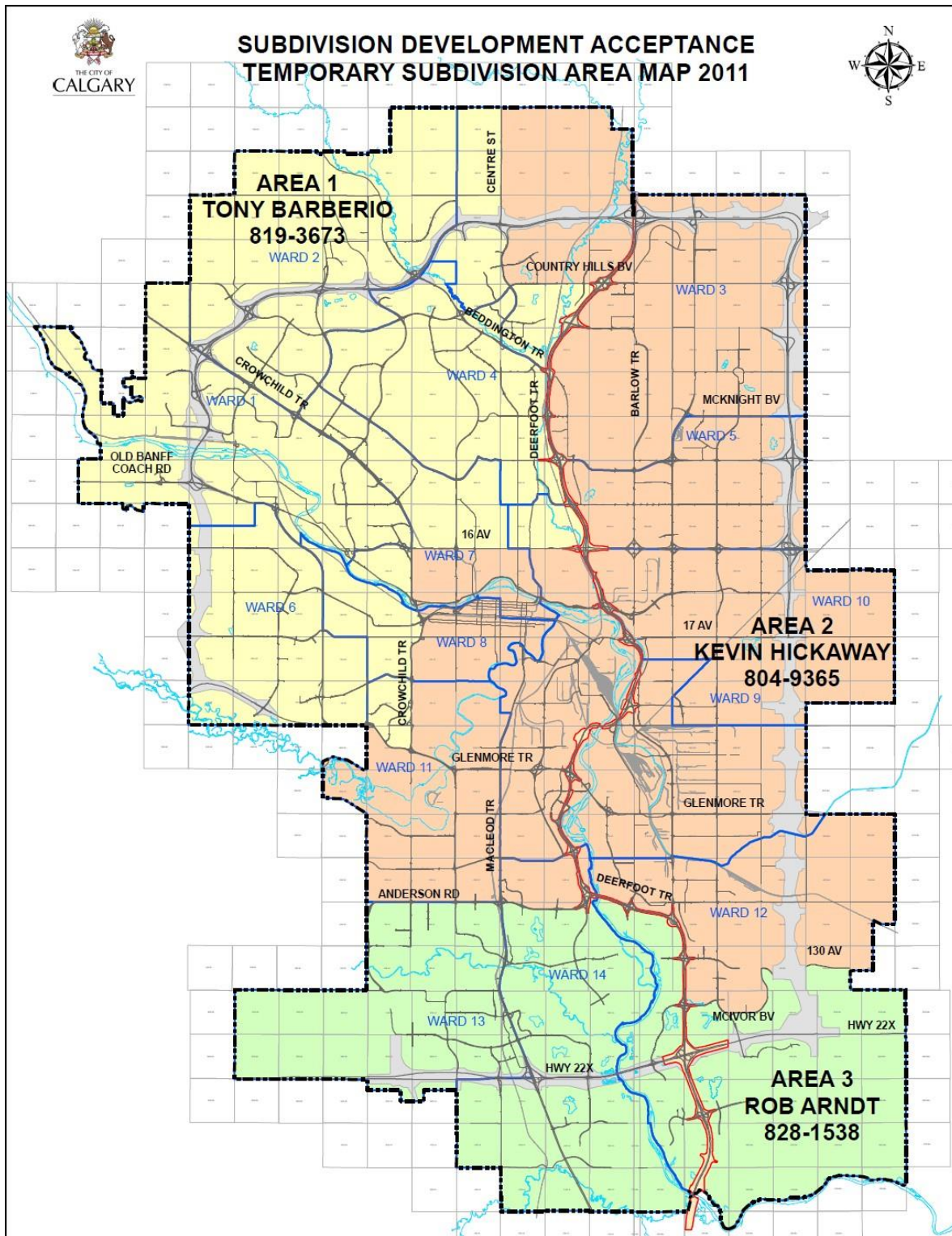






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## DEVELOPMENT FIELD ORDER

E 1163 (R2008-09)

SUBDIVISION	PHASE	DATE OCCURRED YYYY   MM   DD
DEVELOPER	DEVELOPMENT AGREEMENT NUMBER	TIME
CONSULTANT	CONTRACTOR	

**THIS SECTION TO BE COMPLETED BY THE CITY INSPECTOR**

DEFICIENCY			
_____			
_____			
_____			
_____			
SPECIFICATION NUMBER			
_____			
DRAWING, BLOCK PROFILE NUMBER			
_____			
ACTION TO BE TAKEN			
_____			
_____			
_____			
_____			
ISSUED BY THE CITY OF CALGARY:		ISSUED TO:	
INSPECTOR'S NAME		CONSULTANT	
DIVISION		CONSULTANT'S INSPECTOR	
PHONE NUMBER (      )		PHONE NUMBER (      )	
SIGNATURE	DATE ISSUED YYYY   MM   DD	SIGNATURE	DATE RECEIVED YYYY   MM   DD

**THIS SECTION TO BE COMPLETED BY THE CONSULTANT AFTER THE ABOVE NOTED DEFICIENCY IS CORRECTED**

ACTION TAKEN			
_____			
_____			
_____			
DATE DEFICIENCY CORRECTED YYYY   MM   DD			
CONSULTANT'S SIGNATURE		DATE YYYY   MM   DD	

DISTRIBUTION UPON INSPECTION:    **WHITE** - CITY INSPECTOR    **CANARY & GOLDENROD** - TO CONSULTANT    **PINK** - DEVELOPER    ISC: Protected

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## CONSTRUCTION COMPLETION CERTIFICATE

Date: \_\_\_\_\_

Subdivision: \_\_\_\_\_ Phase: \_\_\_\_\_

Developer: \_\_\_\_\_ Agreement No.: \_\_\_\_\_

Infrastructure: \_\_\_\_\_

Contractor: \_\_\_\_\_

Consulting Engineer: \_\_\_\_\_

Boundary of Development area: See attached plan.

### **Consulting Engineer's Certificate**

I, \_\_\_\_\_, Professional Engineer, am employed by the Consulting Engineer who is engaged by the Developer to design and inspect the construction of the noted development. I do hereby certify that the infrastructure noted in the development area shown on the attached plan has been constructed and inspected in conformance with all respects to The City's specifications and approved designs, or as otherwise required by the Manager, Urban Development, and that all defects and deficiencies in work and materials have been reported to the Developer and The City and have been remedied by the Developer.

\_\_\_\_\_  
Consulting Engineer's Inspector

PERMIT TO PRACTICE STAMP

\_\_\_\_\_  
P. Eng.  
Consulting Engineer

Acknowledged: \_\_\_\_\_  
Date

\_\_\_\_\_  
Manager, Urban Development, or Designate

Projected earliest maintenance expiry period date: \_\_\_\_\_

Rejected: \_\_\_\_\_  
Date

\_\_\_\_\_  
Manager, Urban Development, or Designate

Cause for rejection: \_\_\_\_\_

I hereby certify that the items listed as reason for rejection have now been corrected.

Approved: \_\_\_\_\_  
Date

\_\_\_\_\_  
P. Eng.  
Consulting Engineer

Approved: \_\_\_\_\_  
Date

\_\_\_\_\_  
Manager, Urban Development, or Designate

# SAMPLE ONLY

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## FINAL ACCEPTANCE CERTIFICATE

Subdivision: \_\_\_\_\_ Phase: \_\_\_\_\_

Developer: \_\_\_\_\_ Agreement No.: \_\_\_\_\_

Infrastructure: \_\_\_\_\_

Contractor: \_\_\_\_\_

Boundary of Development area: See attached map

Projected earliest maintenance expiry date: \_\_\_\_\_

### **Consulting Engineer's Certificate**

I, \_\_\_\_\_, of the firm of \_\_\_\_\_, Consulting Engineer, hereby certify that as of the above expiry date, the said infrastructure meets all the requirements for acceptance as specified by the Master Development Agreement and hereby recommend this infrastructure for final acceptance by The City of Calgary.

#### PERMIT TO PRACTICE STAMP

\_\_\_\_\_  
Consulting Engineer's Inspector

\_\_\_\_\_  
P. Eng.  
Consulting Engineer

Approved: \_\_\_\_\_  
Date

\_\_\_\_\_  
City Inspector

Approved: \_\_\_\_\_  
Date

\_\_\_\_\_  
Manager, Urban Development, or Designate

Rejected: \_\_\_\_\_  
Date

\_\_\_\_\_  
Manager, Urban Development, or Designate

Cause for rejection: \_\_\_\_\_

\_\_\_\_\_  
I hereby certify that the items listed as reason for rejection have now been corrected.

Approved: \_\_\_\_\_  
Date

\_\_\_\_\_  
P. Eng.  
Consulting Engineer

Approved: \_\_\_\_\_  
Date

\_\_\_\_\_  
Manager, Urban Development, or Designate



# SAMPLE ONLY

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The City of Calgary  
Water Resources Inspections  
Fax: 403-537-3050 Ph: 403-268-1203

## CONSTRUCTION COMMENCEMENT NOTIFICATION

Date: \_\_\_\_\_

### **Subdivision information**

Subdivision/Phase: \_\_\_\_\_ Dev. Agt. No.: \_\_\_\_\_

Developer: \_\_\_\_\_

### **Engineering Consultant information**

Consulting Engineer: \_\_\_\_\_ Phone: \_\_\_\_\_

Representative: \_\_\_\_\_

### **Contractor information**

Contractor: \_\_\_\_\_ Phone: \_\_\_\_\_

Representative: \_\_\_\_\_

Type of inspection:

- |   |  |
|---|--|
| <input type="checkbox"/> Storm sewer mains and manholes     | <input type="checkbox"/> Water mains, valves and hydrants  |
| <input type="checkbox"/> Storm water storage facilities     | <input type="checkbox"/> Sanitary sewer mains and manholes |
| <input type="checkbox"/> Sewer and water service connection | <input type="checkbox"/> Catch basins and leads            |
| <input type="checkbox"/> Surface drainage facilities        | <input type="checkbox"/> Repairs                           |
| <input type="checkbox"/> Other                              |  |

Construction of the above noted subdivision will commence on:

Date: \_\_\_\_\_ Time: \_\_\_\_\_

Re-notification for Inspection is required after 48 hours of construction inactivity, excluding Saturdays, Sundays and holidays

**Note:** Incomplete notification is not acceptable and will be returned.  
Revised 2008/07/08

# SAMPLE ONLY

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The City of Calgary  
Roads Inspections  
Fax: 403-268-2682 or Contact Area Roads Inspector

## CONSTRUCTION COMMENCEMENT NOTIFICATION

Date: \_\_\_\_\_

### **Subdivision information**

Subdivision/Phase: \_\_\_\_\_ Dev. Agt. No.: \_\_\_\_\_

Developer: \_\_\_\_\_

### **Engineering Consultant information**

Consulting Engineer: \_\_\_\_\_ Phone: \_\_\_\_\_

Representative: \_\_\_\_\_

### **Contractor information**

Contractor: \_\_\_\_\_ Phone: \_\_\_\_\_

Representative: \_\_\_\_\_

Type of inspection:

Subgrade Prep  Other: \_\_\_\_\_

Concrete Pours

Gravel Placement

Asphalt Paving

Sound Fence / Screen Fence

Construction of the above noted subdivision will commence on:

Date: \_\_\_\_\_ Time: \_\_\_\_\_

Re-notification for Inspection is required after 48 hours of construction inactivity, excluding Saturdays, Sundays and holidays.

# SAMPLE ONLY

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## CERTIFICATE INSPECTION REQUEST and APPOINTMENT CONFIRMATION

### Section "A"

Date: \_\_\_\_\_

Subdivision/Phase No.: \_\_\_\_\_ Agreement No.: \_\_\_\_\_

### Section "B" Engineering Consultant Information:

Consultant: \_\_\_\_\_ Fax. No.: \_\_\_\_\_

Representative: \_\_\_\_\_ Ph. No.: \_\_\_\_\_

### Section "C" Developer Information:

Developer: \_\_\_\_\_ Fax. No.: \_\_\_\_\_

Representative: \_\_\_\_\_ Ph. No.: \_\_\_\_\_

### Section "D" Type of Inspection

- |  |  |
|--|--|
| <input type="checkbox"/> Construction Completion Certificate | <input type="checkbox"/> Final Acceptance Certificate      |
| <input type="checkbox"/> Storm Sewer Mains and Manholes      | <input type="checkbox"/> Watermains, Valves and Hydrants   |
| <input type="checkbox"/> Stormwater Storage Facilities       | <input type="checkbox"/> Sanitary Sewer Mains and Manholes |
| <input type="checkbox"/> Sewer and Water Service Connections | <input type="checkbox"/> Paved Roads (Water Resources)     |
| <input type="checkbox"/> Surface Drainage Facilities         | <input type="checkbox"/> Repairs                           |
| <input type="checkbox"/> Others                              |  |

### Section "E" Scheduling Information

Date: \_\_\_\_\_ Time: \_\_\_\_\_

Inspector: \_\_\_\_\_ Ph. No.: \_\_\_\_\_

Location: \_\_\_\_\_

Step 1 - Consultant's Representative Completes Sections A, B, C & D

Step 2 - Fax request and (one corresponding 8 1/2x 11" cover sheet w/development boundary as per certificate) to 403-537-5030

Step 3 - Water Resources Inspector Utility contacts Consultant to set mutually agreed upon inspection date & time

Step 4 - Water Resources Inspector completes Section "E" and Faxes completed Inspection Request and Appointment Confirmation Form to the Consultant and the Developer's Representative

I hereby confirm that the utility has been inspected and found to be acceptable for certification:

\_\_\_\_\_  
Consultant Engineer's Inspector

\_\_\_\_\_  
Date

# SAMPLE ONLY

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THE CITY OF  
**CALGARY**  
WATER RESOURCES

## CONSTRUCTION COMPLETION CHECKLIST SHEET Sanitary/Storm Sewers

### List of essential and non-essential items

All essential items must be completed prior to requesting CCC Inspection

#### Please check box for applicable facility:

Sanitary Sewers

Storm Sewers

Subdivision: \_\_\_\_\_ Phase: \_\_\_\_\_

Developer: \_\_\_\_\_ Agreement No.: \_\_\_\_\_

Consulting Engineer: \_\_\_\_\_

#### Documentation

##### Essential

- Drop test, sieve and Proctor test results.

- Field orders resolved.

##### Non-essential

- Concrete test (send directly to Water Resources inspector).

#### Field

##### Essential

- All of the utilities installed.
- Holding water.
- All benching completed.
- All safety grates installed.
- All damaged slab tops repaired.
- Silt fence up around all inlets and/or grated top manholes.
- All manholes in safe condition, frame and cover secured.
- Erosion control inlet protection installed.
- Manholes and structures installed.
- Interior/exterior drops installed.
- All manholes and pipes unobstructed.
- The utility is in safe condition.
- Hydrostatic pressure test (force mains only)

##### Non-essential

- Benching to be corrected.
- Grouting required.
- Pipe trimming required.
- Cleaning required (except when holding water).
- Install missing steps or install correctly.
- Re-assemble manhole barrel.
- Install rip-rap.
- Repair broken barrels.
- Other.

#### Legend:

**OK** - Indicates all City requirements have been complied with or the utility has been inspected and was installed to City specs, or that the issues were resolved.

**N/A** - Not applicable.

**X** - Indicates utility has been inspected and that all non-essential requirements must be resolved within 60 days from the date of the CCC or if installed after Sep. 15, prior to June 30, in the year following the date of the CCC application.

**Note:** Documentation on non-essential items must be submitted with 90 days from the date of the CCC (i.e.: concrete test results).

# SAMPLE ONLY

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 <b>THE CITY OF CALGARY WATER RESOURCES</b>	<b>CONSTRUCTION COMPLETION CHECKLIST SHEET Water Mains and Hydrants</b>
--	---

### List of essential and non-essential items

All essential items must be completed prior to requesting CCC Inspection.

Subdivision: \_\_\_\_\_ Phase \_\_\_\_\_

Developer: \_\_\_\_\_ Agreement No: \_\_\_\_\_

Consulting Engineer: \_\_\_\_\_

#### Essential

- All mains, hydrants and services installed.
- All mains, hydrants and large diameter services pressure tested and chlorinated with positive sample results.
- All main and hydrant valves operable, accessible and c/w rods.
- All pressure reducing valves and check valves installed, operable and accessible.
- All hydrants face the street.
- Letter of notification to Fire Department that all hydrants in the subdivision are in working order, with attached map.
- Field orders resolved.

#### Non-essential

- Length of rods, as long as valves are operable.
- Final elevation of valves and hydrants.
- Other.

#### Legend:

- OK** - Indicates all City requirements have been complied with or the utility has been inspected and was installed to City specs, or that the issues were resolved.
- N/A**- Not applicable.
- X** - Indicates utility has been inspected and that all non-essential requirements must be resolved within 60 days of the CCC or if installed after Sep, 15, prior to June 30, in the year following the date of the CCC application.

# SAMPLE ONLY

See [www.calgary.ca/cefs](http://www.calgary.ca/cefs) for the latest version

	<b>CONSTRUCTION COMPLETION CHECKLIST SHEET</b> <b>Sewer and Water Service Connections</b>
---	--

### List of essential and non-essential items

All essential items must be completed prior to requesting CCC inspection

Subdivision: \_\_\_\_\_ Phase: \_\_\_\_\_

Developer: \_\_\_\_\_ Agreement No: \_\_\_\_\_

Consulting Engineer: \_\_\_\_\_

#### Essential

- All mains, hydrants and services installed and operable.
- All field orders are resolved.

#### Legend:

**OK** - Indicates all City requirements have been complied with or the utility has been inspected and was installed to City specs, or that the issues were resolved.

**N/A** - Not applicable.

**X** - Indicates utility has been inspected and that all non-essential requirements must be resolved within 60 days from the date of the CCC or if installed after Sep. 15, prior to June 30, in the year following the date of the CCC application.

**Note:** Service cards are required to be submitted to the Water Resources inspector prior to the FAC submission.

# SAMPLE ONLY

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## CONSTRUCTION COMPLETION CHECKLIST SHEET Surface Drainage Facilities

### List of essential and non-essential items

All essential items must be completed prior to requesting CCC inspection.

Subdivision: \_\_\_\_\_ Phase: \_\_\_\_\_

Developer: \_\_\_\_\_ Agreement No.: \_\_\_\_\_

Consulting Engineer: \_\_\_\_\_

### Documentation

#### Essential

#### Non-essential

- All field orders resolved.
- Concrete tests (Send directly to Water Resources Inspector)

### Field

#### Essential

#### Non-essential

- All concrete drainage gutters and crossings must be completed. None
- All grass swales are shaped correctly. Grass must be established at FAC inspection stage.
- Water drainage slope test and any associated repairs must be completed before joint inspection sheet is signed by Inspector.

### Legend:

- OK** - Indicates all City requirements have been complied with or the utility has been inspected and was installed to City specs or that the issues were resolved.
- N/A** - Not applicable.

# SAMPLE ONLY

See [www.calgary.ca/cefs](http://www.calgary.ca/cefs) for the latest version



## Development Approvals - Inspection Services - Field Services Checklist #11: Dry Pond CCC/FAC Inspection

Pond ID/Name: \_\_\_\_\_ CCC Issue Date \_\_\_\_\_  
Developer: \_\_\_\_\_ FAC Issue Date \_\_\_\_\_  
Consultant: \_\_\_\_\_  
Contact Name: \_\_\_\_\_ Contact E-mail: \_\_\_\_\_

Use this checklist to ensure that all Water Resources requirements for CCC and FAC Signoff for dry ponds have been met. See the *Guide to Development Approvals Applications* (referred to in this checklist as the "Guide") for detailed information about items in this checklist.

### Inspection Groups and Responsibilities:

1. Water Resources, Infrastructure Planning, Development Approvals: Design and Inventory
2. Water Resources, Infrastructure Delivery, Subdivision Inspections: Inspections
3. Water Resources, Field Services, Business Performance: Datalogger and Electrical/Monitoring
4. Approved Service Provider: Monitoring System.

### Inspection Designations:

- 1/2/3/4 - Inspection completed by appropriate group (as identified above).  
ABDR - As-Built Drawings Review.  
FFI - Full Field Inspection.  
VIO - Visual Inspection Only.  
SSR - Sediment Survey Review.

**Note:** Shaded areas indicate that no inspection is required for the item at that time.



# SAMPLE ONLY

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## Checklist for: DRY POND CCC/FAC INSPECTION

	CCC				FAC			
	Inspection	Acceptable	Initial	Date	Inspection	Acceptable	Initial	Date
<b>ITEM 1: GRADING</b>								
a. As-built cross sections of final grade submitted.	1 ABDR 3 VIO							
b. Side slopes:	1 ABDR, 2 VIO							
- Below (lower) normal water level ((L)NWL).	1 ABDR, 2 VIO							
- Between (L)NWL and high water level (HWL).	1 ABDR, 2 VIO							
- Above HWL.	1 ABDR, 2 VIO							
- Safety bench.	1 ABDR, 2 VIO							
c. Bottom slopes (1.5% minimum, 2% preferred).	1 ABDR							
d. Design volume (final grade).	1 ABDR 2 VIO				1 FFI, 3 VIO			
e. No signs of erosion throughout the pond.	2 FFI				2 FFI			
f. Dry ponds - positive drainage towards catch basins and inlet/outlet structure. No areas of standing water.	2 FFI							
g. Overland escape route/spillway as per construction drawing. Spillway in proper location at proper elevation.	1 ABDR, 2 VIO				2 VIO			
h. Sediment forebay(s) and forebay berm(s) properly constructed.	1 ABDR 2 VIO							
<b>ITEM 2: INLET/OUTLET STRUCTURE</b>								
	Inspection	Acceptable	Initial	Date	Inspection	Acceptable	Initial	Date
a. Bottom is benched so there is no standing water.	2 FFI				2 FFI			
b. Invert of grating(s).	1 ABDR							
c. Invert of incoming/outgoing pipe.	1 ABDR							
d. Inlet pipe diameter $\geq$ 450 mm.	1 ABDR 2 VIO							
e. Gratings bolted down or secured.	2 FFI				2 FFI			
f. No signs of erosion.	2 FFI				2 FFI			
g. Little or no build up of silt or debris.	2 FFI				2 FFI			
h. No damage to structure (cracking, honeycombing, spalling).	2 FFI				2 FFI			
i. Pipe(s) trimmed and mortared. Steps installed.	2 FFI				2 FFI			
<b>ITEM 3: CATCHBASINS/MANHOLES</b>								
	Inspection	Acceptable	Initial	Date	Inspection	Acceptable	Initial	Date
a. Rim and invert elevations.	1 ABDR							
b. Catchbasin (CB) gratings bolted down or secured.	2 FFI				2 FFI			
c. Proper CB gratings and manhole (MH) covers used.	2 FFI				2 FFI			
d. All MHs and CBs benched so there is no standing water.	2 FFI				2 FFI			
e. No signs of erosion.	2 FFI				2 FFI			
f. Little or no build-up of silt or debris.	2 FFI				2 FFI			
g. No damage to CB or MH (cracking, honeycombing, spalling).	2 FFI				2 FFI			
h. Pipe(s) trimmed and mortared. Steps installed.	2 FFI				2 FFI			

# SAMPLE ONLY

See [www.calgary.ca/cefsq](http://www.calgary.ca/cefsq) for the latest version

## Checklist for: DRY POND CCC/FAC INSPECTION

ITEM 4: CONTROL STRUCTURE	CCC				FAC			
	Inspection	Acceptable	Initial	Date	Inspection	Acceptable	Initial	Date
a. Bottom of structure benched toward orifice so there is no standing water.	2 FR				2 FR			
b. Rim and invert elevations.	1 A BDR							
c. Little or no build-up of silt or debris.	2 FR				2 FR			
d. No damage to structure (cracking, honeycombing, spalling).	2 FR				2 FR			
e. Gate Valve: - Works properly (easily engaged).	2 FR				2 FR			
- Face seals properly.	2 FR				2 FR			
- Automatic control gate(s) set up and working properly where applicable.	3 & 4 FFI				3 & 4 FFI			
f. Trash Rack: - Removable and easily cleaned.	2 FR				2 FR			
- Free of debris.	2 FR				2 FR			
g. Weir Wall: - Elevation of top of weir wall.	1 A BDR							
- Size of opening.	1 & 2 FR							
h. Orifice: - Centreline/invert elevation.	1 A BDR							
- Dimensions (slot size, diameter).	1 A BDR, 2 FR							
- Plate fit snugly to wall to minimize leakage around the plate.	2 FR				2 FR			
i. Pipe(s) trimmed and mortared. Steps installed.	2 FR				2 FR			
<b>ITEM 5: STORM PIPE SYSTEM</b>								
	Inspection	Acceptable	Initial	Date	Inspection	Acceptable	Initial	Date
a. Invert elevations.	1 A BDR							
b. Elevations and dimensions of skimming weir(s) / skimming manhole(s)	1 A BDR 2 FR							
c. Storm manholes designed with bolt down covers and properly installed.	2 FR				2 FR			
d. Free of silt and debris.	2 FR				2 FR			
<b>ITEM 6: SUBDRAINAGE SYSTEM</b>								
	Inspection	Acceptable	Initial	Date	Inspection	Acceptable	Initial	Date
a. Invert elevations.	1 A BDR							
b. Cleanouts installed as indicated. Tops flush with ground surface.	2 FR				2 FR			
c. Weeping tile/subdrainage connected downstream of control structure. Backwater valves (i.e., Red Valve) installed as specified.	2 FR				2 FR			
d. Free of silt and debris.	2 FR				2 FR			
<b>ITEM 7: SANITARY PIPE SYSTEM</b>								
	Inspection	Acceptable	Initial	Date	Inspection	Acceptable	Initial	Date
No sanitary manholes within the pond.	2 FR							

Last Modified: 2012-05-15 16:59:07  
 Version: 2012/02.0  
 Process Owner: Water Resources - Infrastructure Planning, Development Approval  
 File ID: XXXXXXXXX

# SAMPLE ONLY

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## Checklist for: DRY POND CCC/FAC INSPECTION

ITEM 8: MONITORING SYSTEM	CCC				FAC			
	Inspection	Acceptable	Initial	Date	Inspection	Acceptable	Initial	Date
a. All level/alarm sensors are easily and safely accessible.	3 FFI				3 FFI			
b. All sensors/alarms are installed at proper elevations.	1 & 3 FFI				1 & 3 FFI			
c. Approved service provider must ensure that: - Alarms ring through to the City of Calgary's storm pond monitoring system.	3 & 5 FFI				3 & 5 FFI			
- Alarm sensors are programmed to alarm at specified elevations.	3 & 5 FFI				3 & 5 FFI			
- Calibration certificate and schematic of inside of structure are provided.	3 & 5 FFI				3 & 5 FFI			
d. Doors on electrical control box close/seal properly.	3 FFI				3 FFI			
e. Electrical control box in good condition. No signs of rusting or damage.	3 FFI				3 FFI			
f. Landscaping slopes away from electrical control box.	3 FFI				3 FFI			
g. All conduit into electrical control box sealed to prevent infiltration of water and/or humidity.	3 FFI				3 FFI			
h. All electrical equipment (fans, heater, etc.) works properly and has been properly installed.	3 FFI				3 FFI			
i. Electrical control box locked with Water Services "construction" lock.	3 FFI				3 FFI			
j. Datalogger recording properly.	3 FFI				3 FFI			
k. Phone number(s) supplied.	3 FFI				3 FFI			
ITEM 9: SIGNS	Inspection	Acceptable	Initial	Date	Inspection	Acceptable	Initial	Date
a. Approved signs placed at entrances to ponds as per design.	2 FFI				2 FFI			
b. No damage to signs.	2 FFI				2 FFI			
ITEM 10: ACCESS	Inspection	Acceptable	Initial	Date	Inspection	Acceptable	Initial	Date
a. No signs of cracking or heaving in access road.	3 FFI				3 FFI			
b. Vehicle access route(s) to the first manhole(s) upstream of the forebay(s) or pond inlet(s) has/have proper width, slope, turns, and turnarounds.	1 AEDR, 3 FFI							
c. Vehicle access route(s) to skimming weir(s)/skimming manhole(s) has/have proper width, slope, elevations, turns, and turnarounds.	1 AEDR, 3 FFI							
d. Vehicle access route(s) to forebay(s) has/have proper width, slope, elevations, turns and turnarounds.	1 AEDR, 3 FFI							
e. Boat ramp to forebay has proper width, slope, turns, and elevations.	1 AEDR, 3 FFI							
f. All areas of the pond accessible by 1 tonne truck.	1 AEDR, 3 FFI							
g. All vehicle entrances gated.	1 AEDR, 3 FFI							
h. Vehicle access route to outlet control structure has proper width, slope, elevations, turns and turnarounds.	1 AEDR, 3 FFI							

Last Modified: 2012-05-15 16:59:07  
Version: 2012/Q2.0  
Process Owner: Water Resources - Infrastructure Planning, Development Approval  
File ID: XXXXXXXX

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## Checklist for: DRY POND CCC/FAC INSPECTION

	CCC				FAC			
	Inspection	Acceptable	Initial	Date	Inspection	Acceptable	Initial	Date
<b>ITEM 11: MISCELLANEOUS</b>								
a. Final as-built construction drawings submitted in Mylar material after a set of print drawings has been checked and approved.					1 FFI			
b. Sediment storage capacity in forebay(s).					1 SSR, 1 VIO			
c. Sediment accumulation in forebay(s).					1 SSR, 1 VIO			
<b>ITEM 12: MAINTENANCE REQUIREMENTS</b>								
a. Maintenance Manual is provided (refer to the <i>Guide</i> and <i>Checklist #7</i> for more information).	1 & 3 VIO							
b. Maintenance Record is provided (refer to the <i>Guide</i> and <i>Checklist #8</i> for more information).					1 & 3 VIO			
c. Maintenance period met for FAC.					2 VIO			
<b>ITEM 13: ACCOUNTING REQUIREMENTS</b>								
a. Copy of FAC submitted to Business Performance.					3 VIO			
b. Telephone and Utility Accounts have been transferred to Water Resources.					3 VIO			

**Comments:**

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## Development Approvals - Inspection Services - Field Services Checklist #12: Wet Pond/Wetland CCC/FAC Inspection

Pond ID/Name: \_\_\_\_\_ CCC Issue Date \_\_\_\_\_  
Developer: \_\_\_\_\_ FAC Issue Date \_\_\_\_\_  
Consultant: \_\_\_\_\_  
Contact Name: \_\_\_\_\_ Contact E-mail: \_\_\_\_\_

Use this checklist to ensure that all Water Resources requirements for CCC and FAC Signoff for wet ponds and wetlands have been met. See the *Guide to Development Approvals Applications* (referred to in this checklist as the "Guide") for detailed information about items in this checklist.

### Inspection Groups and Responsibilities:

1. Water Resources, Infrastructure Planning, Development Approvals: Design and Inventory
2. Water Resources, Infrastructure Delivery, Subdivision Inspections: Inspections
3. Water Resources, Field Services, Business Performance: Datalogger and Electrical/Monitoring
4. Approved Service Provider: Monitoring System.

### Inspection Designations:

- 1/2/3/4 - Inspection completed by appropriate group (as identified above).  
ABDR - As-Built Drawings Review.  
FFI - Full Field Inspection.  
VIO - Visual Inspection Only.  
SSR - Sediment Survey Review.

**Note:** Shaded areas indicate that no inspection is required for the item at that time.

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## Checklist for: WET POND/WETLAND CCC/FAC INSPECTION

ITEM 1: GRADING	CCC				FAC				
	Inspection	Acceptable	Initial	Date	Inspection	Acceptable	Initial	Date	
a. As-built cross sections of final grade submitted.	1 ABDR								
b. Side slopes: - Below (lower) normal water level ((L)NWL).	1 ABDR, 2 VIO								
- Between (L)NWL and high water level (HWL).	1 ABDR, 2 VIO								
- Above HWL.	1 ABDR, 2 VIO								
- Safety bench.	1 ABDR 2 VIO								
c. Design volume (final grade).	1 ABDR								
d. No signs of erosion around the pond.	2 FFI				2 FFI				
e. Overland escape route/spillway as per construction drawing. Spillway in proper location at proper elevation.	1 ABDR, 2 VIO				2 VIO				
f. Property line and berm elevations above freeboard elevation.	1 ABDR, 2 VIO								
g. Sediment forebay(s) and forebay berm(s) properly constructed.	1 ABDR, 2 FFI								
<b>ITEM 2: INLET/OUTLET STRUCTURE</b> <b>To be checked prior to water being introduced.</b>									
Inspection	Acceptable	Initial	Date	Inspection	Acceptable	Initial	Date		
a. Invert of grating(s) if required.	1 ABDR								
b. Invert of incoming/outgoing pipe.	1 ABDR								
c. Gratings bolted down or secured, if required.	2 FFI								
d. No signs of erosion.	2 FFI								
e. Little or no build up of silt or debris.	2 FFI								
f. No damage to structure (cracking, honeycombing, spalling).	2 FFI								
g. Pipe(s) trimmed and mortared. Steps installed.	2 FFI								
h. Inlet/outlet structure benched as per design.	2 FFI								
<b>ITEM 3: CONTROL STRUCTURE</b>									
Inspection	Acceptable	Initial	Date	Inspection	Acceptable	Initial	Date		
a. Rim and invert elevations.	1 ABDR								
b. Little or no build-up of silt or debris.	2 FFI			2 FFI					
c. No damage to structure (cracking, honeycombing, spalling).	2 FFI			2 FFI					
d. Gate Valve: - Works properly (easily engaged).	2 FFI			2 FFI					
- Face seals properly.	2 FFI			2 FFI					
- Automatic control gate(s) set up and working properly where applicable.	3 & 4 FFI			3 & 4 FFI					
e. Trash Rack: - Removable and easily cleaned.	2 FFI			2 FFI					
- Free of debris.	2 FFI			2 FFI					
f. Weir Wall: - Elevation of top of weir wall.	1 ABDR								
- Size of opening.	1 ABDR, 2 FFI								

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## Checklist for: WET POND/WETLAND CCC/FAC INSPECTION

		CCC				FAC			
<b>ITEM 3: CONTROL STRUCTURE (CONTINUED)</b>									
g.	Orifice: - Centreline/invert elevation.	1 ABDR							
	- Dimensions (slot size, diameter).	1 ABDR, 2 FFI							
	- Plate fit snugly to wall to minimize leakage around the plate.	2 FFI				2 FFI			
h.	Pipe(s) trimmed and mortared. Steps installed.	2 FFI				2 FFI			
<b>ITEM 4: STORM PIPE SYSTEM</b>		<b>Inspection</b>	<b>Acceptable</b>	<b>Initial</b>	<b>Date</b>	<b>Inspection</b>	<b>Acceptable</b>	<b>Initial</b>	<b>Date</b>
a.	Invert elevations.	1 ABDR							
b.	Elevations and dimensions of skimming weir(s) / skimming manhole(s).	1 ABDR, 2 FFI							
c.	Upstream piping fitted with rubber gasket.	1 ABDR, 2 FFI							
d.	Storm manholes designed with bolt down covers and properly installed.	2 FFI				2 FFI			
e.	Free of silt and debris.	2 FFI				2 FFI			
<b>ITEM 5: SANITARY PIPE SYSTEM</b>		<b>Inspection</b>	<b>Acceptable</b>	<b>Initial</b>	<b>Date</b>	<b>Inspection</b>	<b>Acceptable</b>	<b>Initial</b>	<b>Date</b>
	No sanitary manholes within the pond.	2 FFI							
<b>ITEM 6: MONITORING SYSTEM</b>		<b>Inspection</b>	<b>Acceptable</b>	<b>Initial</b>	<b>Date</b>	<b>Inspection</b>	<b>Acceptable</b>	<b>Initial</b>	<b>Date</b>
a.	All level/alarm sensors are easily and safely accessible.	3 FFI				3 FFI			
b.	All sensors/alarms are installed at proper elevations.	1 ABDR				1 & 3 FFI			
c.	Approved service provider must ensure that: - Alarms ring through to The City of Calgary's storm pond monitoring system.	3 & 4 FFI				3 & 4 FFI			
	- Alarm sensors are programmed to alarm at specified elevations.	3 & 4 FFI				3 & 4 FFI			
	- Calibration certificate and schematic of inside of structure are provided.	3 & 4 FFI				3 & 4 FFI			
d.	Doors on electrical control box close/seal properly.	3 FFI				3 FFI			
e.	Electrical control box in good condition. No signs of rusting or damage.	3 FFI				3 FFI			
f.	Landscaping slopes away from electrical control box.	3 FFI				3 FFI			
g.	All conduit into electrical control box sealed to prevent infiltration of water and/or humidity.	3 FFI				3 FFI			
h.	All electrical equipment (fans, heater, etc.) works properly and has been properly installed.	3 FFI				3 FFI			
i.	Electrical control box locked with Water Services "construction" lock.	3 FFI				3 FFI			
j.	Datalogger recording properly.	3 FFI				3 FFI			
k.	Phone number(s) supplied.	3 FFI				3 FFI			

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## Checklist for: WET POND/WETLAND CCC/FAC INSPECTION

		CCC				FAC			
<b>ITEM 7: SIGNS</b>		Inspection	Acceptable	Initial	Date	Inspection	Acceptable	Initial	Date
a.	Approved signs placed at entrances to ponds as per design.	2 FFI				2 FFI			
b.	No damage to signs.	2 FFI				2 FFI			
<b>ITEM 8: ACCESS</b>		Inspection	Acceptable	Initial	Date	Inspection	Acceptable	Initial	Date
a.	No signs of cracking or heaving in access road.	3 FFI				3 FFI			
b.	Vehicle access route(s) to the first manhole(s) upstream of the forebay(s) or pond inlet(s) has/have proper width, slope, turns, and turnarounds.	1 ABDR, 3 FFI							
c.	Vehicle access route(s) to skimming weir(s) / skimming manhole(s) has/have proper width, slope, elevations, turns, and turnarounds.	1 ABDR, 3 FFI							
d.	Vehicle access route(s) to forebay(s) has/have proper width, slope, elevations, turns, and turnarounds.	1 ABDR, 3 FFI							
e.	Boat ramp to main cell or forebay has proper width, slope, turns, and elevations.	1 ABDR, 3 FFI							
f.	All areas of the pond accessible by 1 tonne truck.	1 ABDR, 3 FFI							
g.	All vehicle entrances gated.	1 ABDR, 3 FFI							
h.	Vehicle access route to outlet control structure has proper width, slope, elevations, turns and turnarounds.	1 ABDR, 3 FFI							
<b>ITEM 9: MISCELLANEOUS</b>		Inspection	Acceptable	Initial	Date	Inspection	Acceptable	Initial	Date
a.	Final as-built construction drawings submitted in Mylar material after a set of print drawings has been checked and approved.					1 FFI			
b.	Sediment storage capacity in forebay(s) and wet pool capacity in wet pond.					1 SSR, 2 VIO			
c.	Sediment accumulation in forebay(s).					1 SSR, 2 VIO			
d.	Sediment accumulation in main cell(s) of wet pond or wetland.					1 SSR, 2 VIO			
<b>ITEM 10: MAINTENANCE REQUIREMENTS</b>		Inspection	Acceptable	Initial	Date	Inspection	Acceptable	Initial	Date
a.	Maintenance Manual is provided (refer to the <i>Guide</i> and <i>Checklist #7</i> for more information).	1 & 3 VIO							
b.	Maintenance Record is provided (refer to the <i>Guide</i> and <i>Checklist #8</i> for more information).					1 & 3 VIO			
c.	Maintenance period met for FAC.					2 VIO			
<b>ITEM 11: ACCOUNTING REQUIREMENTS</b>		Inspection	Acceptable	Initial	Date	Inspection	Acceptable	Initial	Date
a.	Copy of FAC submitted to Business Performance.					3 VIO			
b.	Telephone and Utility Accounts have been transferred to Water Resources.					3 VIO			

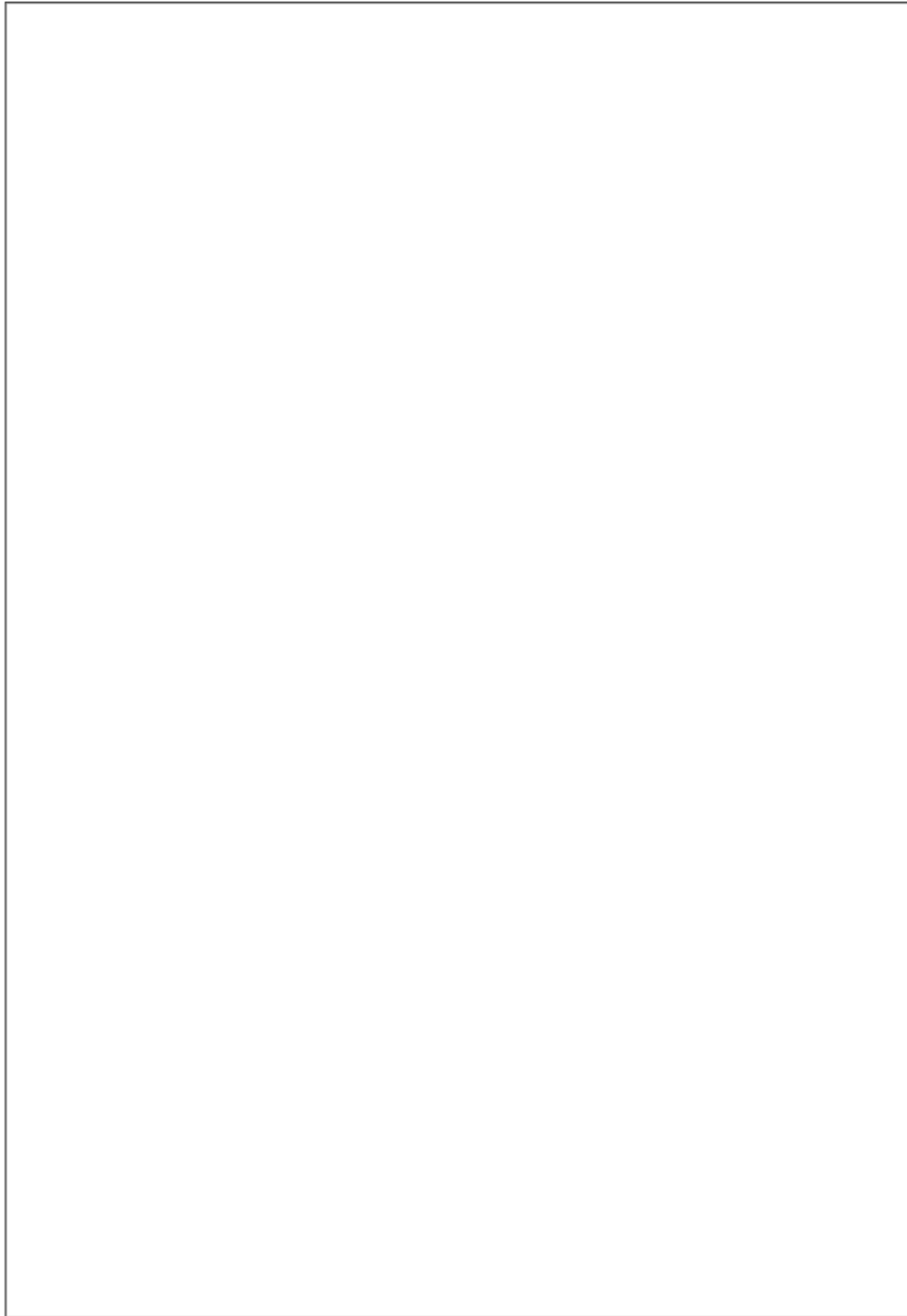


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## Checklist for: WET POND/WETLAND CCC/FAC INSPECTION

**Comments:**



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## Development Approvals Checklist #7: DA Pond Construction Completion Certificate (CCC) Signoff

**Project:** \_\_\_\_\_ **Phase:** \_\_\_\_\_

**Developer:** \_\_\_\_\_

**Consultant:** \_\_\_\_\_

**Contact Name:** \_\_\_\_\_ **Contact E-mail:** \_\_\_\_\_

Use this checklist to ensure that all Water Resources - Development Approvals requirements for the Pond Construction Completion Certificate (CCC) Signoff have been met. See the *Guide to Development Approvals Applications* (referred to in this checklist as the "Guide") for detailed information about items in this checklist.

The undersigned agree and certify that all requirements on this checklist have been reviewed and properly identified as part of this submission. The undersigned understand that this checklist will be used as a tool for review of Pond Construction Completion by Water Services and confirm that a review of Pond Construction Completion has been undertaken by a responsible professional member.

\_\_\_\_\_  
**Permit to Practice Stamp or Number**

\_\_\_\_\_  
**Engineer Stamp**

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## Checklist for: DA POND CCC SIGNOFF

YES	NO	N/A	
<input type="radio"/>	<input type="radio"/>		1. All items in the SHADED areas are explained in the comments section of this checklist.
<input type="radio"/>	<input type="radio"/>		2. All checklists and all drawings in the submission are authenticated by a Professional Engineer and include the engineering company's Permit to Practice stamp or number.
<input type="radio"/>	<input type="radio"/>		3. A Construction Completion Certificate (CCC) Signoff has been obtained from Water Services - Inspection Services. Refer to the <i>Guide</i> for more information.
<input type="radio"/>	<input type="radio"/>		4. The following documents are included in the package (to be submitted directly to Development Approvals):
<input type="radio"/>	<input type="radio"/>		a. This checklist.
<input type="radio"/>	<input type="radio"/>		b. Cover letter.
<input type="radio"/>	<input type="radio"/>		c. One (1) copy of the approved construction drawings. If this is a revised CCC Signoff submission, include the most recent set of marked up drawings.
<input type="radio"/>	<input type="radio"/>		d. One (1) complete check set of pond record drawings.
<input type="radio"/>	<input type="radio"/>		e. One (1) copy of the Alberta Environment Letter of Authorization (LOA) and No Objections Letter from Development Approvals.
<input type="radio"/>	<input type="radio"/>		f. One (1) PDF copy (on CD-ROM) and one (1) hardcopy of the Operations & Maintenance Manual.
<input type="radio"/>	<input type="radio"/>		g. One (1) copy of a letter from the monitoring system manufacturer confirming that the installation is complete.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	5. The cover letter includes the following information:
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	a. Highlights of all unresolved issues or areas where approved Pond Design Construction Drawings or Pond Report were not met.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	b. Development Agreement Number.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	c. Pond Report Title and/or Staged Master Drainage Plan Title associated with the pond.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	d. Pond Number (assigned by Development Approvals once the Pond Report is approved).
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	e. Total construction cost for the pond, including excavation, liner, inlet, outlet structures, landscaping, access roads, and alarm panel.
<input type="radio"/>	<input type="radio"/>		6. The Stage-Storage-Discharge Table is updated with a CCC record survey to demonstrate the pond function in the as-built condition. Refer to the <i>Guide</i> for more information.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	7. As-built conditions are shown (and labelled) on the record drawings, including the following:
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	a. Pond Contours and grading showing pond bottom, Normal Water Level (NWL), Lower Normal Water Level (LNWL), Upper Normal Water Level (UNWL), High Water Level (HWL), and Free Board (FB) elevations where applicable.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	b. Side and bottom slopes.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	c. Sediment forebay or alternative - design and volume.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	d. Sediment forebay berm elevations.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	e. Monitoring equipment (location and type).
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	f. Pathway locations, widths, and structure.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	g. Pond signage.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	h. Maintenance vehicle access road (including cross sections, location, width, and structure).
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	i. Piping information and block profiles for sections upstream of the pond inlet and downstream of the control structure.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	j. Structure details, including rim elevations, gratings, trash racks, coatings, weir wall and orifice details, bypass gate valves, access hatch, and erosion protection.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	k. Skimming manhole or equivalent where applicable.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	l. Overland escape route and details (cross section and longitudinal section).
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	m. Sub-drain layout and details.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	n. Geotechnical details (retaining walls, liner and warning barrier, toe and french drains).
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	o. Location of sensors, elevations for alarm, and dead band.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	p. Property line elevations surrounding the pond.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	q. Water re-use system components (intake, treatment, alarm, pumps, controls, etc.).
			Refer to the <i>Guide</i> for more information.



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Checklist for: DA POND CCC SIGNOFF

Comments:

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	<b>CONSTRUCTION COMPLETION INSPECTION APPROVAL SHEET – Underground Utilities</b>
---	--

for: please check box for applicable facility:

- |                             |                          |                                     |                          |
|-----------------------------|--------------------------|-------------------------------------|--------------------------|
| Sanitary Sewers             | <input type="checkbox"/> | Watermains and Hydrants             | <input type="checkbox"/> |
| Storm Sewers                | <input type="checkbox"/> | Sewer and Water Service Connections | <input type="checkbox"/> |
| Surface Drainage Facilities | <input type="checkbox"/> |                                     |                          |

Subdivision: \_\_\_\_\_ Agreement No.: \_\_\_\_\_

Developer: \_\_\_\_\_

Consulting Engineer: \_\_\_\_\_

Following our field inspection on: (1) \_\_\_\_\_, we confirm the following:

(2) \_\_\_\_\_

(3) \_\_\_\_\_

### REPORTS AND CORRESPONDENCE COMPLIANCE

The outstanding non-essential paperwork items will be correct prior to:

Date: \_\_\_\_\_ (90 days)

Signed: \_\_\_\_\_ Date: \_\_\_\_\_  
Consulting Engineer

### FIELD APPROVAL

Essential work is complete and in order for release of the Construction Completion Certificate.

Signed: \_\_\_\_\_ Date: \_\_\_\_\_  
Water Resources Inspector

Signed: \_\_\_\_\_ Date: \_\_\_\_\_  
Consulting Engineer

The outstanding non-essential field items listed on the field inspection report will be corrected prior to:

Date: \_\_\_\_\_  
(60 days or June 30 after September 15)

Signed: \_\_\_\_\_ Date: \_\_\_\_\_  
Consulting Engineer

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THE CITY OF  
**CALGARY**  
WATER RESOURCES

CONSTRUCTION COMPLETION INSPECTION APPROVAL SHEET  
FOR  
STORM WATER FACILITIES

Dry Pond

Wet Pond

Wetlands

Pond ID: \_\_\_\_\_

Subdivision Name and Agreement No.: \_\_\_\_\_

Developer: \_\_\_\_\_

Consulting Engineer: \_\_\_\_\_

DEVELOPMENT APPROVALS

Signed: \_\_\_\_\_ Date: \_\_\_\_\_

Development Approvals

Signed: \_\_\_\_\_ Date: \_\_\_\_\_

Consulting Engineer

Water Resources, Inspection Services Field Inspection Sheet Is Also Required.

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CONSTRUCTION COMPLETION INSPECTION APPROVAL SHEET  
FOR  
STORM WATER FACILITIES

Dry Pond       Wet Pond       Wetlands

Pond ID: \_\_\_\_\_

Subdivision Name and Agreement No.: \_\_\_\_\_

Developer: \_\_\_\_\_

Consulting Engineer: \_\_\_\_\_

INSPECTION SERVICES

Signed: \_\_\_\_\_ Date: \_\_\_\_\_

Water Resources Inspector

Signed: \_\_\_\_\_ Date: \_\_\_\_\_

Consulting Engineer

Water Resources, Development Approvals Inspection Sheet Is Also Required.



# SAMPLE ONLY

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	<b>CONSTRUCTION COMPLETION CERTIFICATE SUBMISSION CHECKLIST – Underground Utilities</b>
---	---

for: please check box for applicable facility:

- |                             |                          |                                     |                          |
|-----------------------------|--------------------------|-------------------------------------|--------------------------|
| Sanitary Sewers             | <input type="checkbox"/> | Watermains and Hydrants             | <input type="checkbox"/> |
| Storm Sewers                | <input type="checkbox"/> | Sewer and Water Service Connections | <input type="checkbox"/> |
| Surface Drainage Facilities | <input type="checkbox"/> |                                     |                          |

Subdivision: \_\_\_\_\_ Agreement No.: \_\_\_\_\_

Developer: \_\_\_\_\_

Consulting Engineer: \_\_\_\_\_

**Accompanying documents:**

**Please Check (✓)**

- Four copies of CCC – stapled to each certificate a reduced copy 8 1/2” x 11” of the cover sheet for the underground utility (or Building Grade Plan if for Service connections). If the plan is 11” x 14” it is to be folded to an 8 1/2” x 11” size. \_\_\_\_\_
- Four copies of the construction completion inspection approval sheet signed by both parties. \_\_\_\_\_
- One copy of the compaction compliance letter for underground utilities (issued by Roads, Material and Research Engineer) \_\_\_\_\_
- One copy of the checklist sheet for essential and non-essential items. \_\_\_\_\_
- Four copies including the original copy of the letter and plan sent to Strategic Services Division of The City of Calgary Fire Department for hydrants.  
*\*Only applicable for Watermains and hydrants* \_\_\_\_\_
- One copy of the compaction compliance letter for the Stripping and Grading Compaction Report (issued by roads, Material and Research Engineer)  
*\*Only applicable for Surface Drainage Facilities* \_\_\_\_\_

**If an item listed is not required or not applicable, indicate N/A in the “Please check” area for that item.**

Signed: \_\_\_\_\_ Date: \_\_\_\_\_  
Consulting Engineer’s Inspector

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	<b>CONSTRUCTION COMPLETION CERTIFICATE SUBMISSION CHECKLIST – Storm Water Facilities</b>
---	--

**for: please check box for applicable facility:**

- |           |                          |                         |
|-----------|--------------------------|-------------------------|
| Dry Ponds | <input type="checkbox"/> | Pond ID/Name: _____     |
| Wet Ponds | <input type="checkbox"/> | Pond ID/Name: _____     |
| Wetlands  | <input type="checkbox"/> | Wetlands ID/Name: _____ |

Subdivision: \_\_\_\_\_ Agreement No.: \_\_\_\_\_

Developer: \_\_\_\_\_

Consulting Engineer: \_\_\_\_\_

**Accompanying documents:**

**Please Check (√)**

- |  |       |
|--|-------|
| 1. Five copies of CCC – stapled to each certificate a reduced copy 8 1/2" x 11" of the cover sheet of the applicable facility. If the plan is 11" x 14," it is to be folded to an 8 1/2" x 11" size.     | _____ |
| 2. Five copies of the construction completion inspection approval sheet for Storm Water Facilities signed by the Water Resources Subdivision Inspections inspector, and the Consulting Engineer          | _____ |
| 3. Five copies of the construction completion inspection approval sheet for Storm Water Facilities signed by the Water Resources Development Approvals, development engineer and the Consulting Engineer | _____ |

Signed: \_\_\_\_\_ Date: \_\_\_\_\_  
Consulting Engineer's Inspector

# SAMPLE ONLY

See [www.calgary.ca/cefs](http://www.calgary.ca/cefs) for the latest version

May, 2011

## The City of Calgary, Water Services New Service Cards Submission Process

### Electronic Submission of Subdivision Service Cards

The City of Calgary, Water Services is excited to announce implementation of a new initiative that will improve the Service Cards submission process. After a successful pilot project, we are moving forward with the full implementation of electronic submission of Subdivision Service Cards. This will increase efficiency and reduce time and effort for our customers.

#### Electronic Submission of Service Cards

Presently, service cards are submitted in paper form. While this method has been effective, it is time consuming and occasionally produces human-errors. Electronic-submission of service cards will improve service time and data reliability.

#### Implementation of New Process

Detailed instructions will be provided to industry contacts. Paper form service cards will be phased out this year and the City will no longer provide or accept paper form cards as of December 31, 2011.

#### Questions or Comments?

For more information on specific requirements for electronic submissions to Water Services please contact:

**Cathy Papa**  
Business Application Coordinator  
Phone: (403) 268-5676  
Email: [Cathy.Papa@Calgary.ca](mailto:Cathy.Papa@Calgary.ca)

[calgary.ca](http://calgary.ca) | call 3-1-1



2009-1271

# SAMPLE ONLY

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## FINAL ACCEPTANCE INSPECTION APPROVAL SHEET Underground Utilities

**for: please check box for applicable facility:**

- |   |                          |                                     |                          |
|---|--------------------------|-------------------------------------|--------------------------|
| Sanitary Sewers                               | <input type="checkbox"/> | Watermains and Hydrants             | <input type="checkbox"/> |
| Storm Sewers                                  | <input type="checkbox"/> | Sewer and Water Service Connections | <input type="checkbox"/> |
| Surface Drainage Facilities<br>(Grass Swales) | <input type="checkbox"/> |                                     |                          |

Subdivision: \_\_\_\_\_ Agreement No.: \_\_\_\_\_

Developer: \_\_\_\_\_

Consulting Engineer: \_\_\_\_\_

Following our field inspection on: (1) \_\_\_\_\_, we confirm the following:

(2) \_\_\_\_\_

(3) \_\_\_\_\_

The Applicable Facility is complete and in order for release of Final Acceptance Certificate.

Signed: \_\_\_\_\_ Date: \_\_\_\_\_  
Water Resources Inspector

Signed: \_\_\_\_\_ Date: \_\_\_\_\_  
Consulting Engineer

# SAMPLE ONLY

See [www.calgary.ca/cefs](http://www.calgary.ca/cefs) for the latest version



THE CITY OF  
**CALGARY**  
WATER RESOURCES

FINAL ACCEPTANCE INSPECTION APPROVAL SHEET  
FOR  
STORM WATER FACILITIES

Dry Pond

Wet Pond

Wetlands

Pond ID: \_\_\_\_\_

Subdivision Name and Agreement No.: \_\_\_\_\_

Developer: \_\_\_\_\_

Consulting Engineer: \_\_\_\_\_

DEVELOPMENT APPROVALS

Signed: \_\_\_\_\_ Date: \_\_\_\_\_

Development Approvals

Signed: \_\_\_\_\_ Date: \_\_\_\_\_

Consulting Engineer

Water Resources, Inspection Services Field Inspection Sheet Is Also Required.

# SAMPLE ONLY

See [www.calgary.ca/cefs](http://www.calgary.ca/cefs) for the latest version



THE CITY OF  
**CALGARY**  
WATER RESOURCES

FINAL ACCEPTANCE INSPECTION APPROVAL SHEET  
FOR  
STORM WATER FACILITIES

Dry Pond

Wet Pond

Wetlands

Pond ID #: \_\_\_\_\_

Subdivision Name and Agreement No.: \_\_\_\_\_

Developer: \_\_\_\_\_

Consulting Engineer: \_\_\_\_\_

INSPECTION SERVICES

Signed: \_\_\_\_\_ Date: \_\_\_\_\_

Water Resources Inspector

Signed: \_\_\_\_\_ Date: \_\_\_\_\_

Consulting Engineer

Water Resources, Development Approvals Inspection Sheet Is Also Required.

# SAMPLE ONLY

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	<b>FINAL ACCEPTANCE CERTIFICATE SUBMISSION CHECKLIST – Underground Utilities</b>
---	--

for: please check box for applicable facility:

- |                             |                          |                                     |                          |
|-----------------------------|--------------------------|-------------------------------------|--------------------------|
| Sanitary Sewers             | <input type="checkbox"/> | Watermains and Hydrants             | <input type="checkbox"/> |
| Storm Sewers                | <input type="checkbox"/> | Sewer and Water Service Connections | <input type="checkbox"/> |
| Surface Drainage Facilities | <input type="checkbox"/> |                                     |                          |

Subdivision: \_\_\_\_\_ Agreement No.: \_\_\_\_\_

Developer: \_\_\_\_\_

Consulting Engineer: \_\_\_\_\_

**Accompanying documents:**

**Please Check (√)**

1. Four copies of FAC – stapled to each certificate a reduced copy 8 1/2” x 11” of the cover sheet of the applicable facility. If the plan is 11” x 14,” it is to be folded to an 8 1/2” x 11” size.
2. Four copies of the final acceptance inspection approval sheet signed by both parties.

\_\_\_\_\_

\_\_\_\_\_

Signed: \_\_\_\_\_ Date: \_\_\_\_\_  
Consulting Engineer’s Inspector

# SAMPLE ONLY

See [www.calgary.ca/cefs](http://www.calgary.ca/cefs) for the latest version



THE CITY OF  
**CALGARY**  
WATER RESOURCES

## FINAL ACCEPTANCE CERTIFICATE SUBMISSION CHECKLIST – Storm Water Facilities

for: please check box for applicable facility:

- Dry Ponds  Pond ID/Name: \_\_\_\_\_
- Wet Ponds  Pond ID/Name: \_\_\_\_\_
- Wetlands  Wetlands ID/Name: \_\_\_\_\_

Subdivision: \_\_\_\_\_ Agreement No.: \_\_\_\_\_

Developer: \_\_\_\_\_

Consulting Engineer: \_\_\_\_\_

### Accompanying documents:

Please Check (✓)

1. Five copies of FAC – stapled to each certificate a reduced copy 8 1/2" x 11" of the cover sheet of the applicable facility. If the plan is 11" x 14," it is to be folded to an 8 1/2" x 11" size.
2. Five copies of the final acceptance inspection approval sheet for storm water facilities signed by the Water Resources Subdivision Inspections inspector and the Consulting Engineer
3. Five copies of the final acceptance inspection approval sheet for storm water facilities signed by the Water Resources Development Approvals development engineer and the Consulting Engineer

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Signed: \_\_\_\_\_ Date: \_\_\_\_\_  
Consulting Engineer's Inspector



# SAMPLE ONLY

See [www.calgary.ca/cefs](http://www.calgary.ca/cefs) for the latest version



## Development Approvals Checklist #8: DA Pond Final Acceptance Certificate (FAC) Signoff

**Project:** \_\_\_\_\_ **Phase:** \_\_\_\_\_

**Developer:** \_\_\_\_\_

**Consultant:** \_\_\_\_\_

**Contact Name:** \_\_\_\_\_ **Contact E-mail:** \_\_\_\_\_

Use this checklist to ensure that all Water Resources - Development Approvals requirements for the Pond Final Acceptance Certificate (FAC) Signoff have been met. See the *Guide to Development Approvals Applications* (referred to in this checklist as the "Guide") for detailed information about items in this checklist.

The undersigned agree and certify that all requirements on this checklist have been reviewed and properly identified as part of this submission. The undersigned understand that this checklist will be used as a tool for review of Pond Final Acceptance by Water Services and confirm that a review of Pond Final Acceptance has been undertaken by a responsible professional member.

\_\_\_\_\_  
**Permit to Practice Stamp or Number**

\_\_\_\_\_  
**Engineer Stamp**

# SAMPLE ONLY

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## Checklist for: DA POND FAC SIGNOFF

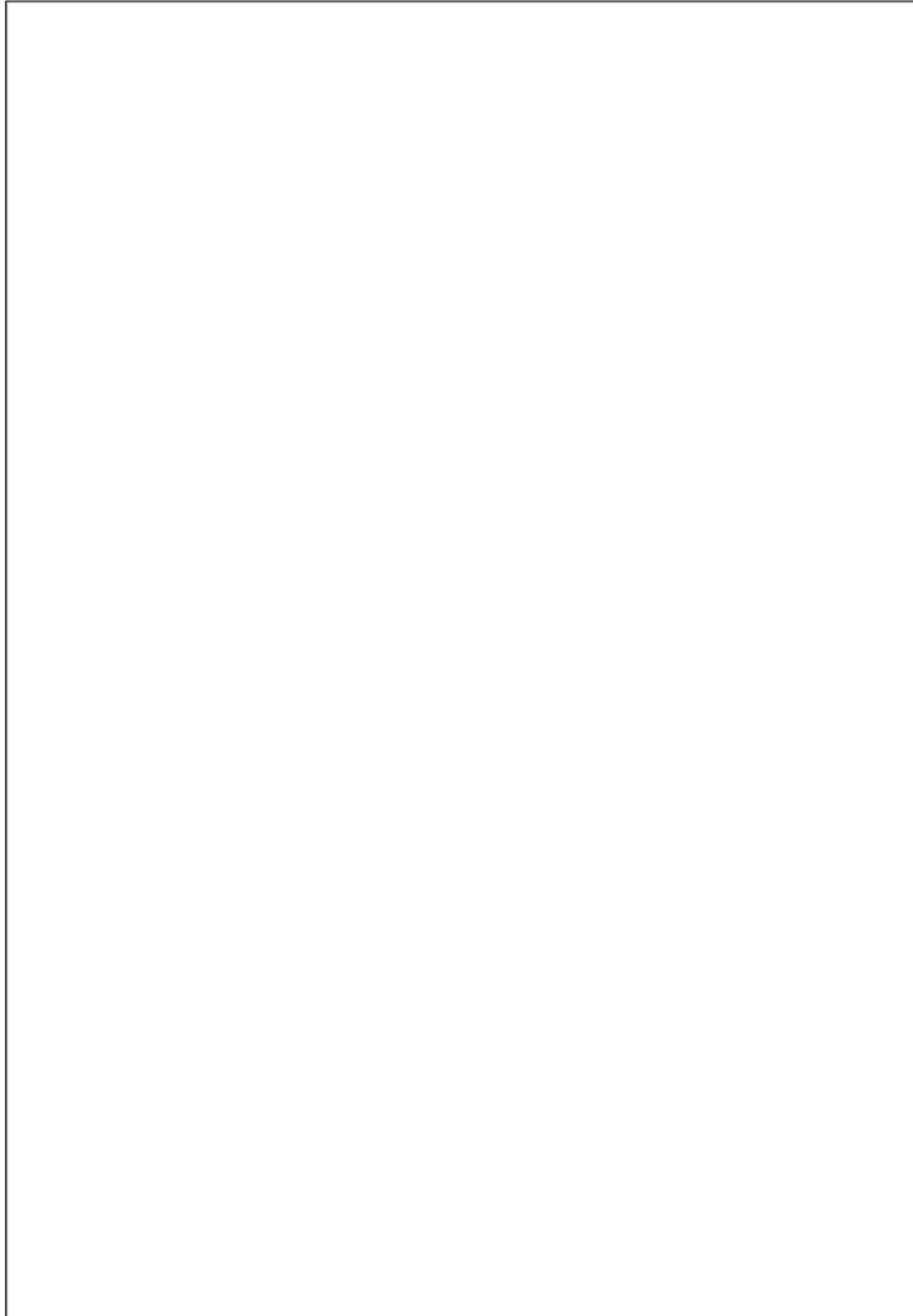
YES	NO	N/A	
<input type="radio"/>	<input checked="" type="radio"/>		1. All items in the SHADED areas are explained in the comments section of this checklist.
<input type="radio"/>	<input checked="" type="radio"/>		2. All checklists and all drawings in the submission are authenticated by a Professional Engineer and include the engineering company's Permit to Practice stamp or number.
<input type="radio"/>	<input checked="" type="radio"/>		3. A Final Acceptance Certificate (FAC) Signoff has been obtained from Water Services - Inspection Services. Refer to the <i>Guide</i> for more information.
<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	4. An FAC Signoff for block profiles has been obtained from Infrastructure & Information Services - Utility Records. Refer to the <i>Guide</i> for more information.
			5. The following documents are included in the package (to be submitted directly to Development Approvals):
<input type="radio"/>	<input checked="" type="radio"/>		a. This checklist.
<input type="radio"/>	<input checked="" type="radio"/>		b. Cover letter.
<input type="radio"/>	<input checked="" type="radio"/>		c. One (1) complete check set of updated pond record drawings that show the sediment survey.
<input type="radio"/>	<input checked="" type="radio"/>		d. One (1) PDF copy (on CD) and one (1) hardcopy of the Maintenance Record.
			6. The cover letter includes the following information:
<input type="radio"/>	<input checked="" type="radio"/>		a. Development Agreement Number.
<input type="radio"/>	<input checked="" type="radio"/>		b. Pond Number (assigned by Development Approvals once the Pond Report is approved).
<input type="radio"/>	<input checked="" type="radio"/>		c. Pond Construction Completion Certificate (CCC) release date.
<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	d. Highlights of all WS-DA comments and/or conditions of the CCC. Refer to the <i>Guide</i> for more information.
<input type="radio"/>	<input checked="" type="radio"/>		e. Statement that the pond is functioning as designed and approved.
<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	f. Identification of all operational or maintenance issues encountered during the maintenance period.
<input type="radio"/>	<input checked="" type="radio"/>		7. The Stage-Storage-Discharge Table is updated with an FAC survey to demonstrate the pond function with the current sediment level. Refer to the <i>Guide</i> for more information.
			8. The check set of updated pond record drawings:
<input type="radio"/>	<input checked="" type="radio"/>		a. Show sediment buildup (including updated cross-sections) not more than three (3) months prior to the date of this FAC application compared to the grades at CCC issuance and design grades. <b>Note:</b> Refer to the <i>Guide</i> for survey expectations.
<input type="radio"/>	<input checked="" type="radio"/>		b. Show engineering survey information (who completed the survey and when it was done).
			9. The pond volumes and sediment accumulation are within tolerance as per the <i>Stormwater Management &amp; Design Manual</i> :
<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	a. Sediment storage capacity in the forebay.
<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	b. Top of sediment accumulation in the forebay.
<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	c. Wet pool capacity.
<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	d. Sediment accumulation in the main cells of the wet pond / wetland.
			Refer to the <i>Guide</i> for more information.
<input type="radio"/>		<input type="radio"/>	10. The volume of sediment removed to maintain quality and capacity has been provided in the maintenance record (including the date(s) of the cleaning).
<input type="radio"/>	<input checked="" type="radio"/>		11. The pond monitoring system is functioning correctly. Refer to the <i>Guide</i> for more information.
<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	12. The water re-use system is functioning as designed.

# SAMPLE ONLY

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Checklist for: DA POND FAC SIGNOFF

Comments:




Last Modified: 2012-05-16 09:50:59  
Version: 2012/Q2.0  
Process Owner: Water Resources - Infrastructure Planning, Development Approvals  
File ID: 56207904

Page 3 of 3

# SAMPLE ONLY

See [www.calgary.ca/cefs](http://www.calgary.ca/cefs) for the latest version

	<b>CONSTRUCTION COMPLETION CHECKLIST SHEET</b> <b>Sidewalks, Curbs and Gutters</b>
---	---

### List of essential and non-essential items

All essential items must be completed prior to requesting CCC inspection.

Subdivision: \_\_\_\_\_ Phase: \_\_\_\_\_

Developer: \_\_\_\_\_ Agreement No.: \_\_\_\_\_

Consulting Engineer: \_\_\_\_\_

### Documentation

#### Roads items:

	Essential	Non-essential
<input type="checkbox"/>	- Water Resources clearance letter	None
<input type="checkbox"/>	- Material compliance approval letter	
<input type="checkbox"/>	- All compaction reports (send directly to the senior compaction inspector at Calgary Roads Unit) letter required from compaction inspector noting that all compaction tests meet City compliance.	

#### Water Resources items:

	Essential	Non-essential
None		None


**Note: Inspection of catch basins and leads is made by Water Resources under the CCC for paved roads and walkways.**

### Legend:

- OK** - Indicates all City requirements have been complied with or the utility has been inspected and was installed to City specs or that the issues were resolved.
- N/A** - Not applicable
- X** - Indicates utility has been inspected and that all non-essential requirements must be resolved within 60 days of the CCC or, if installed after September 15, prior to June 30, in the year following the date of the CCC application.

# SAMPLE ONLY

See [www.calgary.ca/cefsq](http://www.calgary.ca/cefsq) for the latest version

	<b>CONSTRUCTION COMPLETION CHECKLIST SHEET</b> <b>Paved Roads and Walkways</b>
---	---

### List of essential and non-essential items

All essential items must be completed prior to requesting CCC inspection.

Subdivision: \_\_\_\_\_ Phase: \_\_\_\_\_

Developer: \_\_\_\_\_ Agreement No.: \_\_\_\_\_

Consulting Engineer: \_\_\_\_\_

### Documentation

#### Roads items:

##### Essential

- Water Resources clearance letter
- Material compliance approval letter
- All compaction reports (send directly to the senior compaction inspector at Calgary Roads Unit) letter required from compaction inspector noting that all compaction tests meet City compliance.

##### Non-essential

None

#### Water Resources items:

##### Essential

- All catch basins and ICD(s) installed,
- All watermains, main and hydrant valves are operable c/w rods to proper lengths.
- All hydrants are operable and accessible.
- Field orders resolved.
- Drop, sieve and proctor test results.

##### Non-essential

- Asphalt aprons to be installed.
- Concrete tests for catch basins.
- Repair broken storm back.
- Frame requires adjustment.
- Secure frame/storm back.
- Top steps to be installed.
- Install proper manhole cover.
- Install missing collar.
- Repair/replace broken collars/barrels.

**Note:** The concrete tests for catch basins are to be submitted to the Water Resources inspector within 90 days of the date of the CCC.

### Legend:

- OK** - Indicates all City requirements have been complied with or the utility has been inspected and was installed to City specs, or that the issues were resolved.
- N/A** - Not applicable.
- X** - Indicates utility has been inspected and that all non-essential requirements must be resolved within 60 days of the CCC or if installed after September 15, prior to June 30, in the year following the date of the CCC application.

# SAMPLE ONLY

See [www.calgary.ca/cefsq](http://www.calgary.ca/cefsq) for the latest version



THE CITY OF  
**CALGARY**  
ROADS

## CONSTRUCTION COMPLETION CHECKLIST SHEET

### Lanes

#### List of essential and non-essential items

All essential items must be completed prior to requesting CCC inspection.

Subdivision: \_\_\_\_\_ Phase: \_\_\_\_\_

Developer: \_\_\_\_\_ Agreement No.: \_\_\_\_\_

Consulting Engineer: \_\_\_\_\_

#### Documentation

##### Roads items:

###### Essential

- Water Resources clearance letter (for paved Portions only)
- Material compliance approval letter (for paved portions only)
- All compaction reports (send directly to the senior compaction inspector, Roads) letter required from compaction inspector noting that all compaction tests meet City compliance.

###### Non-essential

- Gravelled Lane

##### Water Resources items:

###### Essential

- All catch basins and ICD(s) installed,
- All watermains, main and hydrant valves are operable c/w rods to proper lengths.
- All hydrants are operable and accessible.
- Field orders resolved.
- Drop, sieve and proctor test results.

###### Non-essential

- Asphalt aprons to be installed.
- Concrete tests for catch basins.
- Repair broken storm back.
- Frame requires adjustment.
- Secure frame/storm back.
- Top steps to be installed.
- Install proper manhole cover.
- Install missing collar.
- Repair/replace broken collars/barrels.

**Note:** The concrete tests for catch basins are to be submitted to the Water Resources inspector within 90 days of the date of the CCC.

#### Legend:

- OK** - Indicates all City requirements have been complied with or the utility has been inspected and was installed to City specs or that the issues were resolved.
- N/A** - Not applicable
- X** - Indicates utility has been inspected and that all non-essential requirements must be resolved within 60 days of the CCC or, if installed after September 15, prior to June 30, in the year following the date of the CCC application.

# SAMPLE ONLY

See [www.calgary.ca/cefsq](http://www.calgary.ca/cefsq) for the latest version



## CONSTRUCTION COMPLETION CHECKLIST SHEET Sound Attenuation Fence & Screen Fence

### List of essential and non-essential items

All essential items must be completed prior to requesting CCC inspection.

Subdivision: \_\_\_\_\_ Phase: \_\_\_\_\_

Developer: \_\_\_\_\_ Agreement No.: \_\_\_\_\_

Consulting Engineer: \_\_\_\_\_

### Documentation

#### Roads items:

#### Essential

#### Non-essential

None


None

### Legend:

- OK - Indicates all City requirements have been complied with or the utility has been inspected and was installed to City specs or that the issues were resolved.
- N/A - Not applicable
- X - Indicates utility has been inspected and that all non-essential requirements must be resolved within 60 days of the CCC, or if installed after September 15, prior to June 30, in the year following the date of the CCC application.

# SAMPLE ONLY

See [www.calgary.ca/cefs](http://www.calgary.ca/cefs) for the latest version

	<b>CONSTRUCTION COMPLETION INSPECTION APPROVAL SHEET</b>
---	--

for  
**Paved Roads – Water Resources**

Paved Roads	<input type="checkbox"/>	Gravel Lanes w. Paved Portions	<input type="checkbox"/>
Paved Lanes	<input type="checkbox"/>	Sidewalk, Curb & Gutters	<input type="checkbox"/>
Gravel Lanes	<input type="checkbox"/>		

Subdivision: \_\_\_\_\_ Agreement No.: \_\_\_\_\_  
Developer: \_\_\_\_\_  
Consulting Engineer: \_\_\_\_\_

Following our field inspection on: (1) \_\_\_\_\_, we confirm the following:  
(2) \_\_\_\_\_  
(3) \_\_\_\_\_

### REPORTS AND CORRESPONDENCE COMPLIANCE

The outstanding non-essential paperwork items will be correct prior to:

Date: \_\_\_\_\_ (90 days)

Signed: \_\_\_\_\_ Date: \_\_\_\_\_  
Consulting Engineer

### FIELD APPROVAL

Essential work is complete and in order for release of the Construction Completion Certificate.

Signed: \_\_\_\_\_ Date: \_\_\_\_\_  
Water Resources Inspector

Signed: \_\_\_\_\_ Date: \_\_\_\_\_  
Consulting Engineer

The outstanding non-essential field items listed on the field inspection report will be corrected prior to:

Date: \_\_\_\_\_  
(60 days or June 30 after September 15)

Signed: \_\_\_\_\_ Date: \_\_\_\_\_  
Consulting Engineer



# SAMPLE ONLY

See [www.calgary.ca/cefs](http://www.calgary.ca/cefs) for the latest version



## FIELD INSPECTION SHEET CONSTRUCTION COMPLETION

### for Surface Improvements Transportation – Roads

Subdivision: \_\_\_\_\_ Agreement No.: \_\_\_\_\_

Developer: \_\_\_\_\_

Consulting Engineer: \_\_\_\_\_

Surface Improvement: \_\_\_\_\_

Contractor: \_\_\_\_\_

Date construction completed: \_\_\_\_\_

#### Essential work:

- Compaction compliance approval letters from the material and research engineer for stripping and rough grading, all applicable underground utilities and for the applicable surface improvement are required and must be attached.
- Material compliance approval letter from material and research engineer is required and must be attached.
- All issues in the field orders have been resolved to the satisfaction of the Roads and Water Resources inspector(s).
- Water Resources construction completion inspection approval sheet for the applicable surface improvement.

**Non-essential:** List non-essential work to be completed.

- 
- 
- 

\_\_\_\_\_  
City of Calgary Roads Inspector (sign)

\_\_\_\_\_  
Consulting Engineer (sign)

\_\_\_\_\_  
City of Calgary Roads Inspector (print)

\_\_\_\_\_  
Consulting Engineer (print)

\_\_\_\_\_  
Date

\_\_\_\_\_  
Date

#### Notes:

1. Two copies of field inspection sheet are required: One copy is for the Roads inspector and one for the consulting engineer.
2. Attach copy 8 1/2" x 11" of surface improvement cover sheet.
3. The maintenance period commences from the date the Roads inspector signs the Field Inspection Sheet Construction Completion.

# SAMPLE ONLY

See [www.calgary.ca/cefsq](http://www.calgary.ca/cefsq) for the latest version

	<b>CONSTRUCTION COMPLETION CERTIFICATE SUBMISSION CHECKLIST</b>
---	---

**for  
Paved Roads and Walkways**

Subdivision: \_\_\_\_\_ Agreement No.: \_\_\_\_\_

Developer: \_\_\_\_\_

Consulting Engineer: \_\_\_\_\_

**Accompanying documents:**

**Please Check (✓)**

- |   |       |
|---|-------|
| 1. Six copies of CCC – stapled to each certificate a reduced copy 8 1/2" x 11" of the cover sheet for the surface improvements. If the plan is 11" x 14" it is to be folded to 8 1/2" x 11" size. | _____ |
| 2. One copy of the compaction compliance letter (issued by Roads, Material and Research Engineer).  | _____ |
| 3. Six copies of letter of material compliance (issued by Roads, Material and Research Quality Control Supervisor).   | _____ |
| 4. Six copies of the statement of design mix approval material compliance, issued by Roads Material and Research Engineer, if non-standard asphalt design mix was used.                           | _____ |
| 5. Six copies of the letter from material and research approving the pavement road structure design.  | _____ |
| 6. Six signed copies of the Water Resources construction completion inspection approval sheet.  | _____ |
| 7. One copy of the list of approved omissions.  | _____ |
| 8. One copy of the checklist sheet for essential and non-essential items.   | _____ |
| 9. Six signed copies of the Roads Field inspection sheet, with a reduced copy of the cover sheet, as noted in Item 1, and stapled to the field inspection sheet.                                  | _____ |

**If an item listed is not required or not applicable, indicate N/A in the "Please check" area for that item.**

Signed: \_\_\_\_\_ Date: \_\_\_\_\_  
Consulting Engineer's Inspector

# SAMPLE ONLY

See [www.calgary.ca/cefs](http://www.calgary.ca/cefs) for the latest version

	<b>CONSTRUCTION COMPLETION CERTIFICATE SUBMISSION CHECKLIST</b>
---	---

**for  
Sidewalks, Curbs and Gutters**

Subdivision: \_\_\_\_\_ Agreement No.: \_\_\_\_\_

Developer: \_\_\_\_\_

Consulting Engineer: \_\_\_\_\_

**Accompanying documents:**

**Please Check (✓)**

- |   |       |
|---|-------|
| 1. Six copies of CCC – stapled to each certificate a reduced copy 8 1/2” x 11” of the cover sheet for the surface improvements. If the plan is 11” x 14” it is to be folded to 8 1/2” x 11” size. | _____ |
| 2. One copy of the compaction compliance letter (issued by Roads, Material and Research Engineer).  | _____ |
| 3. Six copies of letter of material compliance (issued by Roads, Material and Research Quality Control Supervisor).   | _____ |
| 4. One copy of the list of approved omissions.  | _____ |
| 5. One copy of the checklist sheet for essential and non-essential items.   | _____ |
| 6. Six signed copies of the Roads Field inspection sheet, with a reduced copy of the cover sheet, as noted in Item 1, and stapled to the field inspection sheet.                                  | _____ |
| 7. Six signed copies of the Water Resources Construction Completion Inspection Approval Sheet.  | _____ |

**If an item listed is not required or not applicable, indicate N/A in the “Please check” area for that item.**

Signed: \_\_\_\_\_ Date: \_\_\_\_\_

Consulting Engineer’s Inspector

# SAMPLE ONLY

See [www.calgary.ca/cefs](http://www.calgary.ca/cefs) for the latest version

	<b>CONSTRUCTION COMPLETION CERTIFICATE SUBMISSION CHECKLIST</b>
---	---

**for  
Paved Lanes**

Subdivision: \_\_\_\_\_ Agreement No.: \_\_\_\_\_

Developer: \_\_\_\_\_

Consulting Engineer: \_\_\_\_\_

**Accompanying documents:**

**Please Check (✓)**

- |   |       |
|---|-------|
| 1. Seven copies of CCC – stapled to each certificate a reduced copy 8 1/2” x 11” of the cover sheet for the surface improvements. If the plan is 11” x 14” it is to be folded to 8 1/2” x 11” size. | _____ |
| 2. One copy of the compaction compliance letter (issued by Roads, Material and Research Engineer).  | _____ |
| 3. Seven copies of letter of material compliance (issued by Roads, Material and Research Quality Control Supervisor).   | _____ |
| 4. Seven copies of the statement of design mix approval material compliance, issued by Roads Material and Research Engineer, if non-standard asphalt design mix was used.                           | _____ |
| 5. Seven copies of the letter from material and research approving the pavement road structure design.  | _____ |
| 6. If applicable, seven signed copies of the Water Resources construction completion inspection approval sheet.   | _____ |
| 7. One copy of the list of approved omissions.  | _____ |
| 8. One copy of the checklist sheet for essential and non-essential items.   | _____ |
| 9. Seven signed copies of the Roads Field inspection sheet, with a reduced copy of the cover sheet, as noted in Item 1, and stapled to the field inspection sheet.                                  | _____ |

**If an item listed is not required or not applicable, indicate N/A in the “Please check” area for that item.**

Signed: \_\_\_\_\_ Date: \_\_\_\_\_  
Consulting Engineer’s Inspector

# SAMPLE ONLY

See [www.calgary.ca/cefs](http://www.calgary.ca/cefs) for the latest version

	<b>CONSTRUCTION COMPLETION CERTIFICATE SUBMISSION CHECKLIST</b>
---	---

**for  
Gravelled Lanes**

Subdivision: \_\_\_\_\_ Agreement No.: \_\_\_\_\_

Developer: \_\_\_\_\_

Consulting Engineer: \_\_\_\_\_

**Accompanying documents:**

**Please Check (√)**

- |   |       |
|---|-------|
| 1. Seven copies of CCC – stapled to each certificate a reduced copy 8 1/2” x 11” of the cover sheet for the surface improvements. If the plan is 11” x 14” it is to be folded to 8 1/2” x 11” size. | _____ |
| 2. One copy of the compaction compliance letter (issued by Roads, Material and Research Engineer).  | _____ |
| 3. If applicable, seven signed copies of the Water Resources construction completion inspection approval sheet.   | _____ |
| 4. One copy of the list of approved omissions.  | _____ |
| 5. One copy of the checklist sheet for essential and non-essential items.   | _____ |
| 6. Seven signed copies of the Roads Field inspection sheet, with a reduced copy of the cover sheet, as noted in Item 1, and stapled to the field inspection sheet.                                  | _____ |

**If an item listed is not required or not applicable, indicate N/A in the “Please check” area for that item.**

Signed: \_\_\_\_\_ Date: \_\_\_\_\_  
Consulting Engineer’s Inspector

# SAMPLE ONLY

See [www.calgary.ca/cefs](http://www.calgary.ca/cefs) for the latest version

	<b>CONSTRUCTION COMPLETION CERTIFICATE SUBMISSION CHECKLIST</b>
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**for  
Sound Attenuation Fence & Screen Fence**

Subdivision: \_\_\_\_\_ Agreement No.: \_\_\_\_\_

Developer: \_\_\_\_\_

Consulting Engineer: \_\_\_\_\_

**Accompanying documents:**

**Please Check (✓)**

- |   |       |
|---|-------|
| 1. Six copies of CCC – stapled to each certificate a reduced copy 8 1/2” x 11” of the cover sheet for the surface improvements. If the plan is 11” x 14” it is to be folded to 8 1/2” x 11” size. | _____ |
| 2. One copy of the compaction compliance letter (issued by Roads, Material and Research Engineer).  | _____ |
| 3. Six signed copies of the Roads Field inspection sheet, with a reduced copy of the cover sheet, as noted in Item 1, and stapled to the field inspection sheet.                                  | _____ |

**If an item listed is not required or not applicable, indicate N/A in the “Please check” area for that item.**

Signed: \_\_\_\_\_ Date: \_\_\_\_\_  
Consulting Engineer’s Inspector

# SAMPLE ONLY

See [www.calgary.ca/cefs](http://www.calgary.ca/cefs) for the latest version

	<b>FINAL ACCEPTANCE INSPECTION APPROVAL SHEET</b>
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**for  
Paved Roads – Water Resources**

Paved Roads	<input type="checkbox"/>	Gravel Lanes w. Paved Portions	<input type="checkbox"/>
Paved Lanes	<input type="checkbox"/>	Sidewalk, Curb & Gutters	<input type="checkbox"/>
Gravel Lanes	<input type="checkbox"/>		

Subdivision: \_\_\_\_\_ Agreement No.: \_\_\_\_\_  
Developer: \_\_\_\_\_  
Consulting Engineer: \_\_\_\_\_

Following our field inspection on: (1) \_\_\_\_\_, we confirm the following:  
(2) \_\_\_\_\_  
(3) \_\_\_\_\_

Infrastructure is complete and in order for release of the Final Acceptance Certificate.

Signed: \_\_\_\_\_ Date: \_\_\_\_\_  
Water Resources Inspector

Signed: \_\_\_\_\_ Date: \_\_\_\_\_  
Consulting Engineer

# SAMPLE ONLY

See [www.calgary.ca/cefsq](http://www.calgary.ca/cefsq) for the latest version

	<b>FINAL ACCEPTANCE FIELD INSPECTION SHEET</b>
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for  
**Transportation – Roads**

Subdivision: \_\_\_\_\_ Agreement No.: \_\_\_\_\_

Developer: \_\_\_\_\_

Consulting Engineer: \_\_\_\_\_

Surface Improvement: \_\_\_\_\_

Contractor: \_\_\_\_\_

Date construction completed: \_\_\_\_\_

**Essential work:**

- Water Resources final acceptance inspection approval sheet for the applicable surface improvement is required before Roads approval, copy of clearance shall be attached.
- Material compliance approval letter from material and research engineer is required and must be attached.

**Paved Roads and Walkways inspection:**

**Top Lift asphalt bonding required for:**

Major Road: Yes: \_\_\_\_\_ No: \_\_\_\_\_, or

Top lift placed after September 15 on **residential and collector roads:** Yes: \_\_\_\_\_ No: \_\_\_\_\_

**Sidewalks, Curbs and Gutters inspection:**

Undeveloped lots subject to security deposit for Sidewalks, Curbs and Gutters: Yes: \_\_\_ No: \_\_\_

**Legal Description:**

Lot: \_\_\_\_\_ Block: \_\_\_\_\_ Lot: \_\_\_\_\_ Block: \_\_\_\_\_ Lot: \_\_\_\_\_ Block: \_\_\_\_\_

Lot: \_\_\_\_\_ Block: \_\_\_\_\_ Lot: \_\_\_\_\_ Block: \_\_\_\_\_ Lot: \_\_\_\_\_ Block: \_\_\_\_\_

Lot: \_\_\_\_\_ Block: \_\_\_\_\_ Lot: \_\_\_\_\_ Block: \_\_\_\_\_ Lot: \_\_\_\_\_ Block: \_\_\_\_\_

\_\_\_\_\_  
City of Calgary Roads Inspector (sign)

\_\_\_\_\_  
Consulting Engineer (sign)

\_\_\_\_\_  
City of Calgary Roads Inspector (print)

\_\_\_\_\_  
Consulting Engineer (print)

\_\_\_\_\_  
Date

\_\_\_\_\_  
Date

Notes:

1. Two copies of field inspection sheet are required (one for Roads inspector and one for consulting engineer)
2. Attach copy 8 1/2" x 11" of surface improvement cover sheet.
3. Attach legal plan 8 1/2" x 11" of subdivision phase showing the undeveloped lots in red.



# SAMPLE ONLY

See [www.calgary.ca/cefs](http://www.calgary.ca/cefs) for the latest version

	<b>FINAL ACCEPTANCE CERTIFICATE SUBMISSION CHECKLIST</b>
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**for  
Paved Roads and Walkways**

Subdivision: \_\_\_\_\_ Agreement No.: \_\_\_\_\_

Developer: \_\_\_\_\_

Consulting Engineer: \_\_\_\_\_

**Accompanying documents:**

**Please Check (✓)**

- |   |       |
|---|-------|
| 1. Six copies of FAC – stapled to each certificate a reduced copy 8 1/2” x 11” of the cover sheet for the surface improvements. If the plan is 11” x 14” it is to be folded to 8 1/2” x 11” size. | _____ |
| 2. Six copies of letter of material compliance (issued by Roads, Material and Research Quality Control Supervisor).   | _____ |
| 3. Six copies of the letter from material and research approving the pavement road structure design.  | _____ |
| 4. Six signed copies of the Water Resources final acceptance inspection approval sheet.   | _____ |

**If an item listed is not required or not applicable, indicate N/A in the “Please check” area for that item.**

Signed: \_\_\_\_\_ Date: \_\_\_\_\_  
Consulting Engineer’s Inspector

# SAMPLE ONLY

See [www.calgary.ca/cefsq](http://www.calgary.ca/cefsq) for the latest version

	<b>FINAL ACCEPTANCE CERTIFICATE SUBMISSION CHECKLIST</b>
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**for  
Sidewalks, Curbs and Gutters**

Subdivision: \_\_\_\_\_ Agreement No.: \_\_\_\_\_

Developer: \_\_\_\_\_

Consulting Engineer: \_\_\_\_\_

**Accompanying documents:**

**Please Check (✓)**

- |   |       |
|---|-------|
| 1. Six copies of FAC – stapled to each certificate a reduced copy 8 1/2" x 11" of the cover sheet for the surface improvements. If the plan is 11" x 14" it is to be folded to 8 1/2" x 11" size. | _____ |
| 2. Six copies of letter of material compliance (issued by Roads, Material and Research Quality Control Supervisor).   | _____ |
| 3. Six signed copies of the Roads Field inspection sheet, with a reduced copy of the cover sheet, as noted in Item 1, and stapled to the field inspection sheet.                                  | _____ |
| 4. Six signed copies of the Water Resources Final Acceptance Inspection Approval Sheet.   | _____ |

**If an item listed is not required or not applicable, indicate N/A in the "Please check" area for that item.**

Signed: \_\_\_\_\_ Date: \_\_\_\_\_  
Consulting Engineer's Inspector

# SAMPLE ONLY

See [www.calgary.ca/cefsq](http://www.calgary.ca/cefsq) for the latest version

	<b>FINAL ACCEPTANCE CERTIFICATE SUBMISSION CHECKLIST</b>
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**for  
Lanes**

Subdivision: \_\_\_\_\_ Agreement No.: \_\_\_\_\_

Developer: \_\_\_\_\_

Consulting Engineer: \_\_\_\_\_

**Accompanying documents:**

**Please Check (√)**

- |   |       |
|---|-------|
| 1. Seven copies of FAC stapled to each certificate a reduced copy 8 1/2" x 11" of the cover sheet for the surface improvements. If the plan is 11" x 14" it is to be folded to 8 1/2" x 11" size. | _____ |
| 2. Seven copies of letter of material compliance, issued by Roads, Material and Research Quality Control Supervisor (for paved portions only).  | _____ |
| 3. Seven copies of the letter from material and research approving the pavement road structure design (for paved portions only).  | _____ |
| 4. If applicable, seven signed copies of the Water Resources final acceptance inspection approval sheet.  | _____ |
| 5. Seven signed copies of the Roads Field inspection sheet, with a reduced copy of the cover sheet, as noted in Item 1, and stapled to the field inspection sheet.                                | _____ |

**If an item listed is not required or not applicable, indicate N/A in the "Please check" area for that item.**

Signed: \_\_\_\_\_ Date: \_\_\_\_\_  
Consulting Engineer's Inspector

# SAMPLE ONLY

See [www.calgary.ca/cefs](http://www.calgary.ca/cefs) for the latest version



## FINAL ACCEPTANCE CERTIFICATE SUBMISSION CHECKLIST

### for Sound Attenuation Fence & Screen Fence

Subdivision: \_\_\_\_\_ Agreement No.: \_\_\_\_\_

Developer: \_\_\_\_\_

Consulting Engineer: \_\_\_\_\_

#### **Accompanying documents:**

**Please Check (√)**

1. Six copies of FAC stapled to each certificate a reduced copy 8 1/2" x 11" of the cover sheet for the surface improvements. If the plan is 11" x 14" it is to be folded to 8 1/2" x 11" size. \_\_\_\_\_
2. Six signed copies of the Roads Field inspection sheet, with a reduced copy of the cover sheet, as noted in Item 1, and stapled to the field inspection sheet. \_\_\_\_\_

**If an item listed is not required or not applicable, indicate N/A in the "Please check" area for that item.**

Signed: \_\_\_\_\_ Date: \_\_\_\_\_  
Consulting Engineer's Inspector

# SAMPLE ONLY

See [www.calgary.ca/cefsq](http://www.calgary.ca/cefsq) for the latest version