LIGHT REGIONAL COUNCIL

“AS CONSTRUCTED” DRAWING REQUIREMENTS
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1. GENERAL

All required "As Constructed" information shall be submitted to Council prior to Practical Completion being awarded, with the defects maintenance period only commencing after Practical Completion has been achieved.

Unless directed otherwise by the Strategy, Projects and Engineering Department, "As Constructed" information shall be submitted in three (3) formats: hard copy A3 prints; electronic .pdf; and electronic .dwg files in accordance with Parts 2 to 9 of this document.

Any amendments required by the Strategy, Projects and Engineering Department shall be completed and the information resubmitted to the satisfaction of the Strategy, Projects and Engineering Department within one calendar month of the commencement of the defects maintenance period. Otherwise, the maintenance period shall commence when Council has received the amended information.

Unless otherwise directed, these requirements shall not apply to land developments not requiring roadwork’s and/or the construction and installation of Council services.
2. PRESENTATION OF “AS CONSTRUCTED” INFORMATION ON PLANS

For any construction work where the completed infrastructure will become the responsibility of Council the following “As Constructed” information is to be provided for Council records:

- Roof and allotment drainage
- Surface Levels
- Recycled Water Reticulation (Copy of SA Waters version appropriate)
- Sewer and CWMS
- Stormwater Management Infrastructure
- Road and Transport Infrastructure
- Public Lighting
- Landscaping, reserves and associated infrastructure

The "As Constructed" information for stormwater drainage, sewer and roadwork’s shall be shown on copies of the approved engineering design drawings duly amended and certified in accordance with the requirements specified within Part 10 of this document.

The required "As Constructed" information shall be presented on the plan in accordance with the relevant Council standard drawings and Draft AS5488 Classification of Subsurface Utility Information (SUI). The use of diagrams to clarify information may be permitted if considered appropriate.

Each "As Constructed" plan, or the transmittal accompanying the set of plans, shall show the following information:

a) The estate or development name and stage.
b) The name of the Consulting Engineer’s Company submitting the information.
c) Council's development application number
d) Certification in accordance with the requirements specified within Part 10 of this document.
e) Property and easement boundaries as shown on the approved calculated lot layout.
f) Lot numbers as shown on the approved lot layout.
g) Approved road names.
h) Level datum and the PSM with reduced level from which the datum was determined.
i) The location, number and reduced level of all permanent survey marks located within the development.
j) Council has the right to request additional “As Constructed” plans where deemed necessary.
3. ROADWORKS

“As Constructed” information to be generally shown by amending approved design drawings.

“As Constructed” alterations made to the design drawings are to be highlighted by providing an easily recognisable asterisk (*) at areas of amendments.

The following "As Constructed" information shall be provided:-

a) **Kerbs, Kerb & Channel** –
   a. type of kerb
   b. location of kerb (including vertical invert and horizontal location)
   c. Stormwater outlet locations
   d. Pram ramp locations

b) **Pavement Marking/ Signs** –
   a. type of sign/marking
   b. location of pavement marking

c) **Construction Details** –
   a. surface treatment
   b. pavement types and depths (including areas where alternative treatments may have occurred).
   c. Surface area for each pavement type per road segment
   d. location of service conduits
   e. location of side entry pits and clean out points.
   f. construction levels
   g. Confirmation of Geo-tech Conditions and sub-grade CBR

d) **Longitudinal Sections** –
   a. Longitudinal sections to show amended design levels where applicable and depths struck out where applicable.
   b. As Constructed levels to be shown at 5.0m intervals at intersection vertical curves.
   c. As Constructed pavement details to be shown across longitudinal section for appropriate extents.

The location of signs, kerb and pavement marking may be determined from the approved design drawings provided no significant variation from the design occurred during construction.

Variations from the design which are considered significant by the Strategy, Projects and Engineering Department shall be located by survey and shall be submitted with the "As Constructed" information.
4. FINISHED SURFACE LEVELS

The following “As Constructed” information shall be provided:-

(a) Surface contours at 0.5 metre contour interval extending from the kerb line of roads to the rear boundary of all drainage reserves and parks.

(b) Surface levels at inter allotment corners and at significant changes of grade on allotment boundaries, provided that no surface level is required where a surface level of a sewer access chamber is shown within 2.0 metres of a corner.

(c) The extent of fill areas and spot levels over the fill areas.

The coverage of spot levels required over fill areas shall be determined by the Strategy, Projects and Engineering Department, with suggestions being sought by the Superintending Engineer.

The surface contours shall be generated from levels obtained by survey.

The extent of fill areas may be determined from the approved design drawings provided no significant variation from the design occurred during construction.

Unless directed otherwise by the Strategy, Projects and Engineering Department, variations of 3 metre in the horizontal extent of the fill shall be considered significant. The extent of fill shall include areas with more than 150mm of fill.

Significant variations from the design shall be located and levelled by survey and submitted with the “As Constructed” information.

No amendments are required if constructed within allowable tolerances.
5. STORMWATER DRAINAGE

“As Constructed” information to be generally shown by an amended approved design drawing.

“As Constructed” alterations made to design drawings are to be highlighted by providing an easily recognisable asterisk (*) at areas of amendments.

The following "As Constructed" information shall be provided:-

a) **Pit locations and Inverts (JB, MH, SEP)** –
   a. Pit type
   b. Pit location and alignment
   c. Pit invert at surface level
   d. Invert of each stormwater pipes intersecting the pit

b) **Gross Pollution Trap** –
   a. Invert at surface level
   b. Invert at inlet and outlet
   c. Type
      i. Including manufacturer, model, and size

c) **Stormwater Pipes** –
   a. Inlet invert level
   b. Outlet invert level
   c. Pipe diameter
   d. Pipe material
   e. Material class

d) **Open/Overland Channels** –
   a. Invert levels at 20 metre intervals

e) **Longitudinal Sections** –
   a. Longitudinal sections to show amended design levels where applicable and depths struck out where applicable.
   b. As Constructed levels to be shown at 5.0m intervals where pipe grade is less than 1.0%, or at 15m intervals where pipe grade is greater than 1.0% and at all pit locations, and direction changes.

The location and levels of stormwater drainage features may be determined from the approved design drawing provided no significant variation from the design occurred during construction.

Significant variations from the design shall be located and levelled by survey and submitted with the "As Constructed" information.

Note:- Catchment Plans, Sediment Control Plans are generally not required to be submitted as “As Constructed” unless significant alterations were made during construction.
6. REAR ALLOTMENT DRAINAGE

The following "As Constructed" information shall be provided:-

a) **Drainage Pits** –
   - a. surface level of pit
   - b. invert level of pit

b) **Drainage Pipes** –
   - a. pipe diameter
   - b. pipe material

c) **Connection points** –
   - a. dimensions from the point of connection to two (2) property boundaries or property corners
   - b. surface level
   - c. invert level at point of connection

All levels and dimensions required for "As Constructed" information of roof and allotment drainage shall be determined by survey.
7. RECYCLED WATER RETICULATION

The following "As Constructed" information shall be provided, or in accordance with SA Water Guidelines for ‘As Constructed’ drawings:-

a) **Mains** –
   a. diameter of pipe
   b. pipe material
   c. material class
   d. pipe protection
   e. dimension to road reserve boundary

b) **Fittings** –
   a. type, end type and class, e.g. valve, reducer, T junction, bend, Flange – Flange, K12 etc
   b. protection applied to fittings
   c. distances between fittings
   d. offsets to road reserve boundaries (2 offsets per fitting)

c) **Pump stations** –
   a. all amendments to approved plans
   b. operation and maintenance manuals

d) **Treatment plants** –
   a. all amendments to approved plans
   b. operation and maintenance manuals

e) **Trunk Mains** –
   a. “As Constructed” details to be shown by amended longitudinal section and layout plans on the approved design drawings by altering as required.

All dimensions required for "As Constructed" information of water reticulation shall be determined by survey.
8. COMMUNITY WASTE MANAGEMENT SYSTEM

“As Constructed” CWMS drawings are to be of scale 1:500 only.

The following “As Constructed” information shall be provided:-

a) **CWMS Access chambers** –
   a. access chamber number
   b. type of access chamber
   c. surface level of access chamber lid
   d. dimensions from the centre of access chamber lid to two (2) property boundaries or property corner

b) **CWMS Lines** –
   a. length of line (centre to centre of access chambers)
   b. upstream invert level
   c. downstream invert level
   d. sewer line grades (in the form 1:X)
   e. pipe diameter (covered by notes)
   f. pipe material (covered by notes)
   g. material class (covered by notes)
   h. long sections

c) **House Connections** –
   a. type of connection
   b. dimensions from point of connection to two (2) property boundaries or tie distance from property corner
   c. surface level
   d. invert level at point of connection
   e. diameter of pipe (covered by notes)
   f. pipe material (covered by notes)
   g. material class (covered by notes)

d) **Rising Mains** –
   a. discharge invert level
   b. pipe diameter (covered by notes)
   c. pipe material (covered by notes)
   d. material class (covered by notes)
   e. pipe protection (covered by notes)
   f. running chainages from the pump station to changes of grade, valves, air vents, scour valves, bends and access chambers along the main
   g. surface level and crown level at changes of grade, and at a maximum of 30 metre centres
   h. dimensions from horizontal bends in the main to two (2) property boundaries or corners

e) **Pump Stations** –
   a. Pump Station Number
   b. type of pump station
   c. diameter of well
   d. surface level
   e. reduced level of well floor
   f. reduced level of valve pit floor
   g. invert level of inlet sewer
   h. invert level of rising main
   i. overflow invert level
   j. standby pump cut in level
k. duty pump cut in level
l. pump stop level
m. Real Property description
n. storage capacity
o. overflow discharge location
p. location of water service and meter
q. operation and maintenance manuals

All levels and dimensions required for "As Constructed" sewerage information shall be determined by survey.

"As Constructed" information for the construction of connections to existing CWMS by Council shall be surveyed and recorded for Council record.
9. LANDSCAPING AS CONSTRUCTED DRAWINGS

As Constructed drawings are required at practical completion stage prior to the project being accepted for commencement of the maintenance period. As Constructed drawings shall clearly identify any amendments or changes to the approved landscape working drawings. Hard-scape treatments and underground services, in particular, including paving, fences, walls, irrigation, lighting and other structures shall be accurately located for Council records.

Any structural elements e.g. retaining walls etc. will require certification by an appropriately qualified and experienced superintendent.
10. CERTIFICATION

All plan work showing "As Constructed" information shall be certified "As Constructed" by an appropriately qualified and experienced superintendent.

When submitting "As Constructed" information for CWMS, recycled water reticulation, roof and allotment drainage and finished surface levels, the "As Constructed" drawing should show information certified by a Licensed Surveyor to indicate that levels and dimensions shown thereon are a correct record of a survey performed in accordance with the accuracy standards prescribed herein. This may be in the form of a note on the plan, certified by a Licensed Surveyor, stating that the "As Constructed" survey work was carried out by a Licensed Surveyor.

The accuracy of surveyed "As Constructed" features shall be ±0.10 metres horizontally and ±0.02 metres vertically. Finished surface contours shall accurately represent the surface such that 90% of levels obtained by survey would fall within 0.25 of a metre of the level indicated by the contours. Spot levels over fill areas shall be accurate to ±0.05 metres unless specified otherwise by Council’s Strategy, Projects and Engineering Department.

A Licensed Surveyors certificate shall be provided to Council to certify that

(a) Road construction provides minimum verge widths and pavement widths in accordance with the approved engineering drawings.
(b) Stormwater drainage pipes and access chambers are within easements and or drainage reserves provided in accordance with the development approval.
(c) Roofwater and inter allotment drainage construction and sewerage construction are in correct relationship to property boundaries as required by Council’s standard drawings and this manual.
11. OPERATION AND MAINTENANCE MANUAL

Operation and Maintenance Manuals for mechanical and electrical equipment shall be provided with the “As Constructed” details provided.
12. "AS CONSTRUCTED" DOCUMENTATION

Development works will not be accepted as being practically complete, and the defects maintenance period will not commence until the following documentation has been submitted to Council.

(a) Consulting Engineer’s “Statement of Compliance”
(b) Consulting Engineer’s “Non-Compliance Report ‘As Constructed’ Drawings”
(c) As Constructed Drawings
(d) All inspection and testing certifications
(e) All operation and maintenance manuals (where applicable)
(f) Copies of test results (where applicable) for:-
   (a) compaction of fill
   (b) sub-grade
      a. sub-grade CBR
      b. sub-grade material quality
      c. sub-grade compaction
      d. Installation of any subsoil drain/filter/media/gradings
   (c) Sub-base
      a. sub-base CBR
      b. sub-base course material quality
      c. sub-base course compaction
   (d) Base-course
      a. base-course CBR
      b. base-course material quality including sulphate content
      c. base-course compaction
   (e) Wearing course
      a. bituminous seal application rates
      b. prime or primer seal spray and application rates
      c. AC core tests
   (f) CWMS
      a. CWMS Air Testing (pressure)
      b. CWMS Maintenance Hole Testing
   (g) Recycled water
      a. recycled water pressure tests
      b. recycled water quality tests
   (h) Other
      a. any concrete testing required by the Council’s Strategy, Projects and Engineering Department
      b. any other job specific testing carried out or ordered by the Council’s Strategy, Projects and Engineering Department.

Should any of the above test results fail to meet Council's requirements, the Consulting Engineer shall include details of retesting/rectification to be carried out.

Test results and certifications shall be presented in a logically assembled and bound document including a table of contents confirming completeness.
This form duly completed and signed by an authorised agent of the Consulting engineer shall be submitted with the “As Constructed” drawings for Council approval.

Council’s File Number (DA Number):…………………………………………………………………………………

Description of development:………………………………………………………………………………………………

Applicant:……………………………………………………………………………………………………………………

Superintending Company:………………………………………………………………………………………………

Surveyor:……………………………………………………………………………………………………………………

Works: ……………………………………………………………………………………………………………………………

Being a Registered Professional Engineering Company and having been commissioned to carry out inspection of the Works described above (Works) do hereby certify that we have exercised reasonable skill, care and diligence to ascertain that the Works have been executed in accordance with:-

1. The approved engineering drawings, specifications, design and construction manual and relevant Australian Standard Code of Practice.
2. Good engineering practice and to a satisfactory standard of workmanship.
3. Council’s “Standards and Requirements for the Design, Construction and Development of Infrastructure Assets in the Light Regional Council”.

Except as noted below

<table>
<thead>
<tr>
<th>Compliance with the requirements of Section “As Constructed” Drawings</th>
<th>Compliance with approved design Yes/No</th>
<th>Non-Complying Dwg No/s. – refer to non-compliance report for proposed remediation method</th>
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<td>Street Names</td>
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<td>Stormwater Drainage</td>
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<td>Inter-allotment Drainage</td>
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<td>Supporting Documentation</td>
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I/We further certify that the “As Constructed” information submitted herewith (including survey information prepared by others) indicates to the best of our knowledge and belief that the completed works represent a true and accurate record of what has been constructed within the specified tolerances required by Council.

I/We further certify that all significant variations from the approved Engineering drawings (outside the specified tolerances) have been submitted to Council for approval and are incorporated in the “As Constructed” information.

Consulting Engineer Name:………………………………………………………………………………………………

Signature:………………………………… Date:………………………………………………...
b) NON-COMPLIANCE REPORT “AS CONSTRUCTED” DRAWINGS

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<tr>
<th>Drawing Numbers</th>
<th>Description of Non-complying works</th>
<th>Proposed Action</th>
<th>Timeline (to be completed by?)</th>
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If the Consultant proposes that Council should accept the non-complying works, justification shall be provided. Where the consultant proposes rectification works a timeframe shall be provided.

Conscientiously believing the above statements to be true and correct, signed on behalf of the aforementioned Superintending Company:

Consulting Engineer/Delegate Name: ...........................................................................................................

Signature: ......................................................... Date: .................................................................