

# CAPRICORN MUNICIPAL DEVELOPMENT GUIDELINES

CP1

## CONSTRUCTION PROCEDURES



TABLE OF CONTENTS

**GENERAL ..... 3**

CP1.01 INTRODUCTION ..... 3

**REQUIREMENTS PRIOR TO CONSTRUCTION..... 3**

CP1.02 GENERAL REQUIREMENTS ..... 3

CP1.03 CONSTRUCTION INSPECTIONS ..... 3

CP1.04 INSPECTION AND TEST PLAN ..... 4

CP1.05 DOCUMENTATION..... 4

CP1.06 CONTRACTOR'S EROSION CONTROL AND STORMWATER MANAGEMENT STRATEGY ..... 4

CP1.07 CONSTRUCTION SECURITY BOND ..... 5

CP1.08 NOTICE TO COMMENCE WORK..... 6

CP1.09 PRE-START MEETING ..... 6

**REQUIREMENTS DURING CONSTRUCTION ..... 7**

CP1.10 GENERAL REQUIREMENTS ..... 7

CP1.11 DOCUMENT CONTROL ..... 8

CP1.12 EROSION CONTROL AND STORMWATER MANAGEMENT ..... 8

CP1.13 NOISE ..... 8

CP1.14 PARKS & ENVIRONMENTALLY SIGNIFICANT AREAS..... 9

CP1.15 INSPECTION AND TESTING ..... 9

CP1.16 APPLICATION FOR COUNCIL TO COMPLETE PRIVATE WORKS..... 11

CP1.17 APPLICATION FOR APPROVAL TO DRAW CONSTRUCTION WATER FROM COUNCIL  
MAINS ..... 11

**ACCEPTANCE OF WORKS..... 12**

CP1.18 INTRODUCTION ..... 12

CP1.19 DEFECTS LIABILITY BOND..... 12

CP1.20 "AS CONSTRUCTED" SUBMISSION ..... 12

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## CONSTRUCTION PROCEDURES

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CP1.21	COMPLIANCE / CERTIFICATIONS.....	13
CP1.22	OPERATION AND MAINTENANCE MANUALS.....	14
CP1.23	“AS-CONSTRUCTED” SUBMISSION REQUIREMENTS .....	14
CP1.24	“AS CONSTRUCTED” DRAWINGS .....	14
CP1.25	DRAFTING REQUIREMENTS (“AS CONSTRUCTED”).....	15
CP1.26	PROJECT DOCUMENTATION.....	18
CP1.27	” WORKS ACCEPTANCE” INSPECTION .....	19
CP1.28	BONDING OF UNCOMPLETED WORKS .....	20
CP1.29	SEALING OF PLAN OF SURVEY .....	22
	<b>FINAL ACCEPTANCE OF WORKS .....</b>	<b>23</b>
CP1.30	”FINAL ACCEPTANCE” INSPECTION .....	23
CP1.31	GENERAL REQUIREMENTS .....	23

### **Keeping the Capricorn Municipal Development Guidelines up-to-date**

The Capricorn Municipal Development Guidelines are living documents which reflect progress of municipal works in the Capricorn Region. To maintain a high level of currency that reflects the current municipal environment, all guidelines are periodically reviewed with new editions published and the possibility of some editions to be removed. Between the publishing of these editions, amendments may be issued. It is important that readers assure themselves they are using the current guideline, which should include any amendments which may have been published since the guideline was printed. A guideline will be deemed current at the date of development approval for construction works.

## GENERAL

### CP1.01 INTRODUCTION

1. This section of these Development Guidelines details the minimum requirements acceptable to the Council associated with developments involving Operational Works defined as any works to be constructed that are subject to Council Approval. Typically, this involves the construction of Water Supply, Sewerage, Stormwater, Roadwork's and Public Open Space associated with Development, Reconfiguration or other approvals.

2. The section has been divided into four subsections as follows:

- a) Requirements Prior to Construction
- b) Requirements During Construction
- c) Acceptance of Works
- d) Final Acceptance of Works

## REQUIREMENTS PRIOR TO CONSTRUCTION

### CP1.02 GENERAL REQUIREMENTS

1. Prior to the construction of any works requiring Council Approval the consulting engineer responsible for the design of the works must first obtain an approval for the engineering drawings and specifications from Council. The procedures to be undertaken in order to achieve approvals are outlined in detail in Section AP1 of these Development Guidelines.

### CP1.03 CONSTRUCTION INSPECTIONS

1. Prior to construction of the works a Consulting Engineer who is a Registered Professional Engineer Queensland (RPEQ) is to be engaged to provide construction inspection services in accordance with a Council approved Inspection and Test Plan (ITP) and to exercise reasonable skill and diligence in order to ensure that the operational works requiring approval are executed in accordance with:

**RPEQ**

- a) Council's development approval conditions;
- b) Council's relevant policies and local laws;
- c) the Capricorn Municipal Development Guidelines, Council approved drawings, specifications and relevant Australian Standards;
- d) good Engineering practice.

**CP1.04 INSPECTION AND TEST PLAN**

1. The Consulting Engineer is to submit with the Operational Works application for Council Approval an ITP identifying the following items: **ITP**
- a) element of work
  - b) tests and checks required
  - c) standard required to meet
  - d) frequency of testing
  - e) Contractor's responsibility
  - f) Consulting Engineer's responsibility
  - g) Council's responsibility
  - h) An example of an acceptable Inspection and Test Plan is attached.

**CP1.05 DOCUMENTATION**

1. Associated with the lodgement of the "Application for Operational Works Development Permit", the Consultant shall submit Engineering Plans and Specifications for the works. (The specific requirements for the submission are detailed in Section AP1. **Submission**
2. Following approval of this documentation, Council shall issue a complete set of stamped approved plans for operational works. Further, one complete specification shall be issued to Council incorporating any required amendments following the approval of the documentation. **Approved Plans**
3. Any re-submitted plans shall have an accompanying letter outlining amendments and include any necessary calculations or documentation as supporting information. **Amendments**
4. Submissions with a full complement of supporting documentation will expedite Council's approval time frame.

**CP1.06 CONTRACTOR'S EROSION CONTROL AND STORMWATER MANAGEMENT STRATEGY**

1. Prior to construction commencing the Contractor shall prepare an Erosion Control and Stormwater Management Strategy to manage the site during Construction and the Defects Liability Period. The Strategy is to be consistent with the approved Erosion Control and Stormwater Management Plan prepared by the Consulting Engineer. The strategy will need to be approved by the Department of Natural Resources and Water before being approved by Council.
2. The Strategy should consider the following issues: **Erosion Control Strategy**
- a) Limiting the area of disturbance to a minimum;
  - b) Re-establishing vegetation;
  - c) Protecting stockpiles from traffic, run-off and wind erosion;

- d) Protecting exposed areas against water and wind erosion and controlling drainage off exposed areas;
- e) Limiting site traffic and restricting access;
- f) Restricting vehicles on site during muddy or dusty conditions;
- g) Prohibiting the placement of material in kerbs/kerb and channel to improve site access;
- h) Intercepting drainage from disturbed areas and installing temporary sediment barriers to filter soil particles;
- i) Diverting larger flows into sediment traps to allow soil particles to settle or to be treated prior to discharging into receiving waters;
- j) Protecting the edges of driveways from erosion caused by concentration of runoff; and
- k) Maintaining sediment control structures, to ensure their effective operation.
- l) Covering of all truck loads entering and exiting the site.
- m) Noise abatement measures.
- n) Control measures for protection vegetation and exclusions areas.

**CP1.07 CONSTRUCTION SECURITY BOND**

1. Prior to construction of the works commencing the developer is required to lodge a security bond up to a maximum value of 5% of the estimated cost of the construction of the works prepared and certified by the Consulting Engineer. The requirement for a construction security bond will be assessed on a case by case basis considering the risk to Council external infrastructure. The need for a construction security bond will be advised at Operational Works Approval.

***Construction Security Bond***

2. The bond is to be accompanied by Council's Security Lodgement Form or bonding deed clearly identifying the purpose of the bond together with the Consulting Engineer's certification of the value of the works.

***Damage***

3. The bond is required to provide security to Council in the event that costs are incurred as a result of the following:

- a) Protection of on-street works from damage by contractors, sub-contractors and suppliers.
- b) Repairs to on-street works resulting from damage caused by contractors, subcontractors and suppliers.
- c) Protection and repair of existing Council services (i.e. sewerage connections, water connections etc).
- d) Inadequate Erosion Control and Stormwater Management during construction.
- e) Inadequate provision for traffic.
- f) Urgent action required by Council to resolve unsafe construction or emergency

repairs required to protect persons and/or property from consequential damages.

4. Any costs incurred by Council in responding to the above circumstances will be recovered from the Security Bond.

5. At the completion of the works and the commencement of the Defects Liability period, the construction security bond shall be returned to the developer or may be substituted for the maintenance bond.

**CP1.08 NOTICE TO COMMENCE WORK**

1. Council requires seven (7) days written Notice of Intention to Commence Works. The notice may be forwarded by facsimile. Council may relax the minimum Notice requirements however no works will be permitted to commence until the following information is provided:

***7 Days Notice***

- a) name, address and telephone number (including after hours contact) of the Consulting Engineer for the works;
- b) name, address and telephone number (including after hours contact) of the Contractor(s) and major sub-contractor(s) for the works;
- c) name and telephone number of the person to be contacted in regard to any matter arising from the construction of the works;
- d) draft of the Residents advice letter to be supplied to surrounding residents;
- e) intended date of commencement of works, and contract period;
- f) an invitation to the relevant Council Officer to attend a pre-start meeting;
- g) A request to Council to confirm that environmentally significant areas and/or trees which are to be preserved in accordance with any Tree Preservation Declaration, have been identified and adequately protected.

This submission will form official notification of the date of the "Pre-Start" meeting.

**CP1.09 PRE-START MEETING**

1. A pre-start meeting shall be held onsite prior to the commencement of works. Council requires the attendance of the Consulting Engineer, the Contractor's Representative and any relevant Specialist Consultants.

2. Items to be considered at this meeting will include but not be limited to the following:

***Items for Pre-start Meeting***

- a) Notification requirements for nearby residents (Residents advice letter - See proforma) – Residents to be identified will be identified at the pre start meeting.
- b) introduction of the Council's representative(s), Consulting Engineers(s), Contractor(s) and any other relevant parties i.e. Geotechnical Engineers (if required);
- c) review of relevant conditions of development approval;
- d) review of Council's construction requirements;
- e) review of the Contractor's Erosion Control and Stormwater Management Strategy

- f) inspection and identification of parks and environmentally significant areas and/or trees for preservation;
  - g) site access conditions;
  - h) identification of areas to be left undisturbed;
  - i) review of Inspection and Test Plan including a review of nominated Hold/Witness points;
  - j) any other relevant Acts;
  - k) provision of Construction Security Bond (if required);
  - l) Public Liability Insurance;
  - m) Traffic Management Plan
3. Failure to provide the following at or prior to the pre-start meeting will result in Council withholding approval for construction of the works to proceed: **Information Which Must be Provided**
- a) Evidence of Public Liability Insurance
  - b) Contractor's Erosion Control and Stormwater Management Strategy
  - c) Traffic Management Plan
  - d) Inspection and Test Plan
  - e) Construction Security Bond (if required).
4. Council Officers will not attend site inspections or visit the site until a Site Safety Induction has been undertaken for each Officer. **Site Safety Induction**
5. A prestart meeting check list shall be completed and signed off by Council and the consulting engineer **Checklist**

**REQUIREMENTS DURING CONSTRUCTION**

**CP1.10 GENERAL REQUIREMENTS**

1. The general requirements during the construction of the project are as follows:
- a) Work may only proceed when Council has been issued with all the "Pre-Start" documentation. (refer Clause CP1.09) **Council Approval**
  - b) No work shall commence on any existing road open to the public unless specifically approved by Council.
  - c) Any damage to existing services under the control of Council or another Authority must be notified immediately and made good by the relevant Authority at the Contractor/Developer's expense prior to acceptance of the works. **Damage**
  - d) Use of Council services, (eg water from existing mains), is subject to approval by Council and payment of appropriate fees.
  - e) Work involving the use of machinery of any description shall only be carried out on the site as per the requirements by the Environmental Protection Agency. No work is to be carried out on Sundays or public holidays.

Note: All applications for changes to working hours must be in writing. **Working Hours**

2. The Developer, Contractor and Consultant shall take all necessary steps, in accordance with the provisions of the Workplace Health and Safety Act, to ensure safety of the public in regard to construction activities. In particular, work on roadways shall be signed in accordance with Queensland Department of Main Roads "Manual of Uniform Traffic Control Devices". Council will require submission of plans indicating traffic control proposals and a program of work for sites involving the travelling public.

***Public Safety***

3. No public road may be closed, traffic diverted from public roads, or traffic diverted elsewhere without the prior approval of the Council, the District Superintendent of Traffic (if required) and public advertising of the proposed diversion must be carried out. Proposals to divert traffic shall include full details of the alternative route and proposed signing.

***Public Roads***

4. Works shall not be undertaken on any adjoining Private Properties without the prior written consent of the relevant Registered Proprietor. A written acceptance (by the Registered Proprietor) of the completed works shall be submitted to Council upon finalisation of the works.

***Work on Private Property***

**CP1.11 DOCUMENT CONTROL**

1. Should amendments be required to Engineering Plans and/or Specifications during construction, the Consulting Engineer shall ensure that Council is in receipt of two (2) copies of all amended drawings and/or specifications. Council shall stamp these plans for approval as operational works plans.

2. Any amended drawings and/or specifications shall be submitted with an accompanying letter outlining the amendment together with any supporting information.

***Amended Drawings***

3. Submissions with a full complement of supporting documentation will expedite Council's approval time frame.

4. All amendments shall be issued to Council for approval prior to the works being undertaken.

**CP1.12 EROSION CONTROL AND STORMWATER MANAGEMENT**

1. The Consulting Engineer shall ensure that the approved Erosion Control and Stormwater Management Plan and the approved Contractor's Erosion Control and Stormwater Management Strategy and any other measures ordered by Council are implemented during construction of the works.

2. The Contractor shall ensure that all reasonable measures are taken to protect nearby properties from dust pollution erosion, siltation or sediment transport.

***Protect Nearby Property***

3. Council reserves the right to order whatever action deemed necessary and appropriate at the time, including ordering temporary cessation of work in extreme cases.

4. As Erosion Control and Stormwater Management is also an issue of public amenity and safety, the developer shall be responsible for any costs arising from dust or water pollution generated by its development.

**CP1.13 NOISE**

1. The requirements of the EPA and the Local Government's local laws regarding Noise Nuisances (if applicable) shall apply to the development works.

**CP1.14 PARKS & ENVIRONMENTALLY SIGNIFICANT AREAS**

1. In cases where the subject land or the adjacent land is an existing or proposed Park, Bushland Reserve, declared Tree Preservation area, or area otherwise declared by Council as environmentally significant, the following general precautions shall be mandatory. This may include areas identified by other government agencies as being environmentally sensitive.

- a) The areas shall be clearly pegged, flagged, (and fenced if ordered by Council) inspected and approved by Council Officers at the pre-start meeting.
- b) The approved design, or Certificate of Approval for tree clearing issued pursuant to Tree Preservation By-laws (if applicable) shall have identified any unavoidable intrusion into such areas and nominated work practices such as maximum widths of disturbance, nominated access routes, methods and timing of rehabilitation, which shall be strictly adhered to.

**Marking of Areas**

**Approval for Tree Clearing**

2. Council shall be notified immediately the Consulting Engineer is aware of any damage or disturbance beyond the approved limits. Rehabilitation of this damage or disturbance shall be to the satisfaction of Council.

**Damage**

**CP1.15 INSPECTION AND TESTING**

1. During the construction phase, the Consulting Engineer shall be responsible for undertaking all required inspections and tests in accordance with the approved Inspection Test Plan (ITP). The Consulting Engineer in undertaking Construction Inspections shall:

**Experienced inspection staff**

- a) allocate competent and experienced staff to site inspection and testing;
- b) provide sufficient site presence, dependent on the contractor's progress and workmanship, and in accordance with the Council approved ITP, to be reasonably satisfied that the works meet the design, specification and performance requirements.
- c) Inspect and confirm acceptability of works prior to requesting a Council inspection.

2. Once an Inspection and Test Plan is approved, the Consulting Engineer and the Contractor must follow the plan, unless variations are approved, and submit with the "As Constructed" documentation certification that the plan has been followed.

**Variations to ITP**

3. Council will, on a random basis, call upon the Consulting Engineer to provide evidence of conformance with the approved ITP in the form of diary records, site visit reports etc.

4. During construction, Council reserves the right to conduct audit inspections of any or all of the works without prior notification.

**Audit Inspections**

5. Council requires a number of major inspections that are mandatory Hold Points to be included in the ITP. These are:

**HOLD POINTS**

- Earthworks
  - upon completion of Survey to define the limit of clearing
- Roadwork's
  - Subgrade on completion of trimming
  - Kerb and Channel/Kerb foundations

- Base on completion of final preparation
- Subgrade replacement excavation prior to backfilling

**Hold Points** for Inspection of subbase layers maybe required by Council in certain instances.

- Concrete
  - Foundations prior to placing forms
  - Formwork and reinforcing in place prior to pouring concrete
- Stormwater
  - Prior to backfill
  - CCTV Inspection of Constructed Lines (where required)
- Water
  - Visual inspection prior to backfill
  - Pressure testing
- Sewer
  - Visual inspection prior to backfill (unless CCTV inspection is employed where permitted)
  - Air testing of pipes and hydrostatic testing of manholes
  - CCTV Inspection of Constructed Lines (where required)

So as to facilitate accurate evidence of the test inspections and witness points, the Council has introduced a standard "Certificate of Inspection" to record the inspections. The relevant Council Officer undertaking the inspection will fill out the form (which is a three copy carbonised standard booklet) and provide one (1) copy to the Consulting Engineer for the project. An example of the "Inspection Certificate" is attached.

***Certificate of Inspection***

The use of CCTV inspection as evidence permitted in lieu of attendance by a Council officer at a hold point inspection is only approved as per table CP1.15.1.

**Table CP1.15.1 Use of CCTV Inspection**

	<b>CCTV Inspection permitted in lieu of inspection prior to backfill?</b>
<b>Banana Shire</b>	No
<b>Central Highlands Regional Council</b>	Yes
<b>Gladstone Regional Council</b>	No
<b>Isaac Regional Council</b>	No
<b>Livingstone Shire Council</b>	No
<b>Maranoa Regional Council</b>	No
<b>Rockhampton Regional Council</b>	No

**CP1.16 APPLICATION FOR COUNCIL TO COMPLETE PRIVATE WORKS**

1. Council requires any connections and alterations to Council's live sewer or water mains associated with developments to be completed by Council workforce at the Developer's expense, this is termed Private Works.

***Live Water or  
Sewer***

2. Sewer and water mains are considered to be live once the Defects Liability period has been commenced. All work on live sewers and water mains must be carried out by Council workforce.

3. Alterations to existing Council sewer and water mains (excepting sewer mains which are not live), resulting from the development (including cutting in of new sewer house connections) are to be completed prior to commencement of the Defects Liability period. In these cases, separate applications should be made for the alterations and the connections.

The procedure is as follows:

- a) Application should first be made in writing. The nature and extent of works shall be clearly identified on copies of the approved plans submitted with the application.
- b) Council will require payment based on a Council quotation before the work commences.

**CP1.17 APPLICATION FOR APPROVAL TO DRAW CONSTRUCTION WATER FROM COUNCIL MAINS**

1. The drawing of construction water from Council's mains must be approved and the relevant fees paid in advance. Application for approval should be made, on the prescribed form. The attached form shall include Council's endorsements on the form that the relevant fee has been paid.

***Construction  
Water***

## ACCEPTANCE OF WORKS

### CP1.18 INTRODUCTION

1. The "Defects Liability" period is a minimum period of twelve months after the works have been accepted as complete by Council. During the Defects Liability Period, it is the responsibility of the Developer to rectify any works found to be defective due to design faults or found to exhibit faults attributed to the performance of the construction activities in terms of quality and conformance with the design and specifications. ***Defects Liability Period***
2. Upon Council's notification of a defect it must be rectified within the time frame specified by Council. Council reserves the right to rectify a defect in certain circumstances at the Developers cost. ***Rectification of Defects***
3. Prior to Council's acceptance of the works the following are required to be completed: ***Acceptance of Works***
  - a) Defects Liability Bond lodged with Council.
  - b) Completed "As Constructed" submission lodged with Council prior to the "Works Acceptance" Inspection and accepted by Council.
  - c) Satisfactory "Works Acceptance" Inspection.
  - d) All appropriate documentation to be completed by the Consulting Engineer and retained for records purposes. This consists of the "Works Acceptance Inspection Checklist", the certified "Inspection and Testing Plan" and all test results and records for the works.
4. Following the satisfactory completion of all of the above matters, the Consulting Engineer shall make a written request for acceptance of the works and commencement of the "Defects Liability" period and release of any uncompleted works bond held.

### CP1.19 DEFECTS LIABILITY BOND

1. Council requires a bond from the Developer, in an amount of 5% of the value of the works which is kept for a minimum period of twelve months or until the works are finally accepted. ***Defects Liability Bond***
2. The bond is to be submitted with Council's Security Lodgement Form or bonding deed clearly identifying the purpose of the bond together with the Consulting Engineer's certification of the value of the works. ***Security Lodgement Form***
3. The Construction Security Bond lodged prior to construction may be used for the purposes of the Defects Liability bond subject to Council's approval.

### CP1.20 "AS CONSTRUCTED" SUBMISSION

1. "As Constructed" documentation serves two distinct functions:
  - a) Checking: To enable a quantitative check of the "As Constructed" works against the approved design, so as to ensure design philosophies and criteria have been achieved
  - b) Recording: To provide an accurate record of the "As Constructed" services.

2. Information required for the checking function must be presented in a form which allows ready comparison between design and "As Constructed" data by experienced engineering staff, whereas information required for the recording function must be presented in a form which allows ready and unambiguous interpretation and understanding by a wide range of users including engineers, maintenance and tradespersons, and the general public. Each Council has their own submission requirements – refer to [www.cmdg.com.au](http://www.cmdg.com.au)

**Submission Requirements**

3. "As Constructed" documentation in accordance with these requirements is essential in order to achieve acceptance of development works and commencement of the "Defects Liability" period and is required to be forwarded to Council prior to the "Works Acceptance" inspection.

4. The following items must be submitted as part of the "As Constructed" submission:

- a) Compliance / Certifications.
- b) Operation and maintenance manuals (where applicable).
- c) "As Constructed" drawings.

**CP1.21 COMPLIANCE / CERTIFICATIONS**

1. With the implementation of these guidelines, it is Council's intention to expedite the approval and checking process by reducing the level of checking from rigorous detailed checking to checking on an audit basis. In doing so, Council requires that the "As Constructed" documentation be supported by appropriate certifications in accordance with the requirements noted herein.

2. All surface "As Constructed" infrastructure (i.e. sewer manholes, kerb etc) must be surveyed in relation to property boundary's by a Registered Surveyor (QLD) upon completion of the project. Other "As Constructed" infrastructure which is constructed before the completion of the project (i.e. sewer jump ups, water reticulation bends etc) can be surveyed by the contractor. The certification must note that the "As Constructed" survey data represents the true and accurate location of the relevant construction element presented in the data, relative to all appropriate survey datum's. (i.e. the exact location in space of each construction element/entity). An RPEQ's certification must accompany the "As Constructed" submission to Council. The RPEQ's certification may qualify where information has been supplied by a contractor for covered up works (eg sewer jump up locations).

**As Constructed Survey**

**As Constructed Certification**

3. Council accepts the submission of "As Constructed" information for the location of House Connection Branches documented by the Contractor during the construction phase. This enables the Contractor to expedite the backfilling of these fixtures and will minimise "open excavations" awaiting final survey. This information shall be documented on the "As Constructed" Sewerage Plan and shall reference the Contractor's field notes used to document the "As Constructed" information.

**Location of Sewer Connections**

4. All "As Constructed" works must also be certified by the Consulting Engineer responsible for design of the works. The certification must note that the design intent and function of the proposed works have not been compromised by the constructed works. To this extent, the Consulting Engineer will be responsible for checking the "As Constructed" details so that the tolerances for construction are within specified limits.

5. It is recognised that in some circumstances, the tolerances for construction are exceeded. In these instances, the Engineer will be responsible for performing confirmation design calculations to ensure that the original design intent and function are not compromised.

**Original Design Intent**

6. Further, should the "As Constructed" details indicate a change to the design intent or function of the works, revised design calculations shall be provided by the Consulting Engineer to indicate the acceptability of the proposed change relative to Council's requirements. Council's approval of the change is required prior to the formal acceptance of the works.

7. The Consulting Engineer shall be responsible for the completion of the "Statement of Compliance - As Constructed works", which satisfies the requirements for Certification.

8. Sewer invert levels may be reported to 2 decimal places.

**Sewer Inverts**

**CP1.22 OPERATION AND MAINTENANCE MANUALS**

1. Where works comprise pump stations, reservoirs, treatment plants etc., Operations and Maintenance Manuals for all components of the works shall be provided. Operating and Maintenance Manuals shall include spare parts lists, electrical documentation and any other relevant information. Maintenance Manuals and procedures are also required for drainage structures which incorporate Gross Pollutant Traps, interceptor devices etc. The Maintenance procedures should indicate recommended frequencies for maintenance/cleaning functions in wet and dry seasons.

**CP1.23 "AS-CONSTRUCTED" SUBMISSION REQUIREMENTS**

The As-Constructed submission requirements for each Council are set out below in Table CP1.23.1.

**Table CP1.23.1 As constructed submission requirements**

	<b>As Constructed Submission requirements</b>
<b>Banana Shire</b>	Refer to Sections CP1.24 and CP1.25 following
<b>Central Highlands Regional Council</b>	<a href="http://www.centralhighlands.qld.gov.au/building-planning-projects/development/as-constructed-submissions/">http://www.centralhighlands.qld.gov.au/building-planning-projects/development/as-constructed-submissions/</a>
<b>Gladstone Regional Council</b>	ADAC* refer to <a href="http://www.gladstone.qld.gov.au/adac">http://www.gladstone.qld.gov.au/adac</a>
<b>Isaac Regional Council</b>	<a href="http://www.cmdg.com.au/AsConstructed/AsConstructed.html">http://www.cmdg.com.au/AsConstructed/AsConstructed.html</a>
<b>Livingstone Shire Council</b>	<a href="http://www.livingstone.qld.gov.au/constructed-submissions">www.livingstone.qld.gov.au/constructed-submissions</a>
<b>Maranoa Regional Council</b>	Refer to Sections CP1.24 and CP1.25 following
<b>Rockhampton Regional Council</b>	<a href="http://www.rockhamptonregion.qld.gov.au/PlanningBuilding/Development-Applications/Lodging-a-Development-Application/As-Constructed-Submissions">http://www.rockhamptonregion.qld.gov.au/PlanningBuilding/Development-Applications/Lodging-a-Development-Application/As-Constructed-Submissions</a>

\* Asset Design As-Constructed

**CP1.24 "AS CONSTRUCTED" DRAWINGS**

1. Council requires "As Constructed" Drawings to be produced using "AutoCAD" Software and submitted in DWG format. No drawing sheets or title blocks shall be used on the file.

**Electronic Data**

2. In addition to this, a hard copy shall be produced for each service on the consultants drawing sheets to accompany the Electronic Data.

**Hard Copy**

- a) These hard copies shall all be prepared on A3 sheets.
  - b) Detailed "As Constructed" drawings of all Sewerage and Water Pump Stations, Treatment Plants and Reservoir Sites at appropriate scales shall also be provided.
  - c) Electronic Data shall be supplied on a CD.
3. The "As Constructed" Drawing may be prepared by either the Consulting Engineer or the Registered Surveyor (QLD) but must comply with the requirements presented herein.
4. The AutoCAD Drawing shall be a single drawing containing five (5) main elements:
- a) Cadastral Base
  - b) Topographical Features
  - c) Water
  - d) Sewerage
  - e) Stormwater Drainage
5. The following sections detail the specific requirements and presentation standards for the drawing generally as a whole and for each individual service.
6. Sample layout plans for each element are included at the end of this section.

**CP1.25 DRAFTING REQUIREMENTS ("AS CONSTRUCTED")**

1. The general drafting requirements for the preparation of "AutoCAD" drawings shall be in accordance with the individual local government's submission requirements. Any elements encountered in the preparation of these drawings not specifically covered by this guideline shall be confirmed with the local authority prior to submission of drawing file. Where not specified by the local government the following details shall apply.

**2. Linework**

Pen colours of all linework shall be by layer.

It should be noted that Council's Pen Size Colours are as follows:

- |      |         |
|------|---------|
| 0.18 | Red     |
| 0.25 | White   |
| 0.35 | Yellow  |
| 0.50 | Magenta |
| 0.70 | Blue    |

Line type scale shall be = 10.

All line types shall be taken from the standard AutoCAD line type file ACAD Lin.

**3. Text Styles**

Text styles to be used on all Drawings shall be specified as Romans (0.8 Compression).

### 4. Blocks

Where available the Council supplied blocks shall be used at all times and XREF blocks shall not be used.

### 5. Units

1 Drawing Unit = 1 metre.

### 6. Dimensioning

Council requires the Dimensioning of "As Constructed" services to be carried out in accordance with Council's Dimensioning styles. (Refer Sample Layout Plans shown at the end of this section). All dimension values shall be typed in and the "dimaso" set variable turned off.

7. Layers

The following layers shall be used in the preparation of the AutoCAD drawings.

**Cadastral Base**

<i>Layer Name</i>	<i>Colour</i>	<i>Linetype</i>
C_Base	Yellow	Continuous
C_Easements	White	Dashed
C_Lotno	Yellow	Continuous
C_Roadname	Yellow	Continuous

**Topographical Features**

<i>Layer Name</i>	<i>Colour</i>	<i>Linetype</i>
T_Levels	Red	Continuous
T_Top_Batter	White	Hidden
T_Top_Batter	White	Hidden

**Water**

<i>Layer Name</i>	<i>Colour</i>	<i>Linetype</i>
W_Main	Magenta	Continuous
W_Valves	Yellow	Continuous
W_Hydrants	Yellow	Continuous
W_Services	White	Dashed
W_Dim	Red	Continuous

**Sewerage**

<i>Layer Name</i>	<i>Colour</i>	<i>Linetype</i>
S_Main	Blue	Continuous
S_Manhole	Yellow	Continuous
S_HCB	Yellow	Continuous

**Stormwater Drainage**

<i>Layer Name</i>	<i>Colour</i>	<i>Linetype</i>
D_Kerbline	White	Continuous
D_Pipe	Blue	Continuous
D_Structure	Yellow	Continuous

D_Culvert	Blue	Continuous
D_Catchdrain	Yellow	Continuous
D_Subsoil	Magenta	Dot2

**CP1.26 PROJECT DOCUMENTATION**

1. Development works will not be accepted until the following documentation has been certified as being completed by the Consulting Engineer and assembled and retained as a part of the project documentation within the Consulting Engineer's record storage facilities. A complete copy of this data shall be provided to Council prior to the acceptance of the works.

The data comprises:

- a) Inspection and Testing certification by the Consulting Engineer(s)
- b) "Works Acceptance" Inspection Checklist and copies of Council's Inspection certificates

2. Copies of all test results shall be retained for all tests required to conform with Council's Standard Specifications. While not a complete listing, the following details some major components to be included: -

- a) fill compaction test results
- b) subgrade CBR's
- c) \*subgrade replacement material quality, thickness and locations
- d) \*subgrade replacement material compaction test results
- e) subsoil drain filter media quality statements (or gradings where required)
- f) subbase course and base course material quality statements and thicknesses
- g) subbase course and base course compaction test results
- h) prime or primer seal spray and application rates
- i) AC core test results (i.e. thickness of cores at set locations as per Construction Specification C245)
- j) sewer pressure test records
- k) grading to sewer bedding quality statements
- l) grading to water main bedding quality statements
- m) water main pressure test records
- n) any concrete testing required by the technical specifications
- o) pipework material quality statements for all pipework material (water, sewer, stormwater, etc.)
- p) geofabric material quality statements
- q) any other testing results or statements required to conform with Council's Standard Specifications
- r) any other job specific testing carried out or ordered by the Consulting Engineer, if used

\* where required to be used

3. Should any of the above test results fail to meet specification the Consulting Engineer shall include in the submission, details of retesting/rectification carried out.

4. The documentation should be presented in a logically assembled and bound document including a table of contents confirming completeness. **Bound Document**

**CP1.27 “WORKS ACCEPTANCE” INSPECTION**

1. The "Works Acceptance " inspection requires attendance by:
- a) the Consulting Engineer of the project
  - b) the Contractor
- the Council’s nominated representative
2. It is the responsibility of the Contractor and the Consulting Engineer to ensure the necessary requirements of the works are to an acceptable standard (as defined in approved design and construction documentation prior to the conduct of an "Works Acceptance" inspection. **Works Acceptance Inspection Checklist**
3. With respect to the Erosion Control and Stormwater Management Measures, the Contractor’s Erosion Control and Stormwater Management Strategy is to include the Maintenance period and shall include the following:
- a) Plan to monitor the erosion prevention and sediment control measures following rainfall;
  - b) Follow-up repair work where necessary;
  - c) Removal temporary structures such as sediment traps when vegetation has re-established to an acceptable level;
  - d) Mulch and replant areas where revegetation has not been successful.
4. The general requirements to be met prior to Council's "Works Acceptance" inspection of the works are as follows:
- a) the site is clean, tidy (including mowing of grass to ensure that infrastructure can be located), free of rubbish, rocks, sticks, unauthorised stockpiles, etc;
  - b) allotment earthworks and site grading to be free draining and in accordance with the approved design
  - c) relevant Erosion Control and Stormwater measure are in place
  - d) integrity of environmentally significant areas is maintained
  - e) maintenance security deposit lodged
  - f) CCTV inspection of all sewer and stormwater infrastructure completed and approved by Council (refer **Table CP1.27.1**)

**Table CP1.27.1 CCTV Inspection On and Off Maintenance**

Council	CCTV Inspection required prior to Council Acceptance?	
	On Defects Liability	Off Defects Liability
Banana Shire	Yes	No
Central Highlands Regional Council	Yes	No
Gladstone Regional Council	Yes	Yes
Isaac Regional Council	Yes	No
Livingstone Shire Council	No	No
Maranoa Regional Council	Yes	No
Rockhampton Regional Council	No	No

5. The Consulting Engineer is responsible for confirming that the approved works have been completed and the above listed items are in accordance with the approved drawings, Council's technical specifications and accepted engineering and landscaping practice prior to requesting a "Works Acceptance" inspection. Failure to do so may result in cancellation of the inspection and/or the incurring of a reinspection fee.
6. Further to the above, and prior to the "Works Acceptance" inspection, the Consulting Engineer shall be responsible for the completion of the "Works Acceptance" Inspection Checklist as appropriate to the works being constructed (example attached). **Works Inspection Acceptance Checklist**
7. The completed checklist shall be presented to the relevant Council Officer at the "Works Acceptance" inspection. Council Officer will not undertake a detailed check of all items raised in the checklist, but will examine some aspects of the works on an audit basis. The original of the completed checklist shall be retained with the records for the project upon completion of the works. **Audit**

**CP1.28 BONDING OF UNCOMPLETED WORKS**

1. Generally, Council will not accept bonding of uncompleted works. In exceptional circumstances, Council may, at its discretion, approve the bonding of uncompleted works to enable early sealing of survey plans.

Separate bonds for separate portions of the works are acceptable. Administration fees will apply to each bond submitted.

2. Prior to the submission of any bond or plans for sealing, the following matters must be addressed to the satisfaction of Council: - **Matters to Address Before Bonding**
  - a) As constructed details (on work completed) has been submitted and approved.
  - b) All allotment preparation work and earthworks on allotments have been completed in accordance with the requirements of these Guidelines, with finished surface levels, the degree of compaction achieved and geotechnical assessments required on any of the allotments submitted and approved by Council.
  - c) Roads have been fully constructed.
  - d) All allotment stormwater systems constructed.
  - e) All water and sewerage reticulation shall be installed, tested and approved by Council Officers.
  - f) Telstra for telecommunications cabling and gas service providers for provision of gas (if applicable) shall be completed. Ergon Energy regarding the reticulation of electricity and the provision of street lighting shall comply with clause CP1.27.4
  - g) All outstanding rates are paid.
  - h) Other external works which the development relies on (eg a sewerage pump station) must be completed.
  - i) All works within allotments must be fully completed and no further disturbance required on the allotments.
  - j) All contributions required by the conditions of approval shall be paid prior to

sealing of survey plans (Infrastructure Charges and Traffic Contributions to Council, Ergon Energy Contributions, Department of Main Roads Contributions, etc).

3. Prior to the submission of a bond for uncompleted works, the Developer must receive approval from Council for the bonding of the uncompleted works.

**Approval Prior to Submission**

4. Upon confirmation that the above matters have been completed, the Developer or Consulting Engineer shall submit the following to Council.

**Bonding Submission**

- a) Security Lodgement Form or bonding deed to be completed clearly indicating that the purpose of the bond is for uncompleted works, refer to Table CP1.28.1 for applicability.
- b) Fully priced and programmed schedule of outstanding works.
- c) Unconditional Bank Guarantee or cash to the value of the estimated value of the uncompleted works as certified by the Consulting Engineer and approved by Council x the incomplete Works Bond multiplier in Table CP1.28.1 plus GST.

**Table CP1.28.1 Incomplete Works Bond Multiplier**

	<b>Incomplete Works Bond Multiplier</b>	<b>Security Lodgement Form</b>	<b>Bonding Deed</b>	<b>Use bonding deed Proforma</b>
<b>Banana Shire</b>	1.5	Yes	No	N/A
<b>Central Highlands Regional Council</b>	1.5	Yes	No	N/A
<b>Gladstone Regional Council</b>	1.5	No	Yes	No
<b>Isaac Regional Council</b>	1.5	No	Yes	Yes
<b>Livingstone Shire Council</b>	2.0	Yes	Yes	Yes
<b>Maranoa Regional Council</b>	1.5	Yes	No	N/A
<b>Rockhampton Regional Council</b>	1.5	No	Yes	Yes

- d) All bonds submitted shall be clearly identified as to the particulars of the site and, the purpose of the bond.
- e) Timeframes to be put on all uncompleted works bonds – to be approved by Council
- f) A bonding deed must be signed for all bonding deeds.

5. Electrical Reticulation Acceptance

**Acceptance Procedures for Non 100% completion of electrical reticulation works.**

The procedure of the developer to undertake the work is described in detail in the “Underground Urban Residential Developments, Subdivision Developers Handbook” which can be found on the Ergon Energy website at [https://www.ergon.com.au/\\_data/assets/pdf\\_file/0004/6736/PW000101R104-Developers-Handbook.pdf](https://www.ergon.com.au/_data/assets/pdf_file/0004/6736/PW000101R104-Developers-Handbook.pdf)

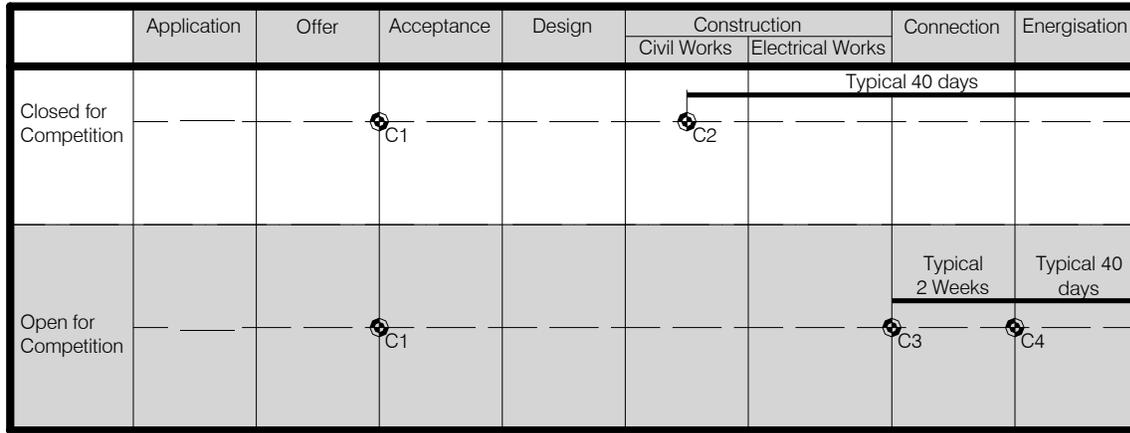
Under the Ergon Network Connection Policy for residential subdivisions, **Open for Competition** is only available for Urban Residential Developments greater than 5 lots smaller than 2,000m<sup>2</sup>. Any work outside of this category will be required to be completed by **Closed for Competition**

**Closed for Competition** Ergon Energy to undertake the internal Design and Construct of the Electrical Reticulation.

**Open for Competition** Developer to undertake the internal Design and Construct of the Electrical Reticulation. The Developer must comply with any other requirements imposed by Ergon Energy



**Table CP1.28.2 Timeline for Open and Closed for Competition electricity design and construction.**



Time →

**Where**

- C1 Ergon Energy Certificate of Supply/ Offer for Network Connection Services
- C2 Ergon Energy Certificate of Acceptance Civil Works
- C3 Ergon Energy Construction Acceptance
- C4 Ergon Energy Certificate of Acceptance

For the electrical reticulation works to be accepted by the Local Government to permit release of survey drawings the following must be completed;

Either

Where **Closed for Competition** is chosen the Certificate of Acceptance of Civil Works (C2) is provided and the Developer signs an Indemnity for the unfinished works.

Or

Where **Open for Competition** is chosen the Certificate of Acceptance (C4) is provided and the Developer signs an Indemnity for the unfinished works.

The Indemnity is to protect the Local Government and the Developer from any incidents that may occur within the development which may result from non-energisation of electrical works. Developers will be required to hold a minimum \$20 million Public Indemnity Insurance for this purpose. A copy of the required Indemnity is attached

**CP1.29 SEALING OF PLAN OF SURVEY**

1. Where engineering works are associated with the reconfiguration of land or creation of new titles the Developer is required to submit plan of survey which accords with the proposal plan approved by Council, suitable for deposit in the office of the Registrar of Titles and duly certified by a Registered Cadastral Surveyor (QLD), together with 4 copies of the plan, and a completed application form for sealing of survey plans or building format plans within 2 years from the date of issue of the operational works permit.
2. Where the survey plans differ from the approved proposed plan details of any changes are to be provided with the application.

3. The application form and plans, together with the relevant fee are to be lodged with Council.
4. Upon being satisfied that the Plan of Survey conforms with the approval granted, and all required works have been carried out, or adequate security in accordance with Council's policy for bonding of uncompleted works is provided, Council will note its approval under seal on the plan of survey and return the plan of survey to the Applicant for lodgement in the Titles Office.
5. The Applicant is required to submit the plan of survey to the Titles Office within the required time of Council sealing the plan. Failure to do so will require the plan of survey to be resubmitted to Council for resealing.

## FINAL ACCEPTANCE OF WORKS

### CP1.30 "FINAL ACCEPTANCE" INSPECTION

1. The "Final Acceptance" inspections will generally confirm the matters raised in the "Final Acceptance" Inspection checklist and any other matters outstanding relevant to the works. The Checklist (attached) is to be completed by the Consulting Engineer prior to the conduct of the "Final Acceptance" Inspection. Refer **Table CP1.27.1** for CCTV requirements prior to "Final Acceptance".

***Final  
Acceptance  
Inspection  
Checklist***

### CP1.31 GENERAL REQUIREMENTS

1. During the defects liability period, it is the responsibility of the Developer to:
  - i. Rectify any works found to be defective or found to exhibit faults attributed to the design of the works and/or the performance of the construction activities in terms of quality and conformance with the design and specifications.
  - ii. Remove eroded material from the road surface and stormwater systems where this is attributed to failure of the erosion control measures.
  - iii. Continue watering turf until it is fully established.
  - iv. Maintain landscape plantings until they are mature
2. During the defects liability period it is Council's responsibility to:
  - i. Clean out gross pollutant traps
  - ii. Repair third party damage to infrastructure (eg damage to street signs, damage to asphalt surfacing)
3. Upon Council's notification of a defect it must be rectified within a timeframe specified by Council. Council reserves the right to rectify a defect in certain circumstances at the Developer's cost.
4. Council reserves the right to require extension of the defects liability period and retain all (or a portion of) a defects liability bond for a portion of the works if:
  - i. Significant rectification or replacement work is carried out; or
  - ii. If acceptable performance of works during the defects liability period has not been demonstrated.

***Rectification***

***Extension of  
Defects  
Liability  
Period***

5. Once the defects liability period has elapsed a "Final Acceptance" inspection is to be arranged with Council. Payment of an appropriate Inspection Fee will be required. **Inspection Attendance**
6. The "Final Acceptance " inspection is to be attended by:
  - a. Council's nominee
  - b. the Consulting Engineer for the project
  - c. the Contractor
7. The Consulting Engineer for the works shall be responsible for ensuring that Council's requirements for acceptance of the works are satisfied prior to requesting a Final Acceptance inspection. **Council Acceptance**
8. Council's requirements for acceptance of the works comprise the following:-
  - a. no outstanding payments are due to Council or other Authorities from the development
  - b. completion of the "Final Acceptance " Inspection Checklist
  - c. satisfactory "Final Acceptance" Inspection by relevant Council Officers.
9. Following a satisfactory Final Acceptance inspection, the Consulting Engineer shall submit a written request to Council for Final Acceptance of the works and release of the Defects Liability bond. Council will, upon confirmation that no outstanding payments arising from the development are due to Council, confirm acceptance of the works, and arrange for the release of the Defects Liability bond.