Muswellbrook Shire Council

CONSTRUCTION SPECIFICATION

AUS-SPEC (Cot 09)

1122 Kerb and Channel (Gutter) Replacement

Version 01

Amendment Record for this Specification Part

This Specification is Council's edition of the AUS-SPEC generic specification part and includes Council's primary amendments.

Details are provided below outlining the clauses amended from the Council edition of this AUS-SPEC Specification Part. The clause numbering and context of each clause are preserved. New clauses are added towards the rear of the specification part as special requirements clauses. Project specific additional script is shown in the specification as italic font.

The amendment code indicated below is 'A' for additional script 'M' for modification to script and 'O' for omission of script. An additional code 'P' is included when the amendment is project specific.

Amendment Sequence No.	Key Topic addressed in amendment	Clause No.	Amendment Code	Author Initials	Amendment Date
0	No amendment has been made	all	Nil		14 June 2012

Contents

1122 KERB AND CHANNEL (GUTTER) REPLACEMENT

1 GENERAL

1.1 RESPONSIBILITIES

Objectives

General: Remove and dispose of existing kerb and channel (gutter) and provide new kerb and channel (gutter) and associated works

Existing works: Conform to the position of existing works.

1.2 CROSS REFERENCES

General

Requirement: Conform to the following:

- *0152 Schedule of rates – supply projects.*
- *0161 Quality (Construction) or 0167 Integrated management.*
- *0179 General requirements (Construction).*
- *0319 Minor concrete works.*
- *1101 Control of traffic.*
- *1352 Pipe drainage.*

1.3 REFERENCED DOCUMENTS

The following documents are incorporated into this worksection by reference:

Standards

AS 1289	Methods of testing soils for engineering purposes
AS 1289.5.4.1 – 2007	Soil compaction and density tests – Compaction control test – Dry density ratio, moisture variation and moisture ratio
AS 2876-2000	Concrete kerbs and channels (gutters)—Manually or machine placed

Other publications

Austroads	Glossary of Austroads Terms 2008
IPWEA – NAMS.AU-2008	Practice note 2 Kerb and channel (gutter)

1.4 STANDARD

General

Standard: To AS 2876.

1.5 INTERPRETATIONS

Definitions

General: For the purposes of this worksection the definition given below applies:

Kerb and channel (gutter): Includes all forms of concrete channels (gutters), dish drains and mountable median and barrier kerbing.

1.6 SUBMISSIONS

Acceptance criteria

General: All submissions will be subject to the approval of the Superintendent.

Documents

Submit the following for approval:

- Design:
  - . Temporary works.
  - . Traffic guidance scheme
  - . Temporary drainage plan
  - . Road opening permit

- Drawings:
  . Location of driveways and laybacks
  . Gully pit hydraulic capacity.
- Execution details: Trial section.

Technical data:

  . Components: Concrete, material for backfill, pipes as specified, precast products.
  . Compaction data on earth materials.
  . Calculations: Proposals for temporary drainage and changed hydraulic capacity.
  . Technical data: Survey data for construction to tolerances.

- Type test results: Data on extrusion/slip forming performance as required.

1.7 INSPECTION

Notice

General: Give notice so that the inspection may be made of the following:

Summary of HOLD POINTS

Clause title / Item	Requirement	Notice for inspection	Release by
PRE-CONSTRUCTION PLANNING			
Authority Approvals			
- **Provision for traffic**	Submit Traffic Guidance Scheme for approval	2 weeks prior to site commencement	Superintendent
- **Temporary drainage**	Submit details of procedures/devices for approval	2 weeks prior to site commencement	Superintendent
MATERIALS			
Concrete	NATA compliance certificates for concrete and constituents	7 days prior to commencement on site	Superintendent
Joint Fillers and sealants	NATA compliance certificates for proposed joint filler	7 days prior to commencement on site	Superintendent
Proprietary Products	Submit proprietary products and manufacturers instructions	7 days prior to commencement on site	Superintendent
EXECUTION			
Removal and disposal, Disposal	Approval for disposal site for excavated material	2 working days prior to excavation	Superintendent
Foundation	Approval for shape and compaction of foundation material.	1 working day before forming	Superintendent
Kerb and channel (gutter)			
- **Method**	Submit details of proposed method	14 days prior to commencement on site	Superintendent
- **Trial section**	Demonstrate the capability of forming equipment	3 working days prior to commencement on site	Superintendent
Backfilling and reinstatement			
- **Gully pits**	Submit details for fixing to existing works for approval	1 working day before demolition	Superintendent

Clause title / Item	Requirement	Notice for inspection	Release by
- **Gully pits**	Hydraulic capacity changes	7 days prior to commencement on site	Superintendent

Summary of WITNESS POINTS – On-site activities

Clause title / Item	Requirement	Notice for inspection
EXECUTION		
Removal and disposal		
- **Footpath and road pavement**	Assess preconstruction condition of footpath and road pavement	3 working days prior
- **Footpath and road pavement**	Location of saw-cutting of existing redundant kerb and gutter	1 working day before setting out
- **Footpath and road pavement**	Restoration of footpath to pre-construction condition	Prior to completion of works
- **Services**	Reinstate pipes and services	1 working day before completing reinstatement
Kerb and channel (gutter)		
- **Stormwater outlets**	Direction for other than flexible pipework	1 week before ordering
- **Vehicular or pedestrian access**	Laybacks confirmation	3 working days prior to works
Backfilling and reinstatement		
- **Backfill behind kerbs**	Backfilling timing, material and compaction	1 working day prior to backfilling
- **Pavement backfill**	Backfill adjacent new gutter material and location	3 working days prior to works

2 PRE-CONSTRUCTION PLANNING

2.1 AUTHORITY APPROVALS

Provision for traffic

Documentation: Submit a Traffic Guidance Scheme for control of vehicular and pedestrian traffic to conform with *1101 Control of traffic*. Construct the works with the least possible obstruction to traffic, both vehicular and pedestrian. This is a **HOLD POINT**.

Temporary drainage

Documentation: Submit details of procedures/devices to maintain effective drainage of the works area during construction. This is a **HOLD POINT**.

Road opening permit

Application: Submit application to the relevant council for approval to undertake works to road or footpath. This application includes but is not limited to the following information:

- Ascertain the location of services.
- Opening and compaction specifications.

3 MATERIALS

3.1 CONCRETE

General

Standard: To AS 2876.

Specification: Concrete properties and delivery, placing, compaction, finishing, curing and protection to conform with *0319 Minor concrete works*.

Documentation: Submit NATA registered Compliance Certificates for all constituents of the mix as verification of the mix suitability. This is a **HOLD POINT**.

3.2 JOINT FILLERS AND SEALANTS

General

Documentation: Submit preformed joint filler proposed for use at least 7 days prior to use in the works. Supply NATA registered compliance certificates. This is a **HOLD POINT**.

3.3 PROPRIETARY PRODUCTS

General

Approval: Use only proprietary products to conform with the manufacturers instructions. This is a **HOLD POINT**.

4 EXECUTION

4.1 REMOVAL AND DISPOSAL

Footpath and road pavement

Pre-construction Inspection: Assess the condition of the footpath, driveways and road pavement surrounding the area of kerb and channel (gutter) involved in the works. This is a **WITNESS POINT**.

Saw-cut: Along the footpath, driveways and road pavement where shown on the drawings or as directed. Minimise damage and disturbance to the remainder of the footpath and road pavement. This is a **WITNESS POINT**.

Damage to footpath: Reinstate footpath, driveways and/or road pavement damaged or disturbed by the work to their approved pre-construction condition. This is a **WITNESS POINT**.

Costs: Borne by the Contractor including restoration works.

Excavation

Extent: Demolish and remove the existing redundant kerb and channel (gutter) and excavate to the level shown on the drawings.

Method: Conform to *0319 Minor concrete works*.

Services

Existing services: Carefully remove kerb and channel (gutter) so as to prevent damage to existing services, including existing stormwater drainage pipes which discharge into the channel / gutter.

Damaged services: Restore stormwater drainage pipes and/or other services damaged by the works to their pre-construction condition. This is a **WITNESS POINT**.

Costs: Borne by the Contractor.

Disposal

General: Remove excavated material and demolished kerb and channel (gutter) from site and legally dispose of to an approved site. This is a **HOLD POINT**.

4.2 FOUNDATION

General

Shape and Compaction: Before placing any kerb and/or channel (gutter), shape and compact the foundation material to an approved firm base.

Relative compaction: To AS 2876 except where placed on pavement courses, then to the requirements of the respective pavement course. This is a **HOLD POINT**.

4.3 KERB AND CHANNEL (GUTTER)

Method

Construct: Kerb and/or channel (gutters) in fixed forms, by extrusion or by slip forming to AS 2876.
Submit: Details of method proposed including type of extrusion or slipform, concrete properties, equipment and finish. This is a **HOLD POINT**.

Trial section

Trial section: Provide a trial section to demonstrate the Contractors capability of forming equipment. This is a **HOLD POINT**.

Finish

Finish true to line: The top and face of the finished kerb and channel.

Top surface: Uniform width, free from humps, sags and other irregularities.

Type: Steel float finish or as otherwise shown on drawings.

Tolerances

Finished levels of channel/gutter surface: Within ± 10 mm of design levels.

Surface deviation of kerb face and channel (gutter) surface: ± 5 mm from the edge of a 3 m straight edge, except at kerb laybacks, grade changes or curves, or at gully pits requiring channel/gutter depression.

Joints

Contraction joints: Unless shown otherwise on the drawings, conform to the following:

- Width: 5 mm minimum.
- Depth: 20 mm.
- Intervals: Every 3 m of channel/gutter length for a minimum of 50% of cross sectional area of concrete.
- Tooling: 20 mm in depth to form a neat groove of 5 mm minimum width.

Expansion joints: Provide where the channel/gutter abuts against pits, retaining walls, overbridges and at both sides of kerb laybacks for vehicular or pedestrian access. Unless shown otherwise on the drawings, conform to the following:

- Width: 15 mm.
- Depth: Full depth of kerb and channel (gutter).
- Maximum intervals: 15 m.

Joints adjacent to concrete pavement: If kerbs and/or channel / gutters are cast adjacent to a concrete pavement, continue the contraction, construction and expansion joints documented for the concrete base across the kerb and/or channel (gutter).

Stormwater outlets

General: Reconnect and extend all existing house stormwater outlets through the kerb to match the existing type and size of pipe as shown on the drawings.

Pipes: Conform to the requirements for flexible pipes in *1352 Pipe drainage* or as directed for other types of pipe. This is a **WITNESS POINT**.

Vehicular or pedestrian access

Barrier kerb: Discontinue opposite all driveways as shown on the drawings or as directed.

Kerb laybacks: As shown on the drawings where the barrier kerb is discontinued.

Footpath crossovers: Meet the laybacks as shown on the drawings or reinstate to match existing materials. This is a **WITNESS POINT**.

4.4 BACKFILLING AND REINSTATEMENT

Backfill behind kerbs

Timing: Not earlier than 3 days after concreting, backfill and reinstate the spaces on both sides of the kerb and/or channel (gutter) to conform with the drawings, or as directed.

Material: Granular material, free of organic material, clay and rock in excess of 50 mm diameter, or approved material.

Layers: Compact in layers not greater than 150 mm thick.

Relative compaction: 95% when tested to conform with AS 1289.5.4.1 for standard compactive effort.

Surface treatment: Free draining and free from undulations and trip hazards. This is a **WITNESS POINT**.

Pavement backfill

Backfill: Material adjacent to the new channel (gutter) as shown on the drawings or as directed. This is a **WITNESS POINT**.

Gully pits

Reconstruct: The top of gully pits or adjust precast units to suit new kerb and channel (gutter) profile to conform with *0319 Minor concrete works*.

Adjustment: Demolish and reconstruct gully pits to suit new line or level of the kerb and channel (gutter) to match the design standard of the existing gully pit.

Fixing to existing works: Fix new wall sections in concrete or brick securely to the retained wall section. Submit details of the proposed procedure for approval. This is a **HOLD POINT**.

Hydraulic capacity: Retain or improve the capacity of the original gully pit. Cavity shapes to be regular and oriented so as not to impede flow into and out of the pit.

Submit: Provide sketches and/or calculations relevant to such hydraulic capacity. This is a **HOLD POINT**.

4.5 LIMITS AND TOLERANCES

The limits and tolerances applicable to this worksection are summarised in **Summary of limits and tolerances table**.

Summary of limits and tolerances table

Activity	**Limits/Tolerances**	**Worksection Clause/ subclause**
Kerb and channel (gutter)		**Execution**
- Relative compaction of foundation	To AS 2876	**Foundation**
- Finished levels of channel (gutter) surface	Level ± 10 mm of design level	**Kerb and channel (gutter) - Tolerances**
- Surface deviation of kerb face and channel (gutter) surface	± 5 mm from 3 m straight edge	**Kerb and channel (gutter) - Tolerances**
- Contraction joints	Width: ≥ 5 mm Depth: 20mm Intervals every 3 m of channel / gutter length for a minimum of 50% of CS area of concrete Tooling: 20 mm in depth to form a neat groove of 5 mm minimum width.	**Kerb and channel (gutter) - Joints**
- Expansion joint interval	≤ 15 m Width: 15 mm Depth: full depth of kerb and channel (gutter)	**Kerb and channel (gutter) - Joints**
Backfill behind kerb		
- Layer thickness	≤ 150 mm	**Backfilling and reinstatement**
- Relative compaction	95% (standard compaction)	**Backfilling and reinstatement**

5 MEASUREMENT AND PAYMENT

5.1 MEASUREMENT

General

Payments made to the Schedule of Rates: To *0152 Schedule of rates – projects*, this worksection, the drawings and Pay items **1122.1 and 1122.2** inclusive.

Lump Sum prices: Not acceptable.

Unpriced items: If any item, for which a quantity of work is listed in the Schedule of Rates, has not been priced by the Contractor, due allowance is made in the prices of other items for the cost of the activity which has not been priced.

Methodology

The following methodology will be applied for measurement and payment:

- Excavation, removal and disposal of existing kerb and channel (gutter) and the reconstruction of drainage structures: In conformance with this worksection and not *0319 Minor concrete works*.
- Control of pedestrian and vehicular traffic: In conformance with *1101 Control of traffic*.

5.2 PAY ITEMS

Pay items	Unit of measurement	Schedule rate scope
1122.1 Kerb and channel (gutter)	Linear metre (m) measured along the length of the kerb and gutter including kerb laybacks and perambulator ramps	All costs associated with: - Removal and disposal of existing kerb and gutter, excavation, forming, compaction of foundations, provision of base, concreting, expansion and contraction joints, backfilling restoration of footpaths, pavement, driveways and compaction adjacent to the completed kerb, and making good adjacent surfaces as shown on the drawings.
1122.2 Adjustments to gully pits	'Each' for the drainage structures scheduled	All costs associated with: - Cutting back, adjustment, concreting and backfilling.