stage 6 QMR bridge file

26 FEB 2003

NOTICE OF DETERMINATION OF A DEVELOPMENT APPLICATION

Issued under the Environmental Planning and Assessment Act 1979 Section 81 (1)(a)

TO: The Manager
Australand Holdings Ltd
PO Box A148
SHELLHARBOUR 2529

Being the applicant of Development Application No. 660/2002 for consent to the following development:

PROPOSED BRIDGE OVER QUARRY HAUL ROAD

LOT: 1200 & LOT: 1 DP: 864021 & DP: 883196

BUCKLEYS ROAD, SHELL COVE

BUILDING CODE OF AUSTRALIA

Determination date of consent 25 FEB 2003

In accordance with Section 80 of the Act the Development Application has been determined by the GRANTING OF CONSENT SUBJECT TO THE CONDITIONS DESCRIBED BELOW.

CONSTRUCTION CERTIFICATE & PCA NOTIFICATION

1. **Before any site works, building, demolition or use is commenced,** the person having the benefit of the development consent must:

   a. Obtain a construction certificate from Shellharbour City Council or an Accredited Certifier (S81A); and

   b. Appoint a Principal Certifying Authority (S81A).

LEGISLATION

2. The building must be erected in strict conformity with the plans, specifications and conditions approved by Council (see note 3).

All communications addressed to:
GENERAL MANAGER
PO Box 155 Shellharbour Square
Shellharbour City Centre 2529
Telephone: 02 4221 6111
Facsimile: 02 4221 6016
DX 26402 Shellharbour Square
Email: records@shellharbour.nsw.gov.au
Web: www.shellharbour.nsw.gov.au
ADMINISTRATION CENTRE:
Lamerton House, Lamerton Cres.
Shellharbour City Centre 2529
COUNCIL MEETING CHAMBER:
Cnr Shellharbour &
Lake Entrance Roads Warilla

Development Application No. 660/2002
Lot 1200 & Lot 1, Buckleys Road, Shell Cove

General

3. Road and drainage plans, prepared by a suitably qualified Engineer, in accordance with Council's Standards, must be submitted to the Principal Certifying Authority for approval. All road and drainage work must then be constructed in accordance with Council's construction Standards and approval at no cost to Council.

4. Engineering plan checking fees must be paid by the applicant prior to the release of the engineering plans. The fees payable must be that applicable at the time of engineering plan release.

5. Construction inspection fees must be paid by the applicant prior to the commencement of work on site. The fees payable must be that applicable at the time of commencement of work on site.

6. A site meeting with Council's Engineer, the applicant and the contractor must be held not less than 7 days prior to the commencement of work on site.

7. A set of Council endorsed engineering plans must be kept on site at all times during the construction phase.

8. The developer must maintain the road and drainage works for a defects liability period of six months from the date of registration of the final plan of subdivision.

Access Bridge

9. The bridge across Quarry Haul Road must maintain a minimum trafficable deck width of 6.5m to accommodate 2 lanes. An adjacent pathway for pedestrian/cycleway must be a minimum of 2.5m wide, separated by a 200mm kerb. The minimum edge clearance for the side of the bridge without the pathway must be 600mm as a minimum, from the edge of the traffic lane to the face of the barrier.

10. Detailed plans must be submitted with the Construction Certificate of the proposed bridge. The details must include physical measures to contain vehicles within the carriageway such as kerb and gutter, and barriers in accordance with the AUSTROADS Bridge Design Code. Additionally, the plans must include all proposed signposting and linemarking to be used for the formal approval of Council.

11. Height restricting barriers, placed at least 25m either side of the bridge, must be constructed on the Quarry Haul Road. Detailed engineering plans, at a scale of 1:200, must be submitted for assessment by Council prior to the release of the Construction Certificate.

Noise Exposure

12. Detail design plans of the sound barriers must be submitted in conjunction with the Construction Certificate Application. Certification of the design by a qualified acoustic consultant, that the acoustic attenuation measures will achieve the noise level required by the EPA Industrial Noise Policy in accordance with the "Assessment of Environmental Noise Impacts of Quarry Haul Road" a report by Acoustic Logic Consultancy Pty Ltd, must also be submitted in conjunction with the Construction Certificate Application.

Street Lighting

13. All street lighting must comply with Integral Energy Street Lighting Policy and illumination requirements. Plan to be submitted to council prior to the release of the construction certificate

REASONS FOR THE IMPOSITION OF CONDITIONS

1. To minimise any possible adverse environmental impacts of the proposed development.

2. To ensure that the amenity and character of the surrounding area is protected.

3. To ensure that the design and siting of the development complies with the provisions of Environmental Planning Instruments and Council's Codes and Policies.

4. To ensure that the development does not conflict with the public interest.

SUPPLEMENTARY ADVICE

1. This development consent is subject to the prescribed conditions under Part 7 of the *Environmental Planning & Assessment Regulation 1998.*

2. Failure to comply with any of the conditions of consent may result in a Penalty Infringement Notice of $600 being issued against the owner/applicant/builder.

3. **INSPECTIONS DURING CONSTRUCTION**

Notify the Principal Certifying Authority in advance – 48 hours in writing or 24 hours by phone, to inspect the following where applicable:

i. placement of piers or foundation before placing footings;
ii. steel reinforcing before pouring concrete;
iii. the dampcourse level, antcapping and floor timbers before the floor is laid;
iv. framework of structure before flooring, lining or cladding is fixed;
v. the completed building prior to use or occupation.

Development Application No. 660/2002
Lot 1200 & Lot 1, Buckleys Road, Shell Cove

NOTES:

1. In accordance with Section 95 of *the Environmental Planning & Assessment Act 1979*, the development approval lapses five years after the approval date unless building, engineering or construction work relating to the building has substantially physically commenced.

   The building must be completed, in accordance with the approved plans and specifications, within five years from the date when the building was substantially physically commenced.

2. **Right of Appeal**

   If you are dissatisfied with this decision, Section 97 of the *Environmental Planning & Assessment Act 1979*, gives you the right to appeal to the Land & Environment Court within 12 months after the date on which you receive this notice

   Section 97 of the *Environmental Planning & Assessment Act 1979* does not apply to the determination of a Development Application for State significant development or local designated development that has been the subject of a Commission of Inquiry.

3. The plans and/or conditions of this consent are binding and may only be varied upon **application** to Council under Section 96 of the *Environmental Planning & Assessment Act 1979.* The appropriate fee shall accompany the application and no action shall be taken on the requested variation **unless and until** the **written** authorisation of Council is received by way of an amended consent.

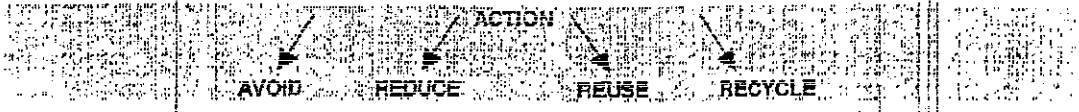
4. **Prescribed Payment System Tax Obligations**

   You may have a taxation obligation under the Prescribed Payment System. For more information, contact the Australian Taxation Office on telephone 132866.

Graham H Mitchell
Manager, Development Services

On behalf of Brian A Weir, General Manager

DEGT PRACTICE WASTE MINIMISATION



Waste Management Plan - Demolition, Subdivision, Construction

Management of waste will be most effective when considered early in development design process.

✓ **A Waste Management Plan (WMP) needs to be completed and submitted with all Development Applications.**

A separate WMP is required for demolition, construction and subdivision.
For example, where total or partial demolition of dwelling(s) is proposed then 2 WMPs will need to be submitted with the DA, one relating to the demolition stage and one for the construction stage of the development.

The information provided on this form, and on your plans submitted with the Development Application, will be assessed against the objectives of the Waste Minimisation and Management Development Control Plan (DCP). Details on what needs to be included on your plan drawings and the WMP can be found in the Waste Minimisation and Management DCP.

If space is insufficient in the table please provide attachments.

OUTLINE OF PROPOSAL

Circle the development this WMP relates to: subdivision/demolition/construction

Applicant's name Australand Holdings Limited

Applicant's address PO Box A148 Shellharbour NSW 2529

Applicant's contact ☎ no. 4207 7364

Site address KILLALEA AVENUE, SHELL COVE

Buildings and other structures currently on site N/A.

Brief description of proposal BRIDGE OVER BASS POINT QUARRY HAUL ROAD TO PROVIDE ACCESS TO SHELL COVE STAGE 6 & KILLALEA SRA.

The details on this form are the intentions for managing waste relating to this project

Signature of Applicant _____ Date 22/8/02

BEST PRACTICE WASTE MINIMISATION

ACTION: AVOID → REDUCE → REUSE → RECYCLE

Type of development – subdivision/demolition/construction (please circle)

Material/ waste stream	Expected amount of waste (m^3/t)	Destination of material: Reuse & Recycling — On-site *specify proposed reuse/recycle methods*	Reuse & Recycling — Off-site *specify contractor & recycling outlet*	Landfill *specify contractor & landfill site*
Excavated	300 m^3	☐ Amount if applicable material to be utilised on site filling	☐ Amount [redacted] Name/address of recycling contractor	☐ Amount Landfill site
Green Waste	N/A	☐ Amount	☐ Amount Name/address of recycling contractor	☐ Amount Landfill site
Bricks & Tiles	N/A	☐ Amount	☐ Amount Name/address of recycling contractor	☐ Amount Landfill site
Concrete	1 m^3	☐ Amount	☐ Amount Name/address of recycling contractor	☐ Amount 1 m^3 Landfill site Bunnerong T-D
Metals	N/A	☐ Amount	☐ Amount Name/address of recycling contractor	☐ Amount Landfill site
Timber (specify)	N/A	☐ Amount	☐ Amount Name/address of recycling contractor	☐ Amount Landfill site
Plasterboard	N/A	☐ Amount	☐ Amount Name/address of recycling contractor	☐ Amount Landfill site
Hazardous material (specify)	N/A			☐ Amount Landfill site
Other (please specify)	N/A	☐ Amount	☐ Amount Name/address of recycling contractor	☐ Amount Landfill site

☐ **Have you included the location of the waste bays on your site plan?**

Douglas Partners
Geotechnics · Environment · Groundwater

Douglas Partners Pty Ltd
ABN 75 053 980 117
3 Nudjia Road
Unanderra NSW 2526
Australia

PO Box 486
Unanderra NSW 2526
Phone (02) 4271 1836
Fax: (02) 4271 1897
wollongong@douglaspartners.com.au

CRW:js
Project 25999Q
27 October 2003

Australand Holdings Pty Ltd
PO Box A148
SHELLHARBOUR NSW 2529

Attention: Mr Glenn Colquhoun

Fast fax sheets required for ~~contractor~~ tender.

Dear Sir

REPORT ON GEOTECHNICAL ASSESSMENT
PROPOSED BRIDGE
KILLALEA DRIVE, SHELL COVE

As requested, subsurface investigations have been undertaken at the above site to assist in the planning and design of the proposed bridge in Killalea Drive, Shell Cove. The field work comprised two test pits (Pits 1 and 2) excavated to depths of 3.7 – 3.8 m with a Komatsu PC220 excavator fitted with a 1500 mm bucket. The location of the test pits, which were pegged on site by the client, are shown on Drawing 1 attached. The surface levels shown on the test pit report sheets were determined by interpolation from the contour plan provided for the investigation.

The test pit report sheets are attached together with notes defining classification methods and descriptive terms. The test pits encountered uniform conditions underlying the site with silty topsoils to depths of 0.2 – 0.25 m overlying very stiff to hard silty clays and gravelly clays with basalt bedrock encountered below depths of 1 m. The basalt was initially extremely low to very low strength becoming highly fractured and of low to medium strength below depths of 1.5 m, with refusal on medium to high strength basalt encountered at depths of 3.7 – 3.8 m. No free groundwater was observed in the pits during excavation. It is noted, however, that the pits were backfilled immediately following excavation, precluding longer-term monitoring of groundwater levels.

Based on the design details provided, it is understood that a bridge spanning some 32 m over the existing quarry haul road is proposed to provide vehicular access to Stage 6 of the Shell Cove residential estate.

Footings founded on basalt of at least medium strength (which field testing has indicated can be expected at depths of around 3.7 m) could be proportioned for an allowable base bearing pressure of 2500 kPa. An advantage of such a footing system would be that settlements (both total and differential) would be minimal. Allowance must also be made for variability in the underlying rock profile and as such, all footing excavations should be inspected by the design engineer for compliance prior to concrete pouring. It is requested that details on footing excavation levels be forward to us (once known) to assess the stability of the existing batter as the proposed bridge will be within close proximity of the haul road cutting.

DOUGLAS PARTNERS 40 1963-2003

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Geotechnics - Environment - Groundwater

Particular note is made of the 3 – 4 m deep gully excavated parallel to the quarry haul road at the southern end of the bridge alignment. Inspection of the area indicated the gully material to comprise highly weathered, highly fractured, low to medium strength basalt. If earthworks within the gully alignment are required, it is suggested that all filling be placed in accordance with the following guidelines:

- Strip all topsoils and other deleterious materials and remove to spoil or stockpile for later reuse in landscaping.
- Inspect exposed surfaces in the presence of a geotechnical engineer prior to the placement of fill materials.
- Place homogeneous filling in near-horizontal layers of maximum 250 mm loose thickness.
- Compact the filling under engineering (geotechnical) control to at least 98 % standard maximum dry density, with placement moisture contents maintained within 2 % of standard optimum values.

Filling should not contain vegetation or other organic matter. The site preparation works and all filling placement should be under controlled conditions as defined in AS 2870 – 1996 (Ref 1).

We trust that the above information is in accordance with your present requirements. Please do not hesitate to contact the undersigned should you require any additional information at this stage.

Yours faithfully

DOUGLAS PARTNERS PTY LTD

Reviewed by:

C R Wing
Geotechnical Engineer

G W McIntosh
Managing Principal

Attachments: Notes Relating to this Report
Test Pit Report Sheets (2 no)
Drawing 1

References:

1. Australian Standard AS 2870 - 1996 *Residential Slabs and Footings.*

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NOTES RELATING TO THIS REPORT

Introduction

These notes have been provided to amplify the geotechnical report in regard to classification methods, specialist field procedures and certain matters relating to the Discussion and Comments section. Not all, of course, are necessarily relevant to all reports.

Geotechnical reports are based on information gained from limited subsurface test boring and sampling, supplemented by knowledge of local geology and experience. For this reason, they must be regarded as interpretive rather than factual documents, limited to some extent by the scope of information on which they rely.

Description and Classification Methods

The methods of description and classification of soils and rocks used in this report are based on Australian Standard 1726, Geotechnical Site Investigations Code. In general, descriptions cover the following properties - strength or density, colour, structure, soil or rock type and inclusions.

Soil types are described according to the predominating particle size, qualified by the grading of other particles present (eg. sandy clay) on the following bases:

Soil Classification	Particle Size
Clay	less than 0.002 mm
Silt	0.002 to 0.06 mm
Sand	0.06 to 2.00 mm
Gravel	2.00 to 60.00 mm

Cohesive soils are classified on the basis of strength either by laboratory testing or engineering examination. The strength terms are defined as follows.

Classification	Undrained Shear Strength kPa
Very soft	less than 12
Soft	12—25
Firm	25—50
Stiff	50—100
Very stiff	100—200
Hard	Greater than 200

Non-cohesive soils are classified on the basis of relative density, generally from the results of standard penetration tests (SPT) or Dutch cone penetrometer tests (CPT) as below:

Relative Density	SPT "N" Value (blows/300 mm)	CPT Cone Value (q_c — MPa)
Very loose	less than 5	less than 2
Loose	5—10	2—5
Medium dense	10—30	5—15
Dense	30—50	15—25
Very dense	greater than 50	greater than 25

Rock types are classified by their geological names. Where relevant, further information regarding rock classification is given on the following sheet.

Sampling

Sampling is carried out during drilling to allow engineering examination (and laboratory testing where required) of the soil or rock.

Disturbed samples taken during drilling provide information on colour, type, inclusions and, depending upon the degree of disturbance, some information on strength and structure.

Undisturbed samples are taken by pushing a thin-walled sample tube into the soil and withdrawing with a sample of the soil in a relatively undisturbed state. Such samples yield information on structure and strength, and are necessary for laboratory determination of shear strength and compressibility. Undisturbed sampling is generally effective only in cohesive soils.

Details of the type and method of sampling are given in the report.

Drilling Methods.

The following is a brief summary of drilling methods currently adopted by the Company and some comments on their use and application.

Test Pits — these are excavated with a backhoe or a tracked excavator, allowing close examination of the in-situ soils if it is safe to descent into the pit. The depth of penetration is limited to about 3 m for a backhoe and up to 6 m for an excavator. A potential disadvantage is the disturbance caused by the excavation.

Large Diameter Auger (eg. Pengo) — the hole is advanced by a rotating plate or short spiral auger, generally 300 mm or larger in diameter. The cuttings are returned to the surface at intervals (generally of not more than 0.5 m) and are disturbed but usually unchanged in moisture content. Identification of soil strata is generally much more reliable than with continuous spiral flight augers, and is usually supplemented by occasional undisturbed tube sampling.

Continuous Sample Drilling — the hole is advanced by pushing a 100 mm diameter socket into the ground and withdrawing it at intervals to extrude the sample. This is the most reliable method of drilling in soils, since moisture content is unchanged and soil structure, strength, etc. is only marginally affected.

Continuous Spiral Flight Augers — the hole is advanced using 90—115 mm diameter continuous spiral flight augers which are withdrawn at intervals to allow sampling or in-situ testing. This is a relatively economical means of drilling in

clays and in sands above the water table. Samples are returned to the surface, or may be collected after withdrawal of the auger flights, but they are very disturbed and may be contaminated. Information from the drilling (as distinct from specific sampling by SPTs or undisturbed samples) is of relatively lower reliability, due to remoulding, contamination or softening of samples by ground water.

Non-core Rotary Drilling — the hole is advanced by a rotary bit, with water being pumped down the drill rods and returned up the annulus, carrying the drill cuttings. Only major changes in stratification can be determined from the cuttings, together with some information from 'feel' and rate of penetration.

Rotary Mud Drilling — similar to rotary drilling, but using drilling mud as a circulating fluid. The mud tends to mask the cuttings and reliable identification is again only possible from separate intact sampling (eg. from SPT).

Continuous Core Drilling — a continuous core sample is obtained using a diamond-tipped core barrel, usually 50 mm internal diameter. Provided full core recovery is achieved (which is not always possible in very weak rocks and granular soils), this technique provides a very reliable (but relatively expensive) method of investigation.

Standard Penetration Tests

Standard penetration tests (abbreviated as SPT) are used mainly in non-cohesive soils, but occasionally also in cohesive soils as a means of determining density or strength and also of obtaining a relatively undisturbed sample. The test procedure is described in Australian Standard 1289, "Methods of Testing Soils for Engineering Purposes" — Test 6.3.1.

The test is carried out in a borehole by driving a 50 mm diameter split sample tube under the impact of a 63 kg hammer with a free fall of 760 mm. It is normal for the tube to be driven in three successive 150 mm increments and the 'N' value is taken as the number of blows for the last 300 mm. In dense sands, very hard clays or weak rock, the full 450 mm penetration may not be practicable and the test is discontinued.

The test results are reported in the following form.

- In the case where full penetration is obtained with successive blow counts for each 150 mm of say 4, 6 and 7

  as 4, 6, 7
  N = 13

- In the case where the test is discontinued short of full penetration, say after 15 blows for the first 150 mm and 30 blows for the next 40 mm

  as 15, 30/40 mm.

The results of the tests can be related empirically to the engineering properties of the soil.

Occasionally, the test method is used to obtain samples in 50 mm diameter thin walled sample tubes in clays. In such circumstances, the test results are shown on the borelogs in brackets.

Cone Penetrometer Testing and Interpretation

Cone penetrometer testing (sometimes referred to as Dutch cone — abbreviated as CPT) described in this report has been carried out using an electrical friction cone penetrometer. The test is described in Australian Standard 1289, Test 6.4.1.

In the tests, a 35 mm diameter rod with a cone-tipped end is pushed continuously into the soil, the reaction being provided by a specially designed truck or rig which is fitted with an hydraulic ram system. Measurements are made of the end bearing resistance on the cone and the friction resistance on a separate 130 mm long sleeve, immediately behind the cone. Transducers in the tip of the assembly are connected by electrical wires passing through the centre of the push rods to an amplifier and recorder ur mounted on the control truck.

As penetration occurs (at a rate of approximately 20 mm per second) the information is plotted on a computer screen and at the end of the test is stored on the computer for later plotting of the results.

The information provided on the plotted results comprises: —

- Cone resistance — the actual end bearing force divided by the cross sectional area of the cone — expressed in MPa.
- Sleeve friction — the frictional force on the sleeve divided by the surface area — expressed in kPa.
- Friction ratio — the ratio of sleeve friction to cone resistance, expressed in percent.

There are two scales available for measurement of cone resistance. The lower scale (0—5 MPa) is used in very soft soils where increased sensitivity is required and is shown in the graphs as a dotted line. The main scale (0—50 MPa) is less sensitive and is shown as a full line.

The ratios of the sleeve friction to cone resistance wi vary with the type of soil encountered, with higher relative friction in clays than in sands. Friction ratios of 1%—2% are commonly encountered in sands and very soft clays rising to 4%—10% in stiff clays.

In sands, the relationship between cone resistance and SPT value is commonly in the range:—

q_c (MPa) = (0.4 to 0.6) N (blows per 300 mm)

In clays, the relationship between undrained shear strength and cone resistance is commonly in the range:—

q_c = (12 to 18) c_u

Interpretation of CPT values can also be made to allow estimation of modulus or compressibility values to allow calculation of foundation settlements.

Inferred stratification as shown on the attached reports is assessed from the cone and friction traces and from experience and information from nearby boreholes, etc. This information is presented for general guidance, but must be regarded as being to some extent interpretive. The test method provides a continuous profile of engineering properties, and where precise information on soil classification is required, direct drilling and sampling may be preferable.

Hand Penetrometers

Hand penetrometer tests are carried out by driving a rod into the ground with a falling weight hammer and measuring the blows for successive 150 mm increments of penetration. Normally, there is a depth limitation of 1.2 m but this may be extended in certain conditions by the use of extension rods.

Two relatively similar tests are used.

- Perth sand penetrometer — a 16 mm diameter flat-ended rod is driven with a 9 kg hammer, dropping 600 mm (AS 1289, Test 6.3.3). This test was developed for testing the density of sands (originating in Perth) and is mainly used in granular soils and filling.
- Cone penetrometer (sometimes known as the Scala Penetrometer) — a 16 mm rod with a 20 mm diameter cone end is driven with a 9 kg hammer dropping 510 mm (AS 1289, Test 6.3.2). The test was developed initially for pavement subgrade investigations, and published correlations of the test results with California bearing ratio have been published by various Road Authorities.

Laboratory Testing

Laboratory testing is carried out in accordance with Australian Standard 1289 "Methods of Testing Soil for Engineering Purposes". Details of the test procedure used are given on the individual report forms.

Bore Logs

The bore logs presented herein are an engineering and/or geological interpretation of the subsurface conditions, and their reliability will depend to some extent on frequency of sampling and the method of drilling. Ideally, continuous undisturbed sampling or core drilling will provide the most reliable assessment, but this is not always practicable, or possible to justify on economic grounds. In any case, the boreholes represent only a very small sample of the total subsurface profile.

Interpretation of the information and its application to design and construction should therefore take into account the spacing of boreholes, the frequency of sampling and the possibility of other than 'straight line' variations between the boreholes.

Ground Water

Where ground water levels are measured in boreholes, there are several potential problems;

- In low permeability soils, ground water although present, may enter the hole slowly or perhaps not at all during the time it is left open.
- A localised perched water table may lead to an erroneous indication of the true water table.
- Water table levels will vary from time to time with seasons or recent weather changes. They may not be the same at the time of construction as are indicated in the report.
- The use of water or mud as a drilling fluid will mask any ground water inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water observations are to be made.

More reliable measurements can be made by installing standpipes which are read at intervals over several days, or perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from a perched water table.

Engineering Reports

Engineering reports are prepared by qualified personnel and are based on the information obtained and on current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal (eg. a three storey building), the information and interpretation may not be relevant if the design proposal is changed (eg. to a twenty storey building). If this happens, the Company will be pleased to review the report and the sufficiency of the investigation work.

Every care is taken with the report as it relates to interpretation of subsurface condition, discussion of geotechnical aspects and recommendations or suggestions for design and construction. However, the Company cannot always anticipate or assume responsibility for:

- unexpected variations in ground conditions — the potential for this will depend partly on bore spacing and sampling frequency
- changes in policy or interpretation of policy by statutory authorities
- the actions of contractors responding to commercial pressures.

If these occur, the Company will be pleased to assist with investigation or advice to resolve the matter.

Site Anomalies

In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, the Company requests that it immediately be notified. Most problems are much more readily resolved when conditions are exposed than at some later stage, well after the event.

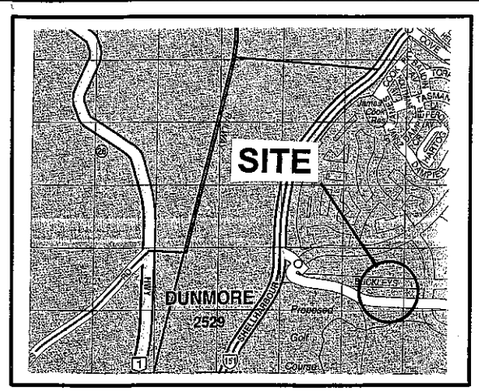
Reproduction of Information for Contractual Purposes

Attention is drawn to the document "Guidelines for the Provision of Geotechnical Information in Tender Documents", published by the Institution of Engineers, Australia. Where information obtained from this investigation is provided for tendering purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances where the discussion or comments section

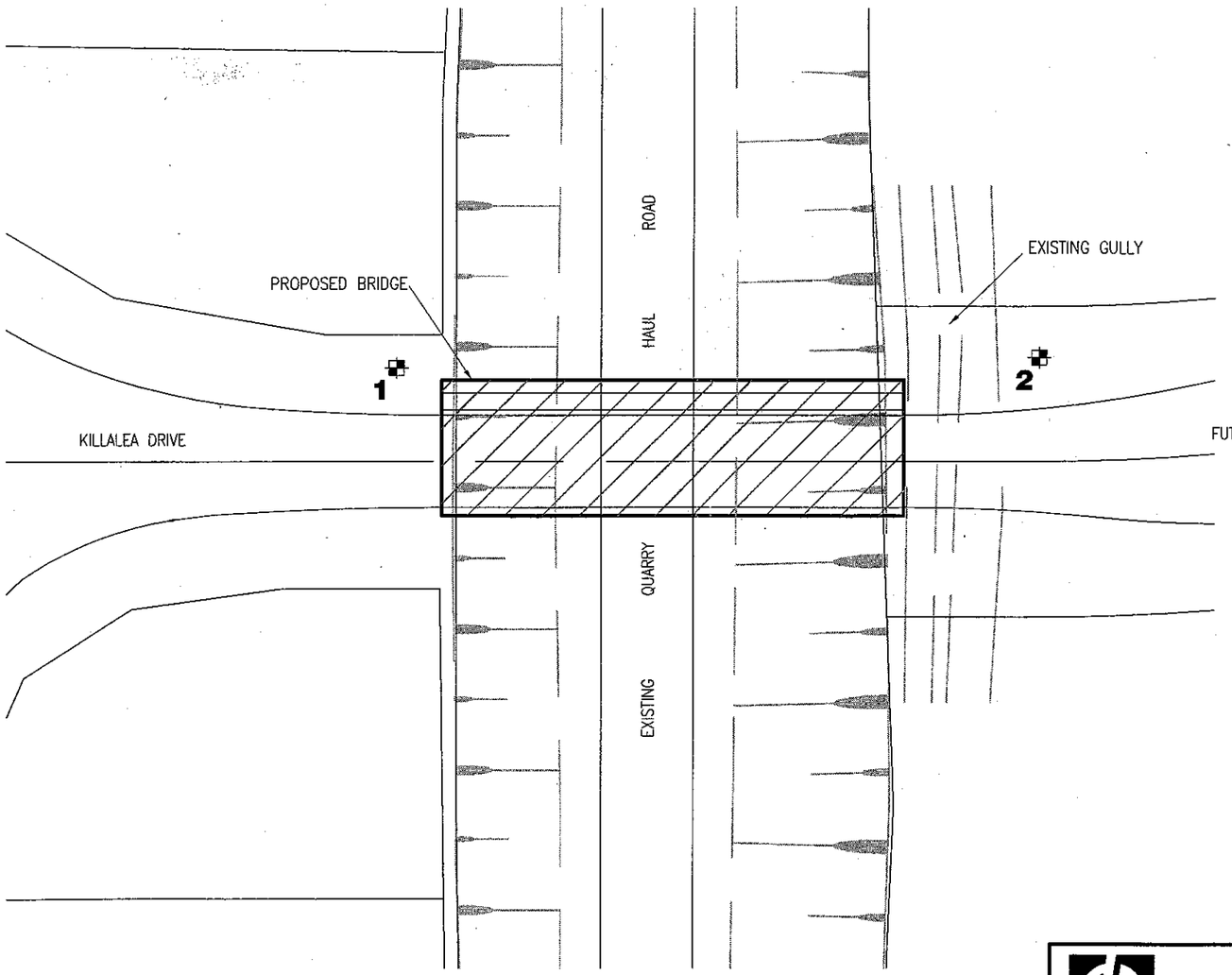
is not relevant to the contractual situation, it may be appropriate to prepare a specially edited document. The Company would be pleased to assist in this regard and/or to make additional report copies available for contract purposes at a nominal charge.

Site Inspection

The Company will always be pleased to provide engineering inspection services for geotechnical aspects of work to which this report is related. This could range from a site visit to confirm that conditions exposed are as expected, to full time engineering presence on site.



LOCALITY PLAN



LEGEND

TEST PIT LOCATION

SCALE
0 10 20m
1:400

Douglas Partners
Geotechnics, Environment, Groundwater

Sydney, Newcastle, Brisbane, Melbourne, Perth, Wyong, Campbelltown, Townsville Cairns, Wollongong

TITLE:
Location of Test Pits
Proposed Bridge
Killalea Drive
SHELL COVE

CLIENT: Australand Holdings Pty Ltd			
DRAWN BY: CRW	SCALE: As shown	PROJECT No: 25999Q	OFFICE: WOLLONGONG
APPROVED BY: CRW.		DATE: 27.10.2003	DRAWING No: 1

Chris Randle

From: Chris Randle
Sent: Wednesday, 3 December 2003 12:05 PM
To: 'DamienC@nsw.bmd.com.au'
Subject: Stage 6 bridge

Contacts: DamienC

Damien

Could you please make the following amendments to the stage 6 QHR bridge drawings and email them to me (today please!).

- Review location of right of way and property boundaries on each abutment, and mark on plans accordingly.
- Review required cross falls on the bridge (including pedestrian) and mark on section A.

Also, as discussed in yesterday's DRM, please provide me with:

- Expected storwater flows across the bridge from stage 6
- WAE survey on the QHR in the vicinity of the bridge used to calculate clearances. This needs to be emailed if available electronically.

If any of this cannot be done today, let me know and I'll make adjustments to the tender package I am sending out.

Regards

Chris Randle
Australand Holding Ltd
Shell Cove Project Engineer
ph: 02 4297 7364
mob: 0418 407 629
fax: 02 4297 7366

Chris Randle

Chris,

Please find attached 3 pdf files showing the extent of survey we have to the Quarry Haul Road. The larger dashed lines refer to edge of bitumen data, the shorter dashed lines refer to toe and top of embankments and the grey lines refer to spot heights and other miscellaneous survey. The QHR Crossing was based on this survey data as well as design strings being incorporated to pick up levels on the crown and northern edge of bitumen of QHR.

Please call me if you have any questions...

Regards,

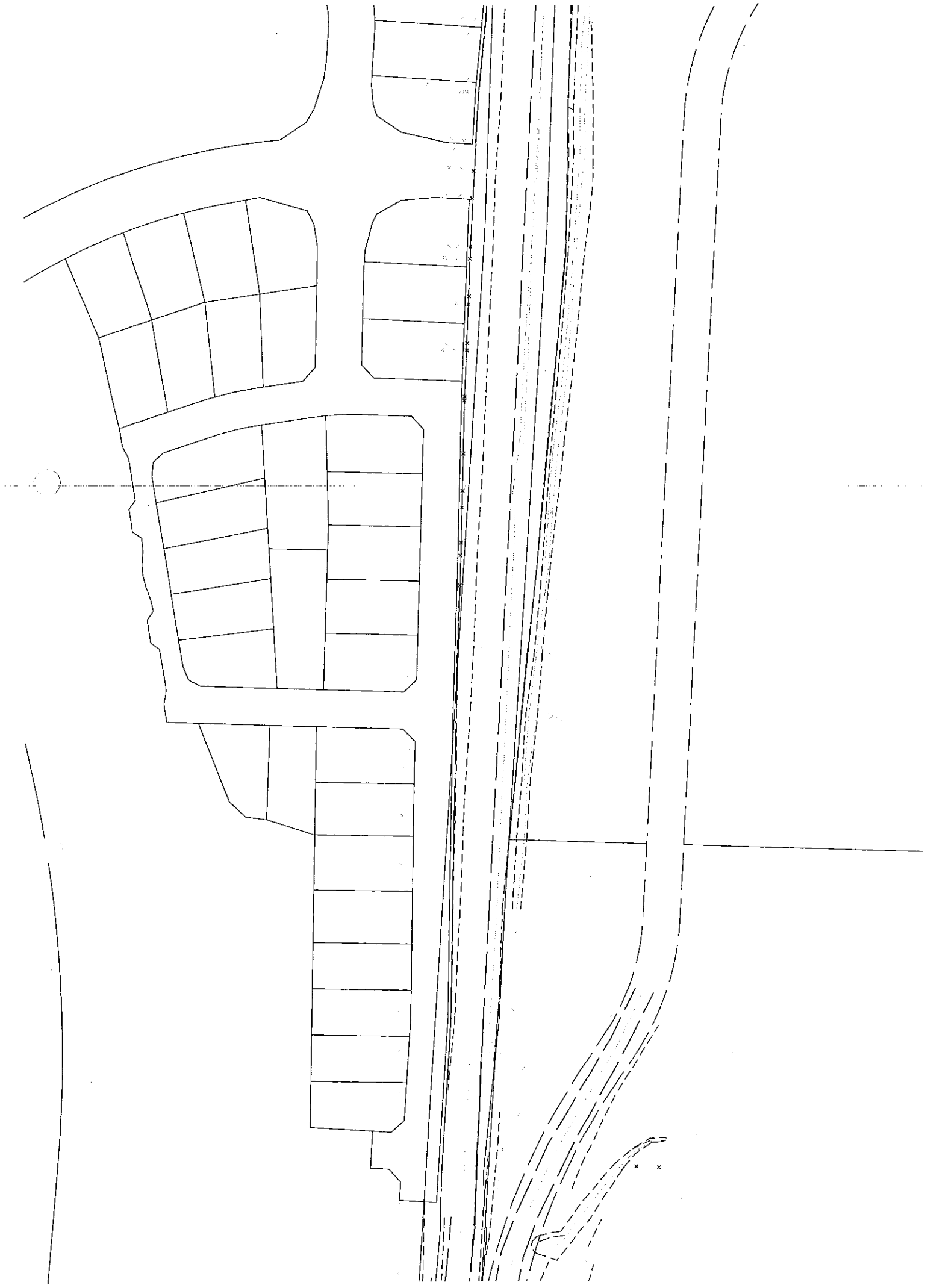
Dave Gerardis

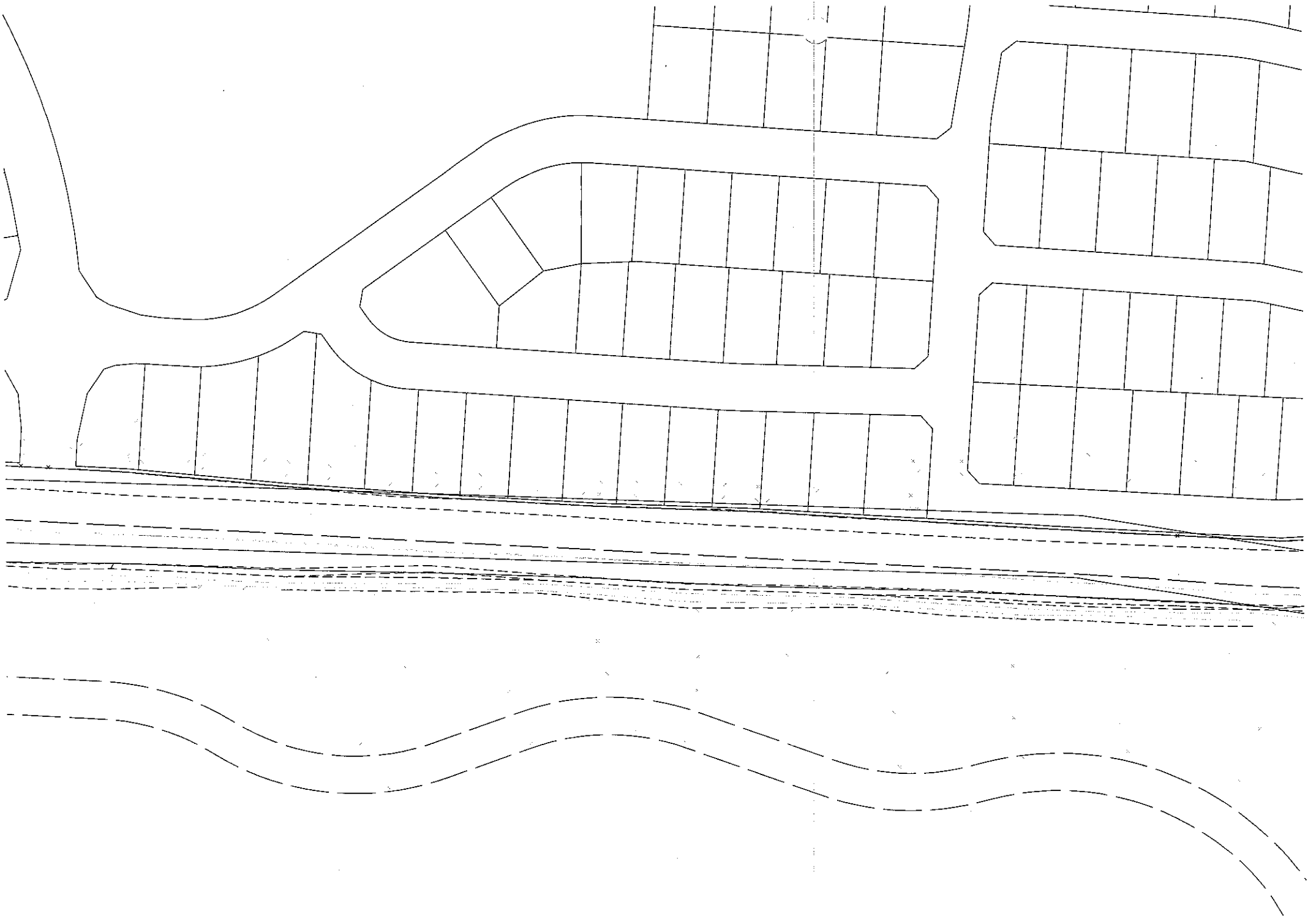
Design Office Manager,Sydney

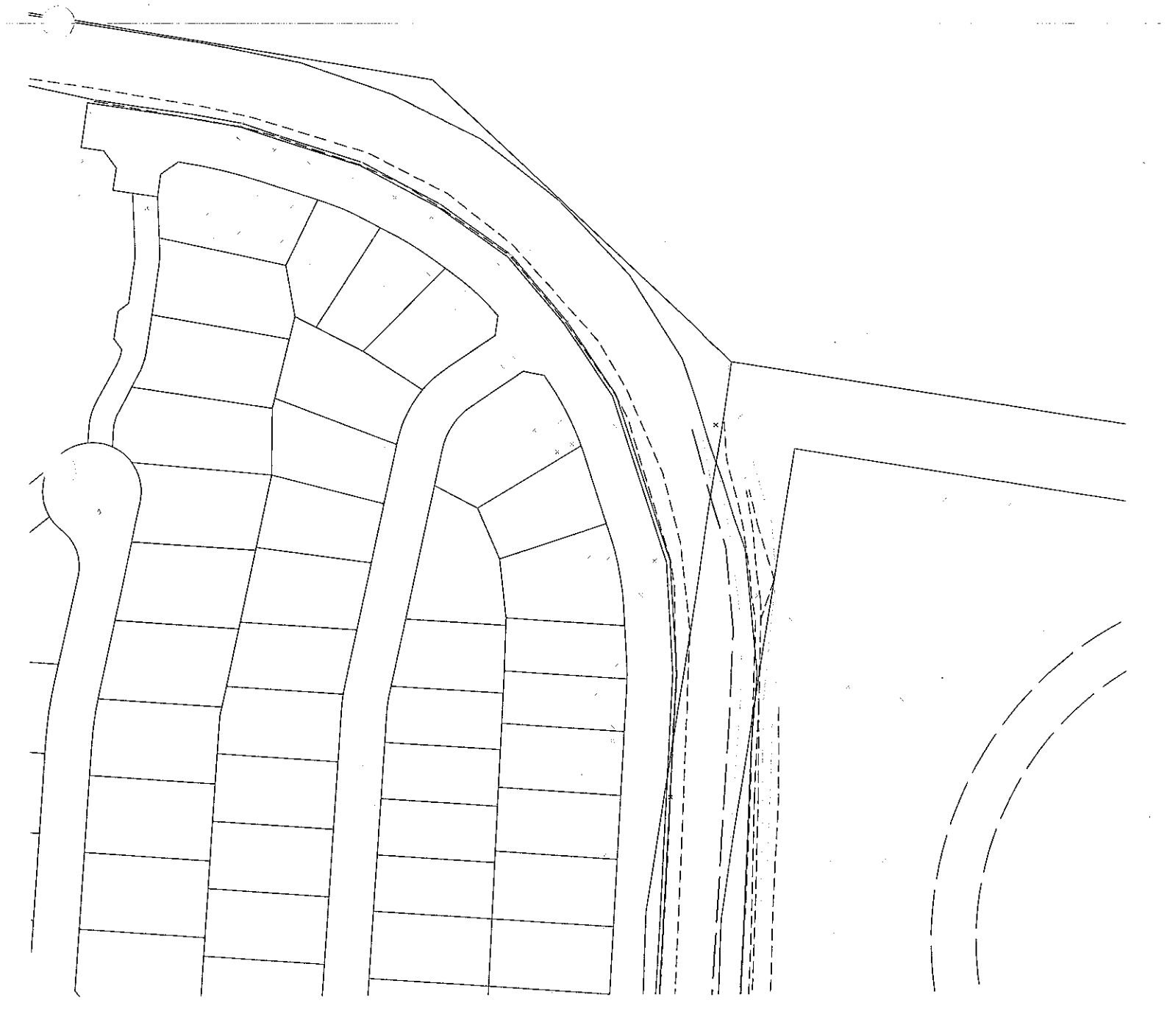
Picture (Metafile)

6/175 James Ruse Dr. Rosehill, NSW. 2142
PO Box 9008 Harris Park, NSW. 2150
T: 02 9898 5441
F: 02 9898 5446
E:davidg@nsw.bmd.com.au

<<QHR WAE Survey.zip>>







Chris Randle

From: Chris Randle
Sent: Monday, 17 November 2003 8:54 AM
To: 'john.mcandrew@shellharbour.nsw.gov.au'
Subject: QHR Bridge

Contacts: John.Mcandrew

John

Appendix 2 of contract (spec) is attached. I have put a copy of the other relevant appendices in your tray this morning. Any queries, give me a buzz.

Chris

App2 - Specification.doc

1 OHS
2 Spec
3 Additional Tender Info
4 Dev Consent
5 SEE
6 Geotech
7 Layout Plans
8 Contract
9 Proj Agree
10 As Built Fig detail

Jason Work Mobile

AUSTROADS

AUSTROADS INCORPORATED
LEVEL 9 ROBELL HOUSE
287 ELIZABETH STREET
SYDNEY NSW 2000
PO BOX K659
HAYMARKET NSW 2000
TELEPHONE: +61 2 9264 7088
FACSIMILE: +61 2 9264 1657
EMAIL: austroads@austroads.com.au

DATE:	10/13/2003
TO:	**Chris Randle**
FAX NO.:	42977366
FROM:	Jenny Castle
PAGES FOLLOWING:	1
SUBJECT:	Bridge Design Code

Following is a list which details the parts that make up the Bridge Design Code. Please note, as mentioned previously, that the Bridge Design Code is in the process of being revised, and is expected to be released around the end of this year/early next year.

J Castle

Austroads Publications Price List

AP No.	Title	Excluding GST	10% GST	Including GST
BRIDGES AND STRUCTURES				
AP-13/91	Bridge Management Practice	$40.00	$4.00	$44.00
AP-14/91	Bridge Construction Practice	$40.00	$4.00	$44.00
AP-15	Australian Bridge Design Code — Complete Boxed Set	$330.00	$33.00	$363.00
AP-15.1/92	Part 1: General — Code	$10.00	$1.00	$11.00
AP-15.1/92	Part 1: General — Commentary	$10.00	$1.00	$11.00
AP-15.2/92	Part 2: Design Loads — Code	$20.00	$2.00	$22.00
AP-15.2/92	Part 2: Design Loads — Commentary	$10.00	$1.00	$11.00
AP-15.3/92	Part 3: Foundations — Code	$20.00	$2.00	$22.00
AP-15.3/92	Part 3: Foundations — Commentary	$30.00	$3.00	$33.00
AP-15.4/92	Part 4: Bearings and Deck Joints — Code	$10.00	$1.00	$11.00
AP-15.4/92	Part 4: Bearings and Deck Joints — Commentary	$10.00	$1.00	$11.00
AP-15.5.92	Part 5: Concrete — Code	$30.00	$3.00	$33.00
AP-15.5.92	Part 5: Concrete — Commentary	$30.00	$3.00	$33.00
AP-15.S/96	Railway Supplement for Parts 1-5 — Code	$30.00	$3.00	$33.00
AP-15.S/96	Railway Supplement for Parts 1-5 — Commentary	$20.00	$2.00	$22.00
AP-15.6/96	Part 6: Steel and Composite Construction — Code	$80.00	$8.00	$88.00
AP-15.6/96	Part 6: Steel and Composite Construction — Commentary	$30.00	$3.00	$33.00
AP-15.7/96	Part 7: Rating — Code	$10.00	$1.00	$11.00
AP-15.7/96	Part 7: Rating — Commentary	$10.00	$1.00	$11.00
AP-23/94	Waterway Design - A Guide to the Hydraulic Design of Bridges, Culverts and Floodways	$60.00	$6.00	$66.00
AP-54/97	Austroads 1997 Bridge Conference Proceedings — Bridging the Millennia	$180.00	$18.00	$198.00
AP-64/00	Austroads 4th Bridge Conference Proceedings — Bridges for the New Millenium	$200.00	$20.00	$220.00
AP-G68/01	Guide to Heritage Bridge Management	$40.00	$4.00	$44.00
AP-127/97 *	Concrete Structures Durability, Inspection and Maintenance Procedures — Position Paper	$30.00	$3.00	$33.00
AP-R198/02 *	Bridge Management Systems — the State of the Art	$40.00	$4.00	$44.00
AP-T07/00 *	Service Life Prediction of Reinforced Concrete Structures	$40.00	$4.00	$44.00
AP-T08/01 *	Australian Bridge Code — Interim Australian Standard	Available: www.standards.com.au		
AP-T11/01 *	Management of Concrete Bridge Structures to Extend Their Service Life	$30.00	$3.00	$33.00
AP-T12/02 *	Validation of Dynamic Load Models — Technical Documentation	$30.00	$3.00	$33.00
AP-T13/02 *	Guide to Road Profile Unevenness and Bridge Damage	$30.00	$3.00	$33.00
AP-T23/03 *	Dynamic Interaction of Vehicles and Bridges	$40.00	$4.00	$44.00
ROAD SYSTEM MANAGEMENT				
AP-48/97	Australia at the Crossroads, Roads in the Community - A Summary *(If more than 1 copy is required — $11.00 each*	N.C.	—	N.C.
AP-49/97	Roads in the Community - Part 1: Are they doing their job?	$40.00	$4.00	$44.00
AP-50/97	Roads in the Community - Part 2: Towards better practice	$40.00	$4.00	$44.00
AP-51/98	Electronic Toll Collection Standards Study	$10.00	$1.00	$11.00
AP-55/98	Principles for Strategic Planning	$30.00	$3.00	$33.00
AP-57/98 & AP-58/98	Cities for Tomorrow — better practice guide and resource document *(Delivery — Australia, $6.60, airmail NZ & PNG $17.00, airmail other countries $27.00)*	$190.00	$19.00	$209.00
AP-59/98	Cities for Tomorrow — CD ROM	$120.00	$12.00	$132.00
	Cities for Tomorrow — better practice guide and resource document + CD ROM *(Delivery — Australia, $6.60, airmail NZ & PNG $17.00, airmail other countries $27.00)*	$280.00	$28.00	$308.00
AP-G72/02 *	Telecommunications in Road Reserves: Operational Guidelines for Installations	Free: www.austroads.com.au		
AP-129/98 *	Responsibilities for Local Roads	$30.00	$3.00	$33.00

Monday SMH & IM

Prequalified contractors

As at 10th November 2003

R	Roadworks	C	Pretensioned Concrete
B	Bridgeworks	S	Steel Fabrication
K	Concrete Paving	T	Protective Treatment
A	Asphalt Paving	I	Intelligent Transport Systems

A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | Y | Z

Contractor	R	B	K	A	C	S	T	I
A								
Abergeldie Contractors Pty Ltd	R1	B1						
Abigroup Contractors Pty Ltd	RX	BX	K10					
Adua Engineering (Aust) Pty Ltd						SC		
Albury City Council	R1							
Amani Pty Ltd t/a D J Lynch Engineering						SR		
Armidale Dumaresq Council	R1							
Arenco Pty Ltd	R5	B10						
Austress Freyssinet Pty Ltd	R05	B1						
B								
Ballina Shire Council	R1							
Barclay Mowlem Construction Ltd	RX	BX	K10					
Bardavcol Pty Ltd	R2	B2						
Barraba Shire Council	R05							
Bathurst City Council	R1							
Baulderstone Hornibrook Pty Ltd	RX	BX	K10					
Belmadar Constructions Pty Ltd	R20	B20						
Berrigan Shire Council	R1							

97426199 Mick Boyle ✓ Interested

? SOUTH AUSTRALIA 08-82605044

02-9693 9200 Peter Dunn - left message Getting Tender Book

Bitupave Ltd (Boral)	R1		A10	
Blayney Shire Council	R1			
BMD Constructions (NSW) Pty Ltd	R1	B1		
BMD Major Projects Pty Ltd	R20	B5		
Bogan Shire Council	R1			
Boorowa Council	R2			
Borthwick & Pengilly Asphalts Pty Ltd			A2	
Bourke Shire Council	R1			
Brewarrina Shire Council	R1			
Bridging Australia Pty Ltd		B1		
Byron Shire Council	R1			
C				
Cabonne Council	R1			
Carrathool Shire Council	R1			
Central Darling Shire Council	R1			
Cessnock City Council	R1			
Christie Civil Pty Ltd	R1	B1		
CiviLake (Lake Macquarie City Council)	R1			
Civilbuild Pty Ltd		B5		CC
Cobar Shire Council	R1			
Con-tec Pty Ltd				CC
Coolah Shire Council	R1			
Coonabarabran Shire Council	R1			
Coonamble Shire Council	R1			
Cootamundra Shire Council	R2			
Copmanhurst Shire Council	R1			
Corowa Shire Council	R1			
Cowra Shire Council	R1	B1		
Crookwell Shire Council	R1			
CSR Ltd				CC
Cut & Fill Pty Ltd	R20	B5		
D				
Dance Contracting Pty Ltd	R2			

Daracon Engineering Pty Ltd ATF Daracon Unit Trust	R40	B5	9748 2900 Paul Thompson ✓ Interested.
Davbridge Constructions Pty Ltd	R1	B2	
Dearnu Pty Ltd		B1	
Delaney Civil Pty Ltd	R05	B1	Qld 07 3807 3286
Deniliquin Council	R1		
Dubbo City Council	R1		
E			
Emoleum	R10	A10	
ENCO Precast Pty Ltd		CC	
Eodo Pty Ltd	R5	B5	? 9264435
Evans Shire Council	R1	B1	
F			
Fernandes Constructions Pty Ltd	R2	B5	92646435 Hugh Bullock ✓
Forbes Shire Council	R1		
Ford Civil Contracting Pty Ltd	R10	B1	95974122 Rob Brown ✓
FRH Astec Pty Ltd		A5	
G			
Gilgandra Shire Council	R1		
Gosford City Council	R1		
Griffith City Council	R1		
Guideline (ACT) Pty Ltd	R5		
Gunnedah Shire Council	R1		
H			
Harden Shire Council	R1		
Haslin Constructions Pty Ltd	R1	B1	95451855 Left message with answering service
Henry Walker Eltin Contracting Pty Ltd	R10	B2	Adelaide
H F Hand Constructors Pty Ltd		SR	
Hull J F Holdings Pty Ltd	R1	B10	Qld
I			
Icom Pty Ltd t/a Bridge & General Pty Ltd		B1	?
Inverell Shire Council	R1		

J				
Jerilderie Shire Council	R1			
John Holland Pty Ltd	RX	BX	K10	
John R Burton Contractors Pty Ltd	R2			
Junee Shire Council	R1			
K				
Kingston Industries Pty Ltd t/a Kingston Civil Constructions	R2			
Kyogle Council	R2			
L				
Lachlan Shire Council	R1			
Leeton Shire Council	R1			
Leighton Contractors Pty Ltd	RX	BX	K10	
LFC Contracting Pty Ltd	R5	B2		98802244 Christian Sanhveza ✓
Lifese Pty Ltd				SR
Lockhart Shire Council	R1			
Lothway TBS Pty Ltd				TC
M				
M & S Fabrications Pty Ltd				SR
Marsh F E & Co Pty Ltd		B1		?
McConnell Dowell Constructors (Aust) Pty Ltd	R2	B5		David Harper 99549544 ✓
McElligott Partners Pty Ltd				TC
Merriwa Shire Council	R1			
Midwest Civil Pty Ltd	R2	B2		?
Moree Plains Shire Council	R1			
Mudgee Shire Council	R1			
Murray Constructions Pty Ltd		B1		?
Murrurundi Shire Council	R1			
Muswellbrook Shire Council	R1			
N				
N J McIntosh & Co Pty Ltd		B2		?
Nace Civil Engineering Pty Ltd	R10	B2	K10 A5	98268922 Frank Sweeney - left message

Narrabri Shire Council	R1				
Nelmac Pty Ltd	R2	B10 ?		CC	
Newcastle City Council	R1				
North Shore Paving Company Pty Ltd	R1		A2		
North West Prestressed Pty Ltd				CR	
O					
Orange City Council	R1				
P					
Parkes Shire Council	R1				
Parry Shire Council	R1				
Pavement Salvage Operations Pty Ltd			A2		
Pioneer Road Services Pty Ltd			A10		
Programmed Maintenance Services Ltd					TC
Q					
Quirindi Shire Council	R1				
R					
Rail Infrastructure Corporation	R05	~~B5~~			
Re-Build Welding & Fabrication Pty ltd				SR	
Reed Constructions Australia Pty Ltd	R5	B10	99550399 left message with Melanie 9889 7899 Melanie		
Rescrete Industries Pty Ltd				CR	
Richmond Valley Council	R2	~~B1~~		CR	
Ridge Consolidated Pty Ltd	R20	B10	K2 ?	Qld	
Robson Excavations Pty Ltd	R1				
RTA Operations	R20	~~B5~~	A5		TC
Rylstone Shire Council	R1				
S					
S and L Steel (NSW) Pty Ltd				SC	
Scone Shire Council	R1				
Seovic Civil Engineering Pty Ltd	R5		K10		
Severn Shire	R1	~~B1~~			

Council				
Seymour Whyte Constructions Pty Ltd	R10	B5 ?		
Snowy River Shire Council	R1			
Southcon Pty Ltd		B1 ?		CR
Southern Asphalters Pty Ltd			A2	
Structural Concrete Ind (Aust) Pty Ltd				CC
T				
Tallaganda Shire Council	R1			
Tamworth City Council	R1			
Temora Shire Council	R1			
Thiess Pty Ltd	RX	~~BX~~	K10	
Townes Contracting Pty Ltd	R1			
Tumbarumba Shire Council	R1			
Tumut Shire Council t/a Snowy Works & Services	R5			
Transfield Services (Australia)			A2	
W				
Wade Civil Engineering Pty Ltd	R2			
Waeger Constructions Pty Ltd		B1 ?		
Wagga Wagga City Council	R1	~~B1~~		
Walcha Council	R1			
Walgett Shire Council	R1			
WALTER Construction Group Ltd	RX	~~BX~~		
Ward Civil and Environmental Engineering Pty Ltd	R10	B5		
Warren Shire Council	R1			
Weddin Shire Council	R1			
Wellington Council	R1			
Wentworth Shire Council	R1			
WGE Pty Ltd		B1		
Wollondilly Shire Council	R1			
Wollongong City Council	R1			
Woodbury's Civil	R1			

94383666 David Yiu

Not usually D & C, but will look.

42722200 SC Trevor ✓

Pty Ltd	
Y	
Yarrowlumla Council	R1
Yass Shire Council	R1

↑ Back to top

Chris Randle

From: Mick Crofts [Mick.Crofts@integral.com.au]
Sent: Tuesday, 30 September 2003 12:11 PM
To: CRandle@australand.com.au
Subject: RE: QHR Bridge

Chris, that is a good suggestion. I think 3 ducts wide by two ducts high should do, if you can accommodate them in that configuration. If you can't then six ducts wide at HV clearance depth is another option.

Regards

Mick

>>> Chris Randle <CRandle@australand.com.au> Tuesday, 30 September 2003 >>>
Thanks MIck. Should we set the spacings up to accommodate 3HV and 3 LV?

-----Original Message-----
From: Mick Crofts [mailto:Mick.Crofts@integral.com.au]
Sent: Tuesday, 30 September 2003 11:54 AM
To: CRandle@australand.com.au
Subject: Re: QHR Bridge

Chris, there are currently 2 HV & 2 LV cables poised to cross the QHR into stage 6.

I would suggest that 4 ducts would be the absolute minimum required.

Installing 6 ducts would most likely to cater for all possible contingencies.

Regards

Mick Crofts
Project Officer
Construction Branch
Integral Energy Australia
Ph: 02 4223 4904
Fax: 02 4223 4926
Email: mick.crofts@integral.com.au

>>> Chris Randle <CRandle@australand.com.au> Wednesday, 24 September 2003 >>>
Mick

I am putting the tender together for the QHR Bridge that links stage 5 and
stage 6 on Killalea Drive. Could you please advise the Integral conduit
requirements for this linkage to enable the bridge design to be done.

Regards, Chris Randle

Chris Randle

From: EPeters@agl.com.au
Sent: Wednesday, 24 September 2003 4:08 PM
To: CRandle@australand.com.au
Subject: Re: QHR Bridge

Hi Chris,

I've spoken to Gary Jenkings in regard to the conduit diameter and he says that since the gas pipe will be 110mm it would be advisable to install 160mm - 200mm conduit. If you need anymore info, I won't be available tomorrow but Gary can be contacted on 42554609.

Elle.

Chris Randle <CRandle@australand.com.au> 24/09/2003 09:32 AM

To: "'eliana.peters@teamagility.com'" <eliana.peters@teamagility.com>
cc:
Subject: QHR Bridge

Hi Elle

I am preparing tender documents for construction of the Quarry Haul Road Bridge that links existing stage 5 with future stage 6 on Killalea Drive. Could you please advise the AGL conduit requirements across this linkage to enable the bridge design to be done. Any queries, give me a call on 0418407629.

Regards, Chris Randle.

Chris Randle

From: Wayne.Munro@CountryEnergy.com.au
Sent: Wednesday, 24 September 2003 12:33 PM
To: Chris Randle
Subject: Re: QHR Bridge

Chris
Telstra require 2xP100 pipes across the linkage

cheers

Wayne Munro
Design Manager
Dubbo
Ph 02 688 34400
F 02 688 34568

Chris Randle <CRandle@austral and.com.au> 24/09/2003 09:28 AM

To: "'wayne.munro@countryenergy.com.au'" <wayne.munro@countryenergy.com.au>
cc:
Subject: QHR Bridge

Wayne

I am preparing the tender documentation for the Shell Cove QHR Bridge which links the existing stage 5 with future stage 6 on Killalea Drive. Could you
please advise the Telstra conduit requirements across this linkage so that the bridge design can be done. Any queries, give me a call on 0418 407 629.

Regards, Chris Randle

Chris Randle

From: Chris Randle
Sent: Wednesday, 24 September 2003 9:32 AM
To: 'eliana.peters@teamagility.com'
Subject: QHR Bridge

Hi Elle

I am preparing tender documents for construction of the Quarry Haul Road Bridge that links existing stage 5 with future stage 6 on Killalea Drive. Could you please advise the AGL conduit requirements across this linkage to enable the bridge design to be done. Any queries, give me a call on 0418407629.

Regards, Chris Randle.

Chris Randle

From: Chris Randle
Sent: Wednesday, 24 September 2003 9:28 AM
To: 'wayne.munro@countryenergy.com.au'
Subject: QHR Bridge

Contacts: 'Wayne.Munro

Wayne

I am preparing the tender documentation for the Shell Cove QHR Bridge which links the existing stage 5 with future stage 6 on Killalea Drive. Could you please advise the Telstra conduit requirements across this linkage so that the bridge design can be done. Any queries, give me a call on 0418 407 629.

Regards, Chris Randle

Chris Randle

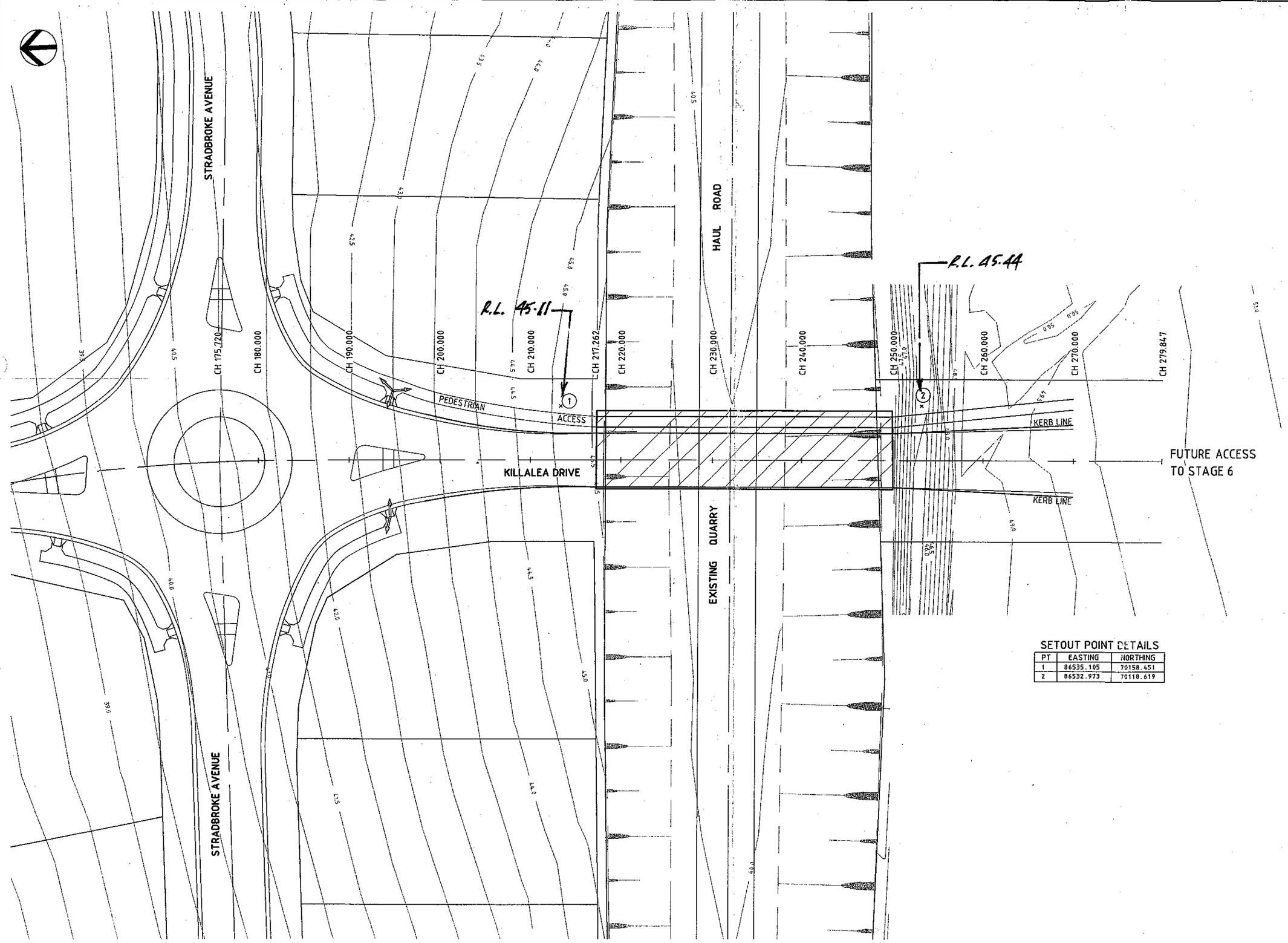
From: Chris Randle
Sent: Wednesday, 24 September 2003 9:26 AM
To: 'Mick Crofts'
Subject: QHR Bridge

Contacts: Mick Crofts [CROFTS@integral.com.au]

Mick

I am putting the tender together for the QHR Bridge that links stage 5 and stage 6 on Killalea Drive. Could you please advise the Integral conduit requirements for this linkage to enable the bridge design to be done.

Regards, Chris Randle



SETOUT POINT DETAILS

PT	EASTING	NORTHING
1	86535.105	70158.451
2	86532.973	70118.619

REV	AMENDMENT	BY	APP'D	DATE
A	ISSUED FOR INFORMATION	DG		14.10.03

INFORMATION

CLIENT: AUSTRALAND
SURVEYED
SURVEY FILE
DATE

DESIGNED	DATE	DRAWN	DATE
D.G.	OCT '03	D.G.	OCT '03
CHECKED		DATE	
APPROVED		DATE	

Civil & Structural Engineers
Building Designers
& Project Managers
ABN 23 010 743 692
BMD CONSULTING
Sydney Office
G/175 James Ruse Dr
ROSEHILL, NSW 2142
P.O. Box 6
HARRIS PARK, NSW 2150
Ph: (02) 9896 5400
Fax: (02) 9896 5444
email: brisbane@bmd.com.au
www.bmd.com.au
Head Office - Brisbane
Ph: (07) 3893 1311
Townsville Office
Ph: (07) 4789 3855
Cairns Office
Ph: (07) 4035 6144
Ayr Office
Ph: (07) 4783 5556

PROJECT
SHELL COVE
HAUL ROAD CROSSING
CO-ORDINATE PLAN

SCALE: H 1:200 V

DRAWING No. 02083-604

REV. A

CAD: S:\CIVIL ENGINEERING SERVICES\SHELL COVE\HAUL RD CROSSING 2083\ACAD Jobs\ACAD Drawings\Approval\02083-604.dwg 9:35AM user:davidg

RTA CONDITIONS OF CONTRACT AND QUALITY ASSURANCE SPECIFICATIONS LIST

USE OF SPECIFICATIONS

The QA Specifications (including Conditions of Contract) and Guides are policy documents within the meaning of the Freedom of Information Act 1989 (NSW)("FOI Act") and the documents are accordingly made available pursuant to Section 15(1) of the FOI Act.

The QA Specifications were developed by the Authority for use with roadworks and bridgeworks contracts let by the Authority or local councils. The Authority only uses the QA Specifications in conjunction with its other standard form documents and under the supervision of professional civil engineers who are trained and experienced in roadworks and bridgeworks. The Authority does not use the QA Specifications for any other purpose and does not consider them suitable for use for any other purpose.

Consistent with the FOI Act, the purposes for which the documents are made available for inspection or purchase by you are:

- to satisfy the Authority's obligation under Section 15(1) of the FOI Act to make its policy documents available for inspection and purchase by members of the public
- to ensure that you, as a member of the public who may be affected by the operation of the documents, have access to the document.

The prices for the documents only covers the Authority's costs of printing and handling the document.

If you use the documents for any purpose which is not consistent with the above (including, without limitation, for carrying out any construction, engineering, maintenance or other work), you do so at your own risk.

This documents are current as at the date of this notice. However, you should be aware that the Authority regularly reviews and updates its QA Specifications. You will not be notified of any update.

No advisory or support services will be provided by the Authority.

Access to Specifications and Test Methods published on the Internet

RTA QA Specifications can be viewed and downloaded free of charge through:
http://www.rta.nsw.gov.au/
Then select "Doing Business with Us" and then "Specifications" and accept the disclaimer.
Adobe Acrobat software is required and your browser must support Javascript and accept cookies.

Purchase of Specifications

Specifications (other than draft specifications) may be purchased:

by mailing a request to:	by faxing an order to:
RTA Information and Reference Centre, Roads and Traffic Authority, PO Box 3035, PARRAMATTA NSW 2124.	RTA Information and Reference Centre Roads and Traffic Authority 99 Phillip Street, Parramatta, NSW 2150 Fax (02) 8837 0010 Phone (02) 8837 0151
Please quote the Specification Numbers, your name and address and enclose a cheque for the amount payable to the Roads and Traffic Authority. The RTA will mail the specifications to your address.	Please quote the Specification Numbers, payment may be by cash, credit card or a cheque for the amount payable to the Roads and Traffic Authority

The prices of individual specifications are shown in the third column of the attached pages. Prices include the Goods and Services Tax. Groups of specifications are also sold at the following prices:

All Bridgeworks Specifications	$ 220.00
All Roadworks Specifications	$ 385.00
All Materials Specifications	$ 165.00.

.USER INFORMATION

NOTE: The following User Information and Guides are for information only and are not RTA Specifications

Document No. RTA..	Date Pages/ Price	Title		Comments [*Annexures to be Completed*]
QALIST		RTA Quality Assurance Documents		This document
AAUSER	Apr 97	User Guide		
QAFORMA6	Feb 97			Template for specifications

GUIDES TO RTA QA SPECIFICATIONS

Document No. RTA..	Edition/ Revision (E../R..)	Date Pages/ Price	Title	RTA Specifications Referenced (RTA...)	Comments
CC5			Guide to Single Invitation Maintenance Contracts - Contract Summary for Local Government		Refer to Section for Maintenance below
CG21	E1/R0	Jan 00 47p/ $16.50	Guide to RTA G21 and G22 Occupational Health and Safety	G21 & G22	Refer to NSW Govt OHS&R Managem't System Guidelines
CG35	E1/E3	Sep 01 39p/ $16.50	Guide to RTA G35 & G36 - Environmental Protection	G35 & G36	Refer to NSW Govt EMS Guidelines
CQ4	E1/R2	Jan 01 39p/ $16.50	Guide to RTA Q3 & Q4 - Quality System (Type 3 and Type 4)	Q3 & Q4	Refer to AS 3905.2 and RTA CQ21 for further guidance.
CQ5	E2/R0	Jan 01 56p/ $16.50	Guide to RTA Q5 & Q7 - Quality System (Type 5 and Type 7)	Q5 & Q7	Refer to AS 3905.2 and RTA CQ21 for further guidance.
CQ21	E1/R1	Aug 99 31p/$11	Guide to RTA Q - Guide for Contractors on Survey Procedures	Q5 & Q7	A supplementary guide to CQ5.
CR083	E1/R1	Jun 01 122p/$33	Guide to R83 & R84 – Concrete Base	R83 & R84	Price is for non-colour copy.
CR132	E1/R0	Jul 97 61p/$22	Guide to RTA R132 - Safety Barrier Systems	R132	

CONDITIONS OF CONTRACT

Contract Document		Date	Title	RTA Documents Referenced (RTA...)		Comments
No. RTA..	Edition/ Revision (E../R..)	Pages/ Price		Mandatory (NOTE 1)	Optional (NOTE 2)	[*Annexures to be Completed*]
C1	E1/R8	Jul 03 107/ $22	Conditions of Contract for Major Roadworks and Bridgeworks			[* "Annexure" *]
C5	E2/R7	Jun 02 28/ $11	Conditions of Contract (Single Invitation Maintenance Contract)			[*Contract Schedule*]
C5-PAI	E1/R0	Jun 02 48/ $11	Conditions of Contract (Single Invitation Maintenance Contract)			Version of C5 for applying Principal arranged insurance [*Contract Schedule*]
C15	E1/R1	Jun 02 20/ $11	Conditions of Single Invitation Contract (Construction of Development Works)			[*Contract Schedule*]
C15-PAI	E1/R0	Jun 02 40/ $11	Conditions of Single Invitation Contract (Construction of Development Works)			Version of C15 for applying Principal arranged insurance [*Contract Schedule*]
C18	E1/R2	Aug 03 26/ $11	Schedule of Rates Major Roadworks and Bridgeworks			Template for project customisation

GENERAL SPECIFICATIONS

Specification No. RTA..	Edition/ Revision (E../R..)	Date Pages/ Price	Title	RTA Specifications Referenced (RTA...) Mandatory (NOTE 1)	Optional (NOTE 2)	Comments [*Annexures to be Completed*]
G1	E1/R1	Aug 03 9/ $5.50	Job Specific Requirements			Template. Refer to Engineering Contract Manual Section 2.4. Refer to Section for Maintenance below
G2	E2/R3	Nov 01 21/ $11	General Requirements			(*G2/1*) Attach Drawing RTA B045 or SD6166
G5			General Maintenance Requirements			Refer to Section for Maintenance below
G10	E3/R4	Sep 02 19/ $11	Control of Traffic		R11, R41, R42, R43, R44, R106, R116 R132, R141,	[*G10/1 & G10/2*] Comply with the RTA Traffic Control at Work Sites Manual
G11			Control of Traffic (Maintenance Works)			Refer to Section for Maintenance below
G21	E2/R3	Aug 03 69/ $22	Occupational Health & Safety (Minor Works)		Q	(*G21/A*)
G22	E2/R3	Aug 03 71/ $22	Occupational Health & Safety (Major Works)	Q		(*G22/A*)
G23	E1/R0	Feb 02 35/ $16.50	Occupational Health & Safety Construction (Non-Road and Bridge) Works and Services		Q, G10	Complete Clause 5
G24	E1/R0	Feb 02 18/ $11	Occupational Health & Safety - General (Non-Construction) Works and Services			
G34			Environmental Protection – Maintenance Works (Management Plan)			Refer to Section for Maintenance below
G35	E1/R4	Sep 01 33/ $16.50	Environmental Protection (Management Plan)	G21 or G22, Q,	B30. R41, R178	Complete Clauses
G36	E1/R4	Sep 01 35/ $16.50	Environmental Protection (Management System)	G22, Q,	B30. R41, R178	Complete Clauses
G73	E1/R2	Aug 03 42/$16.50	Detail Survey in CADD Format	G24		[*G73/A, G73/N*]

NOTE 1: The listed specifications must be included in the Tender Documents.
NOTE 2: The relevance to the proposed works in the documents listed below must be reviewed and the relevant documents must be included in the Tender Documents.

QUALITY SYSTEM SPECIFICATIONS

Specification No. RTA..	Edition/ Revision (E../R..)	Date Pages/ Price	Title	RTA Specifications Referenced (RTA...) Mandatory (NOTE 1)	RTA Specifications Referenced (RTA...) Optional (NOTE 2)	Comments [*Annexures to be Completed*]
Q3/1	E1/R5	Jun 02 36/ $16.50	Quality Management System (Type 3)			[*Q/2 Table Q.2a&b*] Recommended for QA contracts < $0.2m
Q3/2	E2/R1	Jun 02 37/ $16.50	Quality Management System (Type 3)			[*Q/2 Table Q.2*] Used only when RTA Registration specified
Q4	E1/R4	Jun 02 37/ $16.50	Quality System (Type 4)			[*Q/2 Table Q.2*] Recommended for QA contracts $0.2 - $0.5m
Q5	E2/R4	May 03 41/ $16.50	Quality System (Type 5)			Recommended for contracts $0.5 - $2m
Q7	E5/R4	May 03 41/ $16.50	Quality System (Type 7)			Recommended for contracts > $2m

NOTE 1: The listed specifications must be included in the Tender Documents.
NOTE 2: The relevance to the proposed works in the documents listed below must be reviewed and the relevant documents must be included in the Tender Documents.

MAINTENANCE CONTRACT DOCUMENTS, GUIDES AND SPECIFICATIONS

Specification No. RTA..	Edition/ Revision (E../R..)	Date Pages/ Price	Title	RTA Specifications Referenced (RTA...) Mandatory (NOTE 1)	Optional (NOTE 2)	Comments [*Annexures to be Completed*]
C5	E2/R7	Jun 02 28/ $11	Conditions of Contract (Single Invitation Maintenance Contract)			[*Contract Schedule*]
C5-PAI	E1/R0	Jun 02 48/ $11	Conditions of Contract (Single Invitation Maintenance Contract)			Version of C5 for applying Principal arranged insurance [*Contract Schedule*
C6	E3/R1	Dec 01 11/ $11	Tender Form and Schedules for Single Invitation Maintenance Contracts			
C7	E1/R3	Dec 01 22/ $11	Interpretation Guide (Single Invitation Contract)			
C8	E1/R1	Dec 01 2/ $5.50	Formal Instrument (Single Invitation Maintenance Contract)			
CC5	E3/R1	Dec 01 56/ $22	Guide to Single Invitation Maintenance Contracts - Contract Summary			
G3	E1/R0	Dec 01 53/ $22	Maintenance Services			[*G3/1*]
G5	E3/R3	Aug 03 26/ $11	General Requirements (Maintenance)			
G11	E2/R1	Dec 01 28/ $11	Control of Traffic (Maintenance Works)			[*G11/1,-/2,-/3*] Comply with the RTA Traffic Control at Work Sites Manual
G22-M	E2/R23	Aug 03 57/$$22	Occupational Health & Safety (Single Invitation Contract)			[*G22-M/I*]
G34	E2/R1	Aug 03 45/ $16.50	Environmental Protection – Maintenance Works (Management Plan)			Complete Clauses [*G34/A, G34/H*]
Q4-M	E1/R3	May 02	Quality System (Type 4 - Single Invitation Contract)			
M1	E3/R1	Dec 01 55/ $22	Maintenance Intervention Standards			[*M1/1,-/2,-/3, -/4*]
M10	E3/R1	Dec 01 13/ $11	Pavement Maintenance			[*M10/1*]
M20	E3/R1	Dec 01 23/ $11	Corridor Asset Maintenance			[*M20/1*]
M30	E3/R1	Dec 01 9/ $5.50	Bridge and Tunnel Maintenance			[*M30/1*]
M40	E3/R1	Dec 01 12/ $11	Traffic Facility Maintenance			[*M40/1*]
M151	E1/R0	Sep 02	Crack Filling and Sealing	G11, 3254,		[*M151/2*]

NOTE 1: The listed specifications must be included in the Tender Documents.
NOTE 2: The relevance to the proposed works in the documents listed below must be reviewed and the relevant documents must be included in the Tender Documents.

Specification		Date	Title	RTA Specifications Referenced (RTA...)		Comments
No. RTA..	Edition/ Revision (E../R..)	Pages/ Price		Mandatory (NOTE 1)	Optional (NOTE 2)	[*Annexures to be Completed*]
		14/ $11	(in Bituminous Surfacing)	3263		
M161	E1/R0	Sep 02 28/ $11	Heavy Patching (Flexible Pavement)	C7, Q, G5, G11, R106 or R111, R141, R142,	M151, R33,R37, R38,R63, R71,R82, R83,R111 R116,R121 R131,R143 R146,3051 3052, 3254	[*M161/2*]

NOTE 1: The listed specifications must be included in the Tender Documents.
NOTE 2: The relevance to the proposed works in the documents listed below must be reviewed and the relevant documents must be included in the Tender Documents.

ROADWORKS SPECIFICATIONS

Specification No. RTA..	Edition/ Revision (E../R..)	Date Pages/ Price	Title	RTA Specifications Referenced (RTA...) Mandatory (NOTE 1)	RTA Specifications Referenced (RTA...) Optional (NOTE 2)	Comments [*Annexures to be Completed*]
R1	E2/R1	Jan 97 14p/ $11	Erosion and Sedimentation Control (Permanent and Temporary)	One of: R42, R43 or R44,	R178	
R2	E2/R2	Jul 01 7p/ $5.50	Erosion and Sedimentation Control (Temporary)	One of R42, R43 or R44	R178	
R11	E2/R2	Jul 01 27p/ $11	Stormwater Drainage	R32, One of R42, R43 or R44, R53, R63	B80,B115 R16,R55, R178, 3204	
R15	E3/R1	May 00 9p/ $5.50	Kerbs and Gutters	R53 3204		
R16	E2/R1	May 00 12p/ $11	Precast Reinforced Concrete Box Culverts	Q,R11, B80		[*R16/1*]
R22	E3/R0	May 00 22p/ $11	Corrugated Metal Structures	G2, Q, R11, R63	One of R42, R43 or R44,	
R23	E3/R1	Mar 01 17p/ $11	Plastic Flexible Pipes	G2, Q, R11	One of R42, R43 or R44,	
R32	E2/R4	Aug 03 12p/ $11	Subsurface Drainage- Materials		R63, 3552,3553 3555,3556	[*R32/A*] [*3556/1*]
R33	E2/R3	Jun 00 13p/ $11	Trench Drains	R32 3552, 3556	R63,	[*3556/1*]
R37	E2/R4	Feb 02 11p/ $11	Intra-pavement Drains	R32 3555		
R38	E2/R3	Jun 00 13p/ $11	Edge Drains	R32, R33 3051, 3552, 3556	R63	[*3051/1*] [*3556/1*]
R39	E1/R5	Jun 00 8p/ $11	Drainage Mats	R32, R63		
R41	E2/R2	Oct 97 9p/ $11	Clearing and Grubbing	G35 or G36, R1 or R2,	R161	
R42	E2/R6	Oct 00 41p/ $16.50	Earthworks (Cut-Fill)	Q, R1 or R2, R11, R41	G10, R32, R33, R50, R63, R178	[*R42/1*]
R43	E2/R6	Oct 00 42p/ $16.50	Earthworks (Cut, Fill and Imported Fill)	Q, R1 or R2, R11, R41	G10, R32, R33, R50, R63, R178	[*R43/1*]
R44	E2/R6	Oct 00 41p/ $16.50	Earthworks (Cut, Fill, Imported Fill and Imported Selected Material)	Q, R1 or R2, R11, R41	G10, R32, R33, R50, R63, R178	[*R44/1*]
R49	E2/R1	Jan 97 12p/ $11	Construction of Verges	Q		[*R49/1*]

NOTE 1: The listed specifications must be included in the Tender Documents.

NOTE 2: The relevance to the proposed works in the documents listed below must be reviewed and the relevant documents must be included in the Tender Documents.

RTA CONDITIONS OF CONTRACT AND QUALITY ASSURANCE SPECIFICATIONS LIST

Specification No. RTA..	Edition/ Revision (E../R..)	Date Pages/ Price	Title	RTA Specifications Referenced (RTA...) Mandatory (NOTE 1)	RTA Specifications Referenced (RTA...) Optional (NOTE 2)	Comments [*Annexures to be Completed*]
R50	E2/R2	Jun 97 19p/ $11	Stabilisation of Earthworks	3254, One of R42, R43 or R44,		[*R50/1*]
R53	E1/R2	Aug 03 17p/ $11	Concrete (for general use), Mortar and Grout	G2, 3211		
R55	E2/R1	Jan 97 14p/ $11	Rock Filled Gabions and Mattresses	R63	One of R42, R43 or R44,	
R56	E2/R3	Jul 99 46p/$16.50	Permanent Rock Anchors (Schedule of Rates)			[*R56/1*]
R57	E1/R5	Feb 03 83p/ $22	Design of Reinforced Soil Walls	R63	B80, B115 2380	[*R57/2*]
R58	E1/R4	Feb 03 22p/ $11	Construction of Reinforced Soil Walls	B80, B115 Q, R57		
R63	E2/R0	Sep 02 20p/ $11	Geotextiles (Separation and Filtration)	Q		[*R63/1*]
R71	E2/R2	Aug 97 12p/ $11	Unbound Pavement Course (Normal Duty)	Q, 3051		[*3051/1*]
R73	E1/R0	Oct 02 35p/ $16.50	Heavily Bound Pavement Course (Plant Mixed using Slow Setting Binders)	Q, R1 or R2 G10, 3052, 3053, 3054	R106, R178	[*R73/1*]
R75	E1/R0	Jan 02 37p/ $16.50	In Situ Pavement Recycling by Deep-Lift Cementitious Stabilisation	Q, R1 or R2 G10, R106, 3053, 3054	R178, 3051,3052	[*R75/1*] [*R75/3*]
R82	E3/R5	Aug 03 58p/ $22	Lean-Mix Concrete Subbase	Q, 3211	R106, 3151, 3253, 3254	[*3151/1*]
R83	E2/R5	Aug 03 95p/ $22	Jointed Concrete Base	Q, R82, 3204, 3211		[*R83/1*]
R84	E2/R5	Aug 03 85p/ $22	Continuously Reinforced Concrete Base	Q, R82, 3204, 3211		[*R84/1*]
R101	E2/R1	Jul 01 15p/ $11	Cold Milling of Asphalt, Base Course and Cement Concrete	G10		[*R101/1*] [*R101/2*]
R103	E1/R1	Aug 03 19p/ $11	High Pressure Waterblasting of Bituminous Seals	G10 or G11 R106 or R107		[*R103/A*]
R106	E3/R1	Apr 03 33p/ $11	Sprayed Bituminous Surfacing (with Cutback Bitumen)	G10, Q, 3151, 3253, 3258,3259, 3261,		[*R106/1*]
R107	E2/R2	Apr 03 27p/ $11	Sprayed Bituminous Surfacing (with Polymer Modified Binder)	G10, Q, 3151, 3252, 3268, 3269	3253	[*R107/1*] [*3151/1*]
R109	E1/R1	Aug 01 24p/ $11	Bituminous Slurry Surfacing	Q, G10		[*R109/1*]
R111	E1/R2	Apr 03 26p/ $11	Sprayed Bituminous Surfacing (with Bitumen Emulsion)	G10, Q, 3151,3254, 3258	3252	[*R111/1*] [*3151/1*]

NOTE 1: The listed specifications must be included in the Tender Documents.
NOTE 2: The relevance to the proposed works in the documents listed below must be reviewed and the relevant documents must be included in the Tender Documents.

RTA CONDITIONS OF CONTRACT AND QUALITY ASSURANCE SPECIFICATIONS LIST

Specification No. RTA..	Edition/ Revision (E../R..)	Date Pages/ Price	Title	RTA Specifications Referenced (RTA...) Mandatory (NOTE 1)	RTA Specifications Referenced (RTA...) Optional (NOTE 2)	Comments [*Annexures to be Completed*]
R112	E1/R1	Aug 01 23p/ $11	Sprayed Bituminous Surfacing (for Enrichment & Rejuvenation)	G10	3253, 3254, 3261	[*R112/1*]
R113	E1/R1	Aug 01 22p/ $11	Sprayed Bituminous Surfacing (with Fibre Reinforcement)	Q, G10, 3151, 3254, 3258	3252, 3253	[*R113/1*] [*3151/1*]
R116	E5/R0	Dec 01 52p/ $16.50	Asphalt (Dense Graded and Open Graded)	G10, Q, 3054, 3254,	3252, 3269 or 3253, 3259	[*R116/1*]
R121	E1/R2	Feb 03 36p/ $16.50	Stone Mastic Asphalt	G10, Q, 3054, 3211	3252, 3269 or 3253, 3259	[*R121/1*] For use in trials only
R123	E1/R2	Feb 03 33p/ $16.50	Thin Open Graded Asphalt Surfacing	G10, Q, 3054, 3211	3252, 3269	[*R123/1*] For use in trials only
R131	E3/R0	Sep 99 10p/$5.50	Guide Posts	3411 and/or 3412		
R132	E2/R3	Jul 99 23p/ $11	Safety Barrier Systems	G10, Q, 3204		[*R132/1, -/3, -/4, R132/5*]
R141	E4/R7	Aug 01 42p/ $16.50	Pavement Marking	G10, 3351, 3353, 3356	R142, 3357, 3359, 3360	[*R141/1*]
R142	E3/R2	Mar 01 11p/$5.50	Raised Pavement Markers	G10, R141, 3354		
R143	E3/R1	Aug 00 13p/ $11	Signposting	G10, R53, 3400		
R146	E1/R1	Jul 01 22p/ $11	Pavement Marking Maintenance (Rural Regions)	G10, R141		
R151	E2/R6	Mar 02 16p/ $11	Street Lighting	3851 BMES/E0057 -/E0058		
R152	E2/R1	Feb 97 9p/ $5.50	Emergency Telephones			
R161	E3/R1	Aug 02 26p/ $11	Fencing			
R173	E2/R2	Aug 03 14p/ $11	General Concrete Paving	R53 3204	One of R42, R43 or R44,	
R178	E3/R2	Aug 03 24p/ $11	Vegetation	3254		[*R178/A*]

NOTE 1: The listed specifications must be included in the Tender Documents.
NOTE 2: The relevance to the proposed works in the documents listed below must be reviewed and the relevant documents must be included in the Tender Documents.

BRIDGEWORKS SPECIFICATIONS

Specification No. RTA..	Edition/ Revision (E../R..)	Date Pages/ Price	Title	RTA Specifications Referenced (RTA...) Mandatory (NOTE 1)	Optional (NOTE 2)	Comments [*Annexures to be Completed*]
B30	E2/R0	Sep 97 12p/$5.50	Clearing, Excavation and Backfill for Bridgeworks			
B50	E2/R8	Aug 01 23p/ $11	Driven Reinforced Concrete Piles	B30, B80, B115, B204		
B51	E2/R7	Aug 01 23p/ $11	Driven Prestressed Concrete Piles	B30, B80, B110, B204		
B53	E1/R5	Aug 01 22p/ $11	Driven H-Section Steel Piles	B30, B204		
B54	E1/R4	Aug 01 24p/ $11	Driven Tubular Steel Piles	B30, B80, B204		
B57	E1/R1	May 01 16p/ $11	Driven Cast-in-Place Concrete Piles	B30, B80, G35 or G36		
B58	E2/R2	May 00 16p/ $11	Permanently Cased Cast-in-Place Reinforced Concrete Piles	B80, B204		[*B58/2*]
B59	E2/R3	May 01 15p/ $11	Bored Cast-in-Place Reinforced Concrete Piles (without Permanent Casing)	B80		[*B59/2*]
B61	E1/R6	Aug 01 25p/ $11	Driven Composite Piles	B30, B80. B110, B204		
B80	E4/R1	Aug 03 55p/ $22	Concrete Work for Bridges	B204, 3211	B58,B110 B59,B115, B113,B152 ,B170, R16	[*B80/A*]
B82	E1/R2	Feb 03 33p/ $16.50	Shotcrete Work	3211		[*B82/3*] Not recommended for minor works
B110	E2/R4	Aug 99 16p/ $11	Manufacture of Pretensioned Precast Concrete Members	B80		
B113	E2/R2	Apr 00 25p/ $11	Post Tensioning of Concrete	Q, B80	B115	
B114	E2/R3	Jul 99 45p/ $16.50	Permanent Rock Anchors (Lump Sum)			[*B114/1*]
B115	E1/R2	Apr 00 11p/$5.50	Precast Concrete Members (Not Pretensioned)	B80		
B150	E2/R1	Apr 00 10p/$5.50	Erection of Pretensioned Precast Concrete Members	Q, B110		
B152	E2/R2	Apr 00 22p/ $11	Incrementally Launched Prestressed Concrete Girders	B80, B113, B281		[*B152/1*]
B170	E3/R3	Aug 03 13p/$5.50	Supply and Installation of Void Formers			
B200	E2/R1	May 00 30p/ $11	Fabrication of Major Steel Structural Members	B204, B220, B260		
B202	E2/R1	May 00 8p/$5.50	Supply of Steel Bridge Girders by the Principal	B200, B220		

NOTE 1: The listed specifications must be included in the Tender Documents.
NOTE 2: The relevance to the proposed works in the documents listed below must be reviewed and the relevant documents must be included in the Tender Documents.

Specification No. RTA..	Edition/ Revision (E../R..)	Date Pages/ Price	Title	RTA Specifications Referenced (RTA...) Mandatory (NOTE 1)	Optional (NOTE 2)	Comments [*Annexures to be Completed*]
B204	E1/R6	Aug 03 25p/ $11	Welding of Bridges and Other Road Structures			[*B204/1*]
B220	E2/R2	Jul 99 19p/ $11	Protective Treatment of Steelwork.			
B240	E2/R1	May 00 7p/$5.50	Supply of Bolts Nuts Screws and Washers			
B241	E3/R1	Jan 02 15p/ $11	Manufacture and Supply of Minor Steel Items		B220	
B242	E2/R1	May 00 10p/$5.50	Manufacture and Supply of Aluminium Railings			
B245	E2/R1	May 00 15p/ $11	Fabrication of Aluminium Structural Members		B261	
B246	E2/R2	May 00 10p/$5.50	Manufacture and Supply of Minor Aluminium Items			
B260	E2/R2	May 00 11p/$5.50	Erection of Structural Steelwork	B200		
B261	E2/R1	May 00 10p/$5.50	Erection of Structural Aluminium	B240		
B264	E2/R2	Jul 00 8p/$5.50	Erection of Barrier Railings and Minor Components			
B280	E3/R1	Aug 03 12p/$5.50	Unreinforced Elastomeric Bearing Pads and Strips	B284		
B281	E3/R1	Aug 03 10p/$5.50	Laminated Elastomeric Bearings	B284		
B282	E3/R1	Aug 03 22p/ $11	Confined Elastomeric (Pot Type) Bearings	B310		
B283	E3/R1	Aug 03 20p/$11	Confined Elastomeric (Pot Type) Stainless Steel Bearings	B310		
B284	E1/R1	Aug 03 11p/$5.50	Installation of Bridge Bearings		B150, B260	
B310	E4/R1	Aug 03 11p/$5.50	Compression Joint Seals			
B312	E3/R2	May 01 13p/$5.50	Cold Applied Elastomeric Joint Sealants			
B315	E3/R1	Aug 03 12p/$5.50	Elastomeric Strip Seal Expansion Joints	B241 or B246		
B318	E1/R0	Sep 02 12p/ $11	Bonded Metal-Elastomer Expansion Joints			
B341	E1/R0	Aug 03 14p/ $11	Demolition of Existing Structures	B30		[*B341/A*]
B344	E2/R1	Aug 03 17p/ $11	Bituminous Waterproof Membrane for Concrete Bridge Decks	R106 or R107, 3261, 3151	3252,3253, 3258.3259 3268,3269	[*B344/1*]
B345	E2/R2	Feb 03 8p/$5.50	Supply of Bridge Nameplates			Standard Drawings attached.

NOTE 1: The listed specifications must be included in the Tender Documents.
NOTE 2: The relevance to the proposed works in the documents listed below must be reviewed and the relevant documents must be included in the Tender Documents.

MATERIALS SPECIFICATIONS

Specification		Date/ Price	Title	Used in Specifications (RTA...)		Comments
No. RTA..	Edition (E...)			Mandatory (NOTE 3)	Optional (NOTE 4)	[*Annexures to be Completed*]
3051	E5	Jun 98 25p/ $11	Unbound and Modified Base And Subbase Materials For Surfaced Road Pavements	R38, R71		[*3051/1*]
3052	E4	Jun 98 22p/ $11	Material to be Bound (MTBB) for Base and Sub-Base Materials for Surfaced Road Pavements	R73		[*3052/2*]
3053	E3	Mar 98 7p/ $5.50	Quicklime	R73		
3054	E4	Nov 98 6p/ $5.50	Hydrated Lime	R73, R116, 3266		
3151	E9	Aug 03 14p/ $11	Cover Aggregate for Sprayed Bituminous Surfacing	R106, R107, R111, R113, B344	R82	[*3151/1*]
3202	E5	Apr 97 8p/ $5.50	Wax Emulsion Concrete Curing Compound		R22, R82	
3204	E2	Apr 97 8p/ $5.50	Preformed Joint Fillers for Concrete Road Pavements and Structures	R15, R83, R84, R132	R11	
3211	E2	Feb 03 15p/$11	Portland and Blended Cements	B80,B82, R53,R82, R83,R84 R116,R121, R123, 3266		
3251	E8	Oct 01 10p/$5.50	Cutter and Flux Oils			
3252	E9	Aug 03 40p/$16.50	Polymer Modified Binder	R107	R111,R113 R116,B344	
3253	E10	Aug 03 12p/$5.50	Bitumen for Pavements	R106 3266	R82, R107 R112,R113 R116,B344	
3254	E8	Oct 01 10p/ $5.50	Bitumen Emulsion	R50, R111, R113, R116, R178, 3266	R82, R112	
3256	E5	Oct 01 9p/ $5.50	Comminuted Scrap Rubber			
3258	E7	Oct 01 9p/ $5.50	Aggregate Precoating Agent (for Bitumen)	R106, R111, R113	B344, 3151	
3259	E8	Oct 01 9p/ $5.50	Bitumen Adhesion Agent (for Bitumen)	R106 3266	R116, B344, 3151	
3261	E8	Oct 01 11p/$5.50	Cutback Bitumen	R106, 3266, B344	R112	
3263	E3	Oct 01 8p/ $5.50	Hot Poured Elastomeric Joint Sealant for Roads			

NOTE 3: The Specification in column 1 must be included in the Tender Documents if the specifications listed below are included in the Tender Documents.

NOTE 4: The relevance to the proposed works of the Specification in column 1 must be reviewed and if relevant it must be included in the Tender Documents.

RTA CONDITIONS OF CONTRACT AND QUALITY ASSURANCE SPECIFICATIONS LIST

Specification		Date/ Price	Title	Used in Specifications (RTA...)		Comments
No. RTA..	**Edition** (E...)			**Mandatory** (NOTE 3)	**Optional (NOTE 4)**	**[*Annexures to be Completed*]**
3266	E4	Feb 03 22p/$11	Coldmix Asphalt			[*3266/1*] Refers to specifications RTA 3054, 3211, 3253, 3254, 3259,3261
3268	E4	Oct 01 10p/$5.50	Aggregate Precoating Agent (for Polymer Modified Binder)	R107	B344, 3151	
3269	E4	Oct 01 9p/ $5.50	Bitumen Adhesion Agent (for Polymer Modified Binder)	R107, R116	B344, 3151	
3351	E3	Apr 97 10p/$5.50	Road Marking Paint	R141		
3352	E1	Sep 99 9p/ $5.50	Fluorescent Plastic Traffic Cones			
3353	E5	Apr 97 6p/ $5.50	Glass Beads	R141		
3354	E4	Jul 97 10p/$5.50	Adhesives for Raised Pavement Marker Installation	R142		
3356	E2	Apr 97 9p/ $5.50	Water Borne Road Marking Paint	R141		
3357	E3	Aug 03 9p/$5.50	Thermoplastic Road Marking Material		R141	
3358	E2	Apr 97 8p/ $5.50	Aerosol Roadmarking Paints			
3359	E2	Apr 97 6p/ $5.50	Profile Thermoplastic Road Marking Material		R141	
3360	E2	Apr 97 10p/$5.50	Two Part Cold Applied Road Marking Material		R141	
3385	E2	Apr 97 11p/$5.50	Barrier Boards			PIC45.WMF is included
3400	E5	Feb 00 44p/$16.50	Manufacture and Delivery of Road Signs	R143		
3411	E1	Sep 99 9p/ $5.50	Supply of Guide Posts - Timber		R131	
3412	E1	Sep 99 11p/$5.50	Supply of Guide Posts – Non-Timber		R131	
3421	E1	Aug 99 16p/ $11	Illuminated Flashing "Stop Children Crossing" Bat			
3552	E1	Mar 97 6p/$5.50	Drainage Pipe (Corrugated Perforated Plastic)	R33, R38	R32	
3553	E1	Mar 97 6p/$5.50	Seamless Tubular Filter Fabric		R32	
3555	E2	Mar 97 11p/$5.50	Drainage Pipe (Slotted Fibre-Reinforced Concrete)	R37	R32	
3556	E1	May 97 7p/ $5.50	Strip Filter (Geocomposite Plastic)	R33, R38	R32	[*3556/1*]
3851	E2	Mar 02 12p/$11	Steel Tapered Lighting Columns	R151		

NOTE 3: The Specification in column 1 must be included in the Tender Documents if the specifications listed below are included in the Tender Documents.

NOTE 4: The relevance to the proposed works of the Specification in column 1 must be reviewed and if relevant it must be included in the Tender Documents.

QA SPECIFICATION G1

JOB SPECIFIC REQUIREMENTS

RNIC-QA-G10

VERSION FOR: ***SH 12 - Replacement of Gwydir River Overflow Bridges***
DATE: ***May 2002***

CONTENTS

SPECIFICATION PART G1

JOB SPECIFIC REQUIREMENTS

1 OVERVIEW OF WORK IN CONTRACT

Work under this Contract generally involves the detailed design and construction of new bridges and associated road approaches to replace existing timber bridges at the following sites:

TABLE 1 – LOCATION OF REPLACEMENT BRIDGES

STRUCTURE NAME	LOCATION
2766	SH 12, Gwydir Highway, 59km East of Moree, R[12, 0570, A1, 1.444]
2768	SH 12, Gwydir Highway, 58km East of Moree, R[12, 0570, A1, 1.958]
2769	SH 12, Gwydir Highway, 59km East of Moree, R[12, 0570, A1, 2.454]

Additionally, line marking, signage and road furniture within, and, as dictated by configurations within the entire extent of the Limits of Work, will need to be assessed and upgrading as determined by the detailed design and the Specification. The Limits of Work are defined in the RTA Concept drawings (Annexure G1/8) and are nominally from Chainage 0 to 1400m.

2 GENERAL DESCRIPTION OF BRIDGE SITES

Indicative historical drawings of the structures are included for the Contractor's information in Annexure G1/7. This information is not intended to be definitive as maintenance and replacement work has been undertaken during the past 70 years that may have changed some details. It shall be the responsibility of the Contractor to establish details, including the condition of the structures that may affect his method of work.

The new vertical alignment on all bridges is higher than the current bridge levels. The waterway area on each bridge has been reduced by approximately 50% from existing and all conforming designs shall have a minimum waterway area equal to or greater than the documented value on the RTA Concept Design for each crossing.

The new bridge alignments are shown on the RTA Concept Design Plans that are included in Annexure G1/8.

2.1 STRUCTURE 2766 (GWYDIR RIVER OVERFLOW BRIDGE 1)

The existing timber girder bridge was constructed in 1929 and comprises four spans. It is 36.5m long and 6.5m wide.

The bridge approaches are affected by floods and the bridge itself becomes submerged.

2.2 STRUCTURE 2768 (GWYDIR RIVER OVERFLOW BRIDGE 2)

The existing timber girder bridge was constructed in 1929 and comprises four spans. It is 33.9m long and 6.5m wide.

The bridge approaches are affected by floods and the bridge itself becomes submerged.

2.3 STRUCTURE 2769 (GWYDIR RIVER OVERFLOW BRIDGE 3)

The existing timber girder bridge was constructed in 1929 and comprises two spans. It is 16.4m long and 6m wide.

The bridge approaches are affected by floods and the bridge itself becomes submerged.

3 SITE INFORMATION

3.1 DRAWINGS, SURVEY DATA AND REPORTS

Survey data is available to Tenderers in electronic form for the establishment of bridge centrelines and for the development of contours along the waterway and around the site of the proposed bridges.

The contractor shall be responsible for the establishment of survey reference stations at each site. All levels used in undertaking works shall be related to the appropriate benchmark for each site.

All reduced levels shall refer to Australian Height Datum (AHD). All Cartesian co-ordinates shall refer to the Map Grid Australia (MGA).

The RTA concept design documentation including drawings, reporting and existing structural drawings have been provided to the contractor at time of tender .

The concept drawings identify the locations of known utility services.

In addition, several other reports compiled during the concept design process have been provided to the Contractor at tender for information purposes and these are detailed in the Notice to Tenderers. These reports include:

- Project Environmental Management Plan, *SMEC Australia, May 2002*
- Occupational Health and Safety Management Plan, *SMEC Australia, May 2002*

- Risk Management Plan, *SMEC Australia, May 2002*

The Contractor shall use items identified within the PEMP, Occupational Health and Safety Management and Risk Management Plans, as the basis for the development of the relevant constructional plans required under the Scope of Works that will be used during the execution of the Works.

3.2 INVESTIGATIONS

Available geotechnical information has been provided to Tenderers (refer Notice to Tenderers).

The Contractor may conduct whatever additional geotechnical/site investigations including survey, which they deem necessary, to confirm design assumptions and for assurance that construction can proceed in accordance with the Contractor's Design Documentation (refer Conditions of Contract for Major Roadwork's and Bridgeworks Clause 65). Note that there is no provision for latent conditions in the Contract.

The cost of additional investigations, design reviews and design changes, together with the costs resulting from any design changes including impact on construction and consequential effect on time and cost, shall be borne by the Contractor and be factored into the Lump Sum total for the Works.

All costs arising from insufficient investigations or associated with additional investigations shall be borne by the Contractor and no claim for extra costs arising from a cause of insufficient investigation shall be entertained by the principal.

4 WORK TO BE CARRIED OUT BY THE CONTRACTOR

The Contractor shall carry out all activities, including temporary works, necessary to construct the new bridges and road approaches within the Limits of Work, including, but not necessarily limited to:

Any additional investigation for design and construction.
Design of bridge structures.
Design of approach roadworks, including but not be limited to:

- Realignment of approaches
- Widening of road formation where necessary
- Sidetracks including temporary pavement construction, surfacing and traffic management.

Upgrading linemarking, guideposts and road furniture.
Documentation for construction.
Documentation of permanent pavement layouts using profiles designed by the Principal.
Giving notices, obtaining permits, payment of fees.
Negotiation with effected stakeholders eg temporary access arrangements property issues.
Any additional REF's & REF Decision reports, approvals, licenses and/or permits.

Ensuring that designs satisfy the requirements of the relevant authority eg local Council, EPA, Workcover & Dept of Land & Environment.
Site establishment, site clearance (including trees & vegetation necessary for the works) and setting out the work.
Demolition and disposal of existing bridge materials (refer RTA B341)
Construction of bridgeworks, including approach slabs (and any running surfaces).
All necessary earthworks including embankment design to control settlement, placement of material and disposal of unsuitable material.
Construction of approach roadworks, including traffic safety barriers.
Bituminous surfacing on approaches.
Abutment protection including trimming and preparation of surfaces.
Provision of a permanent and temporary (during construction) livestock crossing under Structure 2769.
Relocation of existing signs
Environmental protection measures during construction.
Provision and maintenance of sidetracks & detours, including temporary traffic controls and tie-ins to the main road.
Demobilisation, clean up, restoration and revegetation of each site.
Preparation of "Works-as-Executed" drawings.

The Contractor shall also design, supply, and install and/or construct all items not listed above that are necessary for the Works to achieve the specified requirements.

5 WORK TO BE CARRIED OUT BY OTHERS

The following work shall be undertaken by others while the bridges are being constructed:

Maintenance of existing timber bridges, while they are available to carry traffic prior to their demolition.

Maintenance of main road pavement within the Limits of Work where pavement failure is not as a direct consequence of the works, as directed by Superintendent.

6 DESIGN

6.1 GENERAL

The Contractor shall be fully responsible for the design and design development of the Works and must ensure that the works comply with all the requirements of the Contract and are fit for their intended purpose.

The designs shall be carried out under the supervision of **and certified** by Professional Engineers who are eligible for corporate membership of the Institution of Engineers, Australia, have attained NPER III Registration, who have extensive experience in the design areas undertaken and are acceptable to the RTA.

The designs shall be **externally verified and certified** by similarly qualified and experienced Professional Engineers who have not been involved in the detail design. The external design verifier shall carry out alternative or independent calculations to confirm that the final designs meet the Principal's design requirements and shall also provide a certificate of compliance of the designs with this design brief at the time of submitting the final drawings.

With respect to the bridge design, in conjunction with the proof check, the design verifier or an independent draftsperson experienced in bridge drawings shall check the Design Drawings, including full dimensional check and review of notes for consistency.

A detailed check of the design and Drawings will not be made by the Principal and acceptance of the Drawings by the Superintendent shall not absolve the Contractor from responsibility for the design. The contractor shall account for any review comments made by the independent verifier and/ or the Principal with respect to the design.

During construction the Contractor shall inform the Superintendent of proposed design changes in a timely manner. These changes shall be verified and certified in accordance with the relevant Specification before incorporation into the Works.

6.2 QUALITY SYSTEM FOR DESIGN

The Contractors design subcontractor shall apply ISO 9001 Clause 4.4 to control the design process.

The design subcontractor shall develop a Design Management Plan (DMP) covering all aspects of design work, and shall provide adequate assurance to the Superintendent that all works will meet the quality requirements. The Contractor shall submit the design subcontractor's DMP to the Superintendent within 21days of the contract award.

The design subcontractor shall promptly upgrade the DMP when any deficiencies are identified, and forward any revisions to the Superintendent.

6.3 DESIGN REQUIREMENTS AND CONSIDERATIONS

6.3.2 Bridge Design

The Contractor shall note that concept bridge designs have been undertaken in close consultation with the RTA. The Contractor may use the RTA Concept Design toward developing the conforming Revised Concept Design which is part of the Contract Works.

The Contractor may develop an alternative arrangement for any or each of the structures, subject to the issues and conditions specified in this Specification and the Concept Options Report (CDR01) including, waterway requirements, provision for livestock passage, environmental considerations etc. and this is addressed in the Conditions of Tendering.

Table 2 highlights key design parameters.

TABLE 2 – SUMMARY OF DESIGN FEATURES FOR REPLACEMENT BRIDGES

Bridge Site	Min. *clear* width between barriers	20 Year AADT	Design for Submerged Conditions	Barrier Type	Crossfall
Structure 2766	10.5m	2000	Yes	Level 2	3% Normal
Structure 2768	10.5m	2000	Yes	Level 2	3% Normal
Structure 2769	10.5m	2000	Yes	Level 2	3% Normal

Additional design requirements are listed below.

(Note - Where reference is made in Specification G1 to an "Article" followed by a number, such reference is to the appropriate Article in the Australian Bridge Design Code.)

1. Unless otherwise provided in this Specification, the design of the bridges shall be in accordance with the Australian Bridge Design Code 1996.

2. Comply with all relevant Chief Engineer Bridge circulars and Bridge Policy Ciriculars from RTA Bridge Policy Manual.

3. Does not reduce the effective waterway area under the existing bridges by more than detailed on the approved concept design.

4. In addition to AUSTROADS traffic loading, design bridges for the following special loadings:

    - SM1600

5. Design bridges for full submergence to RTA Guidelines (Technical Directions 90/19), where nominated in Table 2.

6. Provide a smooth (hydraulically efficient) deck soffit and keep the thickness of the deck and kerbs as small as practical in order to minimise obstruction to the flow of floodwaters and minimise entrapment of debris.

7. Provide traffic barriers in accordance with Table 2, consisting of a castellated kerb and aluminium two-rail barrier. Provide Thrie beam between bridge end and the W-beam approach safety barriers. Provide the approach safety barrier with appropriate terminations.

8. The carriageway width between inside faces of traffic barriers is shown in Table 2.

9. No footways are required.

10. Each bridge shall have spans that will adequately cope with the debris flow of the waterway.

11. No provision for public utilities is required across the new bridges.

12. The vertical alignment on the approaches and finished deck levels for the new structure are not to be lower than the current road and bridge deck levels.

13. All structural components of the Works shall be designed for an operating life of 100 years unless stated otherwise.

14. The bridge decks shall have bituminous waterproof membrane wearing surface. The out of flatness of the deck surface in any direction shall not exceed 5mm in 3m. Details for the bituminous waterproof membrane-wearing surface are shown in Annexure G1/3.

15. Requirements for joints in CBE's Circular 99/01 refer to 'permanent" joint arrangements where rotational, vertical or horizontal movement can occur. Joints with elastomeric shear keys are regarded as 'permanent' joints.

    Interfaces which are locked together during construction (eg by bolting, post-tensioning, shear keys, concrete infill etc) are regarded as construction joints, for which CBE's Circular 99/01 does not apply.

16. Raised pavement markers together with linemarking chevrons shall be used to delineate median areas for any longitudinal deck joints (refer CBE's Circular 99/05).

17. Embedment of piles below the existing ground surface, accounting for geotechnical conditions and scour requirements shall be nominally:
    - 6m at Structure 2766
    - 13m at Structure 2768
    - 6m at Structure 2769

18. The bridges shall be designed with approach slabs having a minimum length of 6m and supported by the bridge abutment at one end. A steel protection angle shall be provided at the end of each approach slab on the approach embankment.

19. Concrete bearing on concrete, such as approach slabs on headstocks is **not** acceptable. Provision shall be made for some rotation capability by use of elastomeric bearing strips or similar.

20. The design shall be prepared with due regard to all relevant statutory requirements, EPA requirements and the requirements included in RTA Specification G35.

21. The design for each bridge shall be prepared to minimise the duration of construction as well as to permit safe construction and long term use of the bridges.

22. Abutments and approach embankments shall be designed by an experienced geotechnical engineer to satisfy embankment stability, differential settlement and available fill material requirements.

23. The new bridge shall be designed to provide a pleasing appearance that fits in with the heritage landscape.

Durability standards and guidelines for the various materials and components used in all permanent structures shall, as a minimum be in accordance with the Australian Bridge Design Code and amendments, and with the following additional requirements;

24. The strength of concrete to be used in the bridges shall not be less than 32 MPa, except for blinding, mass and unreinforced concrete;

    In areas of severe exposure (AUSTROADS classification B2 and above) secondary cementious material such as blast furnace slag, flyash and/or silica fume shall be used.

    Concrete shall be cured to attain the durability requirements.

25. Concrete mixes shall be designed for the specified design life. Concrete mix design shall comply with Specification B80 and include, but not limited to, the curing regime, placement, finishing and prevention of deleterious effects of alkali aggregate reaction, carbonation, wear, delayed ettringite formation, acid and sulphate attack;

26. Except where suitable stainless steel is used, any exposed steelwork in the superstructure shall be protected by high performance coatings designed for a minimum maintenance free life at least 10 years. Coatings shall be chosen to be soundly adhered to the steel substrate after 10 years, and shall be suitable for overcoating without removal. Lead based coatings, chlorinated rubber based coatings and alkaloid base coatings shall not be specified. Unless otherwise agreed with the

Superintendent, the coating shall be system 2 of Specification B220, Annexure B220/2;

Steelwork used in the substructure shall either be protected by high performance coatings (as nominated above) or shall be designed with additional "sacrificial" thickness to allow for corrosion over 100 years;

27. Attention shall be given to deterioration of inaccessible elements. The design shall ensure that any such element will perform satisfactorily without maintenance;

28. Epoxy coated reinforcement shall not be used.

29. Bridge name plates shall be provided on each bridge, in accordance with the Bridge Design Policy Manual;

30. Design of temporary structures for in-situ concrete members shall be in accordance with AS3610-1995 "Formwork for Concrete";

31. Abutment protection shall be 170mm thick rock-filled wire mattresses (or equivalent) on spill through embankments into the waterway up to the underside of the deck soffit, this includes the installation of geotextile underlay in accordance with R55 & R63;

32. Provision for livestock movement under structure 2769 during construction and post construction phase

6.3.3 Road Approaches Design

The geometric design of all bridge approaches shall be fit for the intended purpose for which it is required by the Principal. Refer also to the requirements of Clause 14.

1. Unless otherwise provided in this Specification, design of road approaches shall be in accordance with the Roads and Traffic Authority's Road Design Guide. The work specified or implied in this Contract shall be in accordance with the Authority's policies, standards and guidelines where they exist.

2. The road design shall be designed in accordance with the following minimum performance criteria:

Bridge ~~2766~~ ***2769***

Horizontal Alignment Design Speed	–	100 kph
Bridge Vertical Alignment Design Speed	–	100 kph
Road Approaches Vertical Alignment Design Speed	–	100 kph
Design vehicle	–	B-Double
Clear Zone	–	100 km/h

Bridge 2767 & ~~2769~~ ***2766***

Horizontal Alignment Design Speed	–	100* kph
Bridge Vertical Alignment Design Speed	–	100 kph
Road Approaches Vertical Alignment Design Speed	–	80 kph
Design vehicle	–	B-Double
Clear Zone	–	100 km/h

* With respect to Bridge 2767, the designer shall locate the bridge horizontally to accommodate the current 80 kph horizontal alignment and allow for future upgrade of the corner geometry to 100kph. The bridge width remaining fixed as for all bridges at 10.5m between parapets (refer RTA concept design).

The road approaches shall be designed in accordance with the typical sections (configuration) as shown in the ~~Concept Options Report~~ ***Annexure G1/8***.

3. . The Contractor shall allow for the road design to match into the existing road alignment, which presently, does not comply with current Road Design Standards for a 100km/h road alignment.

4. The road alignments shall be designed to provide a predictable road geometry that improves the safety of the road user.

5. Signposting and linemarking shall comply with the RTA Traffic Engineering Manual and RTA's Interim Guide to Signs and Markings. Signposting shall be positioned so as to be legible at the free operating speed of the road and takes into account the climatic conditions expected.

6. The Contractor shall consider the retention of trees in considering the design alignment. Trees falling outside the defined footprint of the bridges shall only be removed with agreement with the Superintendent.

7. Within the consideration of overall stability of the new approach embankments the detailed design shall account for the possible case, both in the use of materials and configuration, of a rapid drop in flood water level after the approach embankments have been partially or fully emersed for some period of time and the embankment material has become partially or fully saturated.

   This issue shall be addressed in detail in the Contractor's design reporting.

6.3.4 Design of Sidetracks

The design of the sidetracks shall be in accordance with Clause 13 and Specification G10.

6.3.5 Road Safety Audit

The Contractor's road design consultant shall arrange for an independent Road Safety Audit Report of the detailed design in accordance with RTA's Road Safety Audit Manual and Ausroads AP-G03/02 requirements at the Revised Concept Design and Detailed Design Stages.

This is to demonstrate that the design and drawings for the Road Approaches adequately address the safety conditions for Stage 1 & 3 respectively and other requirements.

6.3.6 Progressive Review of Design by the Superintendent

The bridge design and approach roadworks design shall be submitted to the Superintendent at the following stages, for review against this brief:

a) Concept finalisation prior to commencing detailed design

HOLD POINT	
Process Held:	Detailed design.
Submission Details:	Finalised design concept drawings and supporting information including Concept Design Report and draft Specifications
Release of Hold Point:	The Superintendent shall consider the submitted documents prior to the release of the Hold Point.

b) At completion of detail design for each bridge

HOLD POINT	
Process Held:	Bridge construction, including manufacture of any components.
Submission Details:	Design output in accordance with Clause 9, including 100% Detail Design Report and Specifications. Including Road Safety Audit results.
Release of Hold Point:	The Superintendent shall consider the submitted documents prior to the release of the Hold Point.

Further work shall not proceed until the Superintendent has formally released these HOLD POINTS. These milestones shall be incorporated into the design/ construction program.

The Contractor shall review comments or concerns made by the Principal and/ or the independent safety audit about the design and incorporate agreed changes into the detailed design before issue of the For Construction drawings.

7 NOT USED

8 NOT USED

9 DESIGN OUTPUT

9.2.9.1 DRAWINGS

Bridge Design Drawings shall comply generally with the requirements of RTA's Structural Drafting Manual and AS 1100.101 Section 2, with a minimum lettering height of 2.5mm. Bar shape notations as per RTA standard drawing BAR SHAPES DIAGRAM shall be used on the Design Drawings to define reinforcement shapes.

Design Drawings shall be produced electronically to comply with the RTA *Guide for the Organisation of CADD Data and the Presentation of CADD Drawings for Bridgeworks,* and also in accordance with the RTA *Data Exchange Policy.*

The plan registration number to be used for the new bridges and road approaches are as follows:

Bridgeworks - 0012.512.BC.2002, 2003 or 2004

Approach Roadworks - 0012.512.BA.2002, 2003 or 2004

for Bridges 2766, 2767 and 2769 respectively.

Bridge drawings shall included reinforcement and connection detailing, with particular attention to the arrangement of reinforcement, ducting, conduits and other inclusions at intersection points and points of conflict.

Road Approach drawings shall include, but not be limited to, location sketch, plan view, longitudinal section (with existing and new levels), typical cross section showing widening and pavement details, cross sections at 10m intervals, control lines, drainage details, pavement layout plans, erosion and sedimentation controls, location of roadside furnishings, roadmarking details, survey control information and Contractors compound, storage, stockpile and borrow sites.

Required design format:

- All MOSS Design: Suitable for the RTA System
- All drawings created or enhanced using AutoCAD or Microstation: Format acceptable to the RTA.

Two A3 paper copies of the Drawings shall be submitted to the Superintendent for review at each HOLD POINT (see Clause 6.4). The Superintendent will consider the Drawings and advise the Contractor within ten working days after their receipt whether they are satisfactory or require additions and/or amendments. If the Superintendent requires additions and/or amendments to the Drawings, the Contractor shall make such alterations and submit two revised copies to the Superintendent for acceptance. The provisions of this clause shall apply

to such revised copies and no extension of time will be considered due to any delays caused to the Contractor due to the need to submit revised drawings.

Acceptance of the Drawings by the Superintendent for the purpose of the Contract will not relieve the Contractor of its design responsibility and the Principal shall retain its rights of action against the Contractor for any inadequacies in the design of the Works.

Following acceptance of the Drawings, the Contractor shall provide as part of the Contract, the following:

- Three hard copies of each final "For Construction" Drawing, A1 size.
- Five hard copies of each final "For Construction" Drawing, A3 size.
- One copy of each final Construction Drawing electronically and on reproducible film.

All "For Construction" Drawings shall be signed as "Approved" by the Project Director nominated in the design subcontractor's Design Management Plan (see Clause 6.2) to certify that they have been prepared by competent professional staff, checked for accuracy and compliance with relevant regulations and the requirements of this Brief.

9.2 DESIGN REPORTS

The Contractor's structural design consultant shall prepare a Structural/ geotechnical Design Report for each bridge that includes, as a minimum, the following:

- Design methods used, material properties and load factors adopted, critical load combinations and assumptions used, resistance assumed under critical load combinations, long term serviceability bearing pressures, differential settlement issues and the ultimate bearing pressures for foundations for both bridge and embankment designs.
- Effective waterway area provided at each site
- Environmental protection measures.
- Contain certification that the design and outputs have been verified and comply with the appropriate codes
- Methods and sequence of construction, including intended material sources and use.
- Any other relevant information
- Maintenance schedule of materials/items used

The Contractor's road design consultant shall prepare a Road Design/ pavement Report for the road approach works that includes, as a minimum, the following:

- Road design related calculations
- Design criteria and design guides adopted
- Safety audit results
- Details of all identified issues, considerations and justification for any critical decisions
- Provision for traffic
- Construction staging
- Pavement - design calculations for sidetracks and temporary pavement and including intended material sources and use for all pavements.

These reports shall be set in such a way as to facilitate any subsequent analysis of the structure in respect of, for example, abnormal loading conditions or ground settlement.

Structural/geotechnical and Road Approach/ pavement Design Reports shall be submitted to the Superintendent with the Contractor's Revised Concept and"100%" design Drawings (Clause 9.1). The reports shall be finalised and reissued with the "For Construction" drawings.

9.3 CONSTRUCTION SPECIFICATIONS

The Contractors design subcontractor shall compile a set of Construction Specifications (or an agreed recognised equivalent) for all aspects of the work which shall be used by the Superintendent for the supervision of construction of the bridges and associated road approaches.

The Construction Specifications shall be based on the RTA model construction specifications.

The Contractor's design subcontractor shall modify the model RTA specifications and draft new specification clauses, if needed, to cover any specific construction issues which are not addressed by the model specifications, including environmental and/or OHS&R impacts which need to be addressed by the Construction Specifications.

Unless otherwise specified the applicable issue of a reference document, except for RTA specifications, shall be the issue current at the date one week before the closing date for tenders.

Clauses in RTA model specifications which refer to measurement and payment shall not apply for this lump sum Contract.

A list of RTA specifications that are required to be submitted by the Contractor's design sub-consultant in accordance with the submission programme is included in Annexure G1/2. This list is based on the concept design and may require adjustment depending on the Contractor's proposed design.

The final list of specifications to be submitted by the Contractor's design sub-consultant will be subject to approval from the Superintendent.

Specification Submission Programme

In accordance with Clause 6.4 of this Specification, the Contractor's design sub-consultant shall submit to the Superintendent, for review, two (2) copies of:

- Draft set of Specifications to be submitted with the Revised Concept Design Report
- Advanced Draft set of Specifications to be submitted with Detail Design Report

In each case, the Contractor shall allow two (2) weeks for the review of these documents.

Three (3) sets of "For Construction" Specifications shall be submitted to the Superintendent with the "Issued for Construction" drawings.

The Superintendent will consider the Construction Specifications and advise the Contractor within ten working days after their receipt whether they are satisfactory or require additions and/or amendments. If the Superintendent requires additions and/or amendments to the Construction Specifications, the Contractor shall make such alterations and submit two revised copies to the Superintendent for acceptance. The provisions of this clause shall apply to such revised copies and no extension of time will be considered due to any delays caused to the Contractor due to the need to resubmit revised Construction Specifications.

When the Superintendent has accepted the Construction Specifications, the Contractor shall provide five bound copies of the final version to the Superintendent.

If during the course of the work, the Superintendent considers that additional standards or specifications are needed to adequately cover an area of work, the Contractor shall obtain or prepare such additional documents and submit them in accordance with the provisions of this clause. No work which relies on the additional standards or specifications shall commence, whether on a site or off site, until the additional standards or specifications have been accepted by the Superintendent.

10 QUALITY ASSURANCE

10.1 GENERAL

The Contractor shall implement a quality system complying with AS 9001 and RTA Specification Q5, to control the work under the Contract for quality.

The Contractor shall be responsible for ensuring that the Works comply with the specified requirements and shall maintain an effective and adequately documented system of Quality Management necessary to satisfy the Contract requirements. This requirement shall be met by the establishment and implementation of procedures which ensure that only acceptable work is delivered to the Principal.

10.2 STAFFING

The Contractor shall employ for the duration of the Works a site Quality Assurance Engineer, and sufficient staff to carry out the inspections, testing, etc. required in the approved Quality Plan. These staff shall have no involvement in other functions such as programming or managing the Works and shall be employed solely on quality assurance functions.

The Quality Assurance Engineer shall be directly responsible to the Contractor's senior management and shall have the authority and responsibility for ensuring that the Quality Plan is implemented and maintained.

The Quality Assurance Engineer shall have a minimum of 2 years of relevant experience in quality assurance work.

11 NOT USED

12 POSSESSION OF SITE

The Contractor shall not be granted possession of the work site until four (4) weeks after the Date of Acceptance of Tender, unless otherwise agreed with the Superintendent, to allow the Contractor to submit the following:

- Design & Construction Programme (including staging)
- First edition of Project Quality Plan
- First edition of Construction Environmental Management Plan (CEMP)
- First edition of Soil and Erosion Control Plan
- Project OHS&R Management Plan
- Project Risk Management Plan
- Traffic management plan

Notwithstanding the granting of possession of site, the Contractor shall not commence any work on the road until the Superintendent has released HOLD POINTS for submission of relevant documentation as required by the Specifications.

13 TRAFFIC CONTROL AND STAGING OF CONSTRUCTION

The Contractor shall be responsible for the design of an all weather traffic management system encompassing the Limits of Work. The system involves the design of road furniture and necessary sidetracks (including temporary pavement design) suitable to allow the construction of the bridges.

This clause shall be read in conjunction with the requirements of Specification G10.

The Contractor shall arrange for temporary speed zoning to restrict traffic to 40 kph through the construction site (refer Specification G10 Clause 1.7). In providing a safe work site, the Contractor shall take into consideration the number of heavy vehicles and the speeds at which vehicles sometimes travel along the highway.

Before commencing demolition of an existing bridge structure the Contractor shall construct a sidetrack adjacent that structure to facilitate and maintain a through traffic regime through the work site (refer Specification G10 Clause 1.3).

The sidetracks shall be designed for a 60 kph design speed in accordance with the RTA Road Design Guide. The design, including safety barriers shall be undertaken in accordance with the requirements set out Clause 6, Specification G10 and Section 6 of the RTA Road Design Guide. The qualifications of the designer shall conform with the requirements of Clause 6.1. Sidetracks shall be designed for a design life as determined by the requirements of the Contractors construction program. One or more sidetracks may be in use at any one time during construction.

Sidetracks may be provided for either two-way or one way traffic flow with a minimum lane width of 3m with 0.5m wide shoulders. A verge with width 0.5m shall be provided to each side. The wearing surface width shall include treatment of the shoulders (refer RTA concept drawings).

When a single lane is used, traffic control shall be achieved by provision of an approved traffic signalling system (refer Specification G10 Clause 4.5.1) or as approved by the Superintendent.

The temporary pavement materials shall conform to RTA 3051N. The design in accordance with Clause 6 and 9, shall account for the expected traffic characteristics, intended materials to be used, intended life and the proposed maintenance regime.

A drainage culvert under all sidetracks shall be provided to avoid nuisance water and facilitate an unobstructed passage of water to downstream water features to satisfy Fisheries requirements.

Regard shall be taken in the design to the maintenance of existing tress. Prior to construction of any sidetracks, the Contractor shall seek approval from the Superintendent regarding the removal of any trees or similar vegetation.

Temporary "full road" closures for up to 30 minutes may be permissible, provided prompt reinstatement of access is made for emergency vehicles, if needed. Details of these closures must be schedule and documented in the Approved Traffic Management Plan. The Contractor shall give the Superintendent at least 5 working days notice on each occasion when a "full road" closure is to be implemented. The particular aspects of the plan shall include the provision of advisory signs 1-week before the closure. Temporary "full road" closures for more than 30 minutes is not permitted unless the prior written approval of the Superintendent has been obtained.

The Contractor shall obtain written approval from the Superintendent prior to the commencement of the removal of any sidetrack. Following approval from the Superintendent, the Contractor shall remove the sidetracks and undertake re-establishment of vegetation and landscaping works in accordance with Clause 14.5.

Traffic shall not be switched onto completed bridges until concrete in the deck and approach slabs have achieved the 28-day compressive strength.

14 ROAD APPROACHES

14.1 EARTHWORKS

Widening of approach embankments shall be undertaken by the Contractor in accordance with Specification R44 (refer to Clause 21) and using imported material as required, and using suitable material excavated from the existing formation for the works.

14.2 PAVEMENT

Road approach pavement designs have been undertaken for this Contract and the Contractor shall use these pavement designs in the production of pavement layout drawings in accordance with the requirements of the detailed road design and construction of pavement for the Work.

In developing the approach road alignment design for this project, the Contractor shall consider the application of the pavement profiles to his proposed road alignment configuration.

Table 4 below presents a pavement profile location and application schedule.

Table 4: Pavement Profile location and application schedule

Pavement Profile	Location	Application Description	Subgrade CBR
1	Zone 1	applied to areas between new and old abutment location	2%
2	Zone 2	applied to areas where difference between new and old road surface levels are greater than or equal to 100mm (nominal)	5%
		shoulder reconstruction and/or widening	5%
2 (Base Only)	Zone 3	applied to areas where difference between new and old road surface levels are between 30mm and 100mm (nominal)	5%
Spray Seal Only	Zone 4	applied to tie in areas from new to existing profile nominally 30mm between new and existing road level	

Specifications relevant to these pavement profiles are R71, 3051N, R44, R49, and R106.

Verge material shall be in accordance with the typical pavement cross-sections in Annexure G1/6.

Pavement widening and reconstruction shall include importation of material complying with RTA 3051N to replace the existing shoulder material to the edge of the bituminous seal and for the full width of the embankment widening. Placement and compaction of pavement material shall be undertaken by the Contractor in accordance with Specification R71.

Modifications to the RTA Model Specification R71 relating to Clauses 6.7 and 6.8 "Treatment of Pavement prior to placing wearing surface" and "Prime or Primer seal" respectively, are detailed in Annexure G1/6 and shall be incorporated when the Contractor compiles Specification R71 to account for his materials and method of work.

Details regarding spray seal requirements for these permanent approach roadworks are shown in Annexure G1/4. The pavement profiles that have been designed and are to be used in the construction phase of this project are attached in Annexure G1/6.

The Contractor shall remove the bitumen seal from the portions of the existing road formation which will be affected by constructed work in zones 1 to 3.

14.3 SURFACING

A 7mm primer seal on the embankment widening and reconstructed pavement area shall be undertaken by the Contractor using Class 170 bitumen, in accordance with Specifications R106 and RTA 3151.

14.4 SAFETY BARRIERS

Existing safety barriers not able to be reused in the works, shall be removed by the Contractor and delivered to the Yallaroi Shire Council works depot. Erection of the new safety barrier shall be undertaken in accordance with RTA Supplementary Drawings and Specification R132.

14.5 PAVEMENT MARKING

The Contractor shall remove the existing pavement marking, subject to approval by the Superintendent, during and after each construction stage. New pavement marking shall be undertaken in accordance with Specification R141.

14.6 REVEGETATION

The Contractor shall engage a recognised landscape professional, acceptable to the RTA to provide expert advice and design documentation to enable the re establishment of vegetation on areas disturbed by the Works in accordance with Specification R162 and R179.

The design shall include the use of a range of trees, shrubs and native grasses found in the area for revegetation.

Care shall be taken in the placement of potential hazards into clear zones.

The Landscape design shall be subject to the submission requirements of Clause 6 & 9. It is expected that the initial process for revegetation of new batters and other disturbed ground shall be undertaken by the Contractor using hydroseeding and straw mulch. An indicative vegetation schedule for this initial phase is included in Annexure G1/5.

All vegetation shall be maintained until the end of the Defects Liability Period. Any loss shall be promptly reinstated to the satisfaction of the Superintendent.

Payment for this work is deemed to be covered by Lump sum items generally unless specifically stated otherwise.

14.7 SIGNS AND GUIDEPOSTS

Existing signs, including the "Height Limiting" sensory signpost, shall be removed and relocated in accordance with Specification R143 and the detailed design requirements. Existing guideposts shall be removed and relocated in accordance with Specification R131.

Should the Superintendent consider that any of the existing signs or guideposts requires replacement, the Contractor shall be responsible for the supply, installation and erection of such features.

During construction, care shall be taken to protect the "Height Limiting" sensory signposts from damage. The Contractor shall ensure continuance of operation of the devices and agree alternative arrangements with the Superintendent during times of relocation.

Depending on the final location of each "Height Limiting" sensory signpost, the sign support structure may require upgrading to ensure correct operation.

15 ENVIRONMENTAL PROTECTION

15.1 PROTECTION OF THE ENVIRONMENT

All work is to be undertaken by the Contractor in accordance with Specification G35, so as to avoid nuisance and/or damage to the environment in accordance with all relevant Acts and Regulations and to the satisfaction of the Superintendent.

15.2 HERITAGE

Should any discovery be made during the course of works which may potentially have Aboriginal archaeological significance, it will be necessary to halt works until advice can be obtained from the NPWS and the Local Aboriginal Land Council. Should any non-indigenous relics be uncovered during the course of work, the *Heritage Act 1977* requires that excavation must cease until and excavation permit can be obtained from the Heritage Council.

15.3 WATERWAYS

During construction, the Contractor shall not obstruct any waterways except to the extent necessary for the construction of the Works.

The banks and bed of waterways shall not be disturbed except to the extent necessary for the construction of the Works and in consultation with the Department of Land and Water Conservation and NSW Fisheries.

Passage of flow through the work site shall be maintained at all times in a manner agreed with the Superintendent.

15.4 TEMPORARY EROSION AND SEDIMENT CONTROL

The Contractor shall plan and carry out the whole of the works to avoid erosion, contamination and sedimentation of the site and its surroundings and shall comply with RTA Specification R2 in relation to implementing effective erosion / sedimentation control measures.

The Contractor shall present to the Superintendent for approval, prior to possession of site, a Soil and Erosion Control Plan that identifies and presents control measures that are effective in achieving the requirements as outlined in this Specification. This plan shall be regularly reviewed and updated as necessary to reflect changes to the works. These updates shall also be submitted for approval. The environmental management plan shall act as an environmental manual for the construction activities.

Unless otherwise directed by the Superintendent temporary erosion control measures are to be removed and the affected area reinstated to a similar condition before commencement of works in accordance with R162, prior to the end of the Contract and all materials used therein removed from the work or disposed of to the satisfaction of the Superintendent.

Any damage resulting from the Contractor not observing these erosion/sedimentation control requirements shall be rectified by the Contractor at his cost and subject to the satisfaction of the Superintendent.

15.5 ALTERNATIVE FAUNA HABITATS

Before commencement of any work on site, the Contractor shall arrange for an experienced ecologist to survey and report on each bridge site with respect to the occupancy by bats or other native fauna and the provision of alternative habitat arrangements when the bridges are demolished.

All reasonable measures shall be taken to ensure that no protected fauna are harmed or placed at risk during the course of the construction activities.

Subject to approval by the superintendent, if any bat species are identified, the Contractor shall provide alternative bat roosting habitats at each identified site in the closest available location.

Relocation shall be complete before demolition of the bridges commences.

Payment for this work is deemed to be covered by Lump sum items generally.

16 DELAYS DUE TO WET WEATHER AND FLOODING

In the event of flooding of the construction site and subsequent inundation of the side tracks, which prevent traffic movement through the site for more than 6 hours , the Contractor shall be responsible for the detouring of traffic around the project site bypassing Gravesend township using either (a) via Palamallawa using Eden Forest Road, or (b) via Warialda and Moree for large flooding events.

The Contractor shall provide for the appropriate traffic measures and include details of the detouring arrangement and programme in the Traffic Management Plan prior to the use of any sidetracks. The proposed traffic detouring programme will be subject to the Superintendents approval.

Pay items for the execution of either alternative route/detour event in accordance with the approved Traffic Management Plan and directions by the superintendent are included in the Schedule of Prices.

All costs arising from delays to the completion of the Works due to wet weather and its consequences shall be borne by the Contractor.

The Contractor shall make every endeavour to reschedule construction activities for other bridges under the Contract, to minimise all wet weather or flooding delays to the Works over the full duration of the contract period. The Superintendent shall be entitled to take into consideration the Contractors endeavours to mitigate such delays when assessing claims for extensions of time.

17 CONTRACTORS WORKING AREA

The Contractor is responsible for establishing any working and storage areas as required by the Contractor. The Contractor shall locate working and storage areas to minimise impact on watercourses as well as dust and noise impacts on residents of neighbouring properties. The Contractor shall avoid highly erodible soils or areas subject to high frequency flooding. Preference shall be given to reoccupying previously established work sites or other highly disturbed areas where no clearing of native vegetation is needed and to minimise the spread of weeds.

If the Contractor proposes to establish any working and storage areas outside the road reserve, the Contractor shall undertake additional assessment of the environmental impacts associated with operating such working and storage areas (refer RTA G35).

Access points to the site compound and site shall be stabilised using suitable recycled or other materials to minimise the spread of mud onto the roadway and to suppress dust generation. The Contractor shall be responsible for maintenance of these accesses and the compound site during the contract and removal and restoration of the area once the contract is completed.

Additional requirements for the Contractor's facilities are included in Specification G2 Clause 7.

The area available (or as otherwise agreed with the Superintendent) to the Contractor for use as a storage and working area on the site is shown in the Approved Concept Design drawings.

18 OCCUPATIONAL HEALTH AND SAFETY AND RISK MANAGEMENT

The Contractor shall prepare and implement separate or combined Project OHS&R Management Plan/s for each site in accordance with Specification G22 and the NSW Government OHS&R Management System Guidelines (3rd Edition).

Preliminary OHS&R and Risk Management Plans for this project haves been prepared and are included in the Concept Options Report. The Contractor shall use items identified within these plans in the development of the OHS & R plans during the constructional phase of the project.

Attention is directed to the possibility that painted handrails and kerbs on the existing bridges may contain red lead paint undercoat. It is now not possible to identify the red lead. Hence removal and disposal of handrails and kerbs shall be treated as they contain red lead and address this in the Project OHS&R Management Plan.

Copper chromium arsenate (CCA) or creosote treated members may be present on site. It is the Contractors responsibility under this Contract to inform himself of the possible presence of treated members and address this in the Project OHS&R Management Plan.

The Contractor shall prepare a Risk Management Plan that covers the whole project life from design through to the end of construction.

In preparing the Risk Management Plan the Contractor shall as indicatively consider, but not be limited to, the following potential exposures:

Natural Events

Earthquake, fire, flood, lightning, wind, weather, etc.

Human Factors

Theft, sabotage, malicious damage, arson, extortion, accident, motor accident, personal injury, etc.

Political and Social

Community response, policy change, taxation, legislative change, etc.

Systems

Communications, network, hardware, software, etc.

Contractual

Tendering, negligence, damages and claims, insurance and indemnities, delays, etc.

Commercial and strategic

Competition, market demand, technological change, etc.

Economic and financial

Material costs, interest, availability, etc.

The Contractor shall submit the OHS&R Plan/s to the Superintendent within four (4) weeks from the Date of Acceptance of Tender, unless otherwise agreed with the Superintendent.

The Contractor shall review the plans on a regular basis and update as necessary to reflect construction and other conditions. Not withstanding other reporting requirements for the plans, the superintendent shall be informed and provided details of any changes in a timely manner.

19 ABORIGINAL EMPLOYMENT STRATEGY

There is no requirement in this Contract to implement an Aboriginal Employment Strategy.

20 MATERIALS SUPPLIED BY THE PRINCIPAL

The Principal will not provide any materials for the Works.

21 DISPOSAL OF EXCESS MATERIALS

The Contractor shall be responsible for arranging suitable locations to spoil excavated or cleared material, concrete rubble or the like.

Spoil is surplus material from excavations under the Contract which is not required to complete the Works as specified, or material from excavations under the Contract whose quality renders it unacceptable for incorporation in the Works.

Disposal shall be to re-use in other construction sites or to approved landfill areas acceptable to Yallaroi Shire Council. All fees and other costs associated with the disposal of excess materials shall be borne by the Contractor.

Where there is surplus material the Superintendent may authorise that flatter batter slopes be provided on embankments which have not been commenced, and/or authorise that the excess material be used in the uniform widening of embankments, the surface of which shall be shaped so as to provide a tidy appearance and effective drainage. The surplus material shall be spread and compacted as specified in Specification R44, Clause 5.5 and Clause 9 respectively for material in embankments.

Under this contract Specification R44, Clause 6 shall be excluded.

Timber salvaged from the demolition of existing bridges shall become the property of the Contractor and shall be removed from the site and legally disposed unless directed otherwise by the Superintendent.

The timber is likely to contain toxic residues and shall not be burnt.

The Contractor shall provide written confirmation to the RTA of the manner of disposal of any CCA treated timber. The Contractor shall supply a written warning to any 3rd party who

receives the CCA treated timber that it shall not be burned, or, given its toxic nature, disposed of inappropriately. The Contractor shall supply written evidence that this warning has been acknowledged by the receiving party.

Refer also to the requirements of Specification BG341 Clauses 2.3 and 3, and Specification G35 Clause 6.17.

Demolition of the existing timber bridges shall be in accordance with RTA Specification B341.

The use of explosives in the works shall not be permitted.

22 BORROW AREAS AND QUARRIES

The Contractor shall be responsible for obtaining any permits required for entry on land and for the payment of any royalty for materials imported to the site from borrow areas or quarries.

All supplies of locally sourced extractive road making materials for the project shall be obtained from sources approved as extraction operations. Certified evidence of environmental approval of these materials shall be provided to the RTA if requested.

The Contractor shall also comply with any requirements of the Environmental Planning and Assessment Act, the local Council, land owners and the NSW Department of Land and Water Conservation, as appropriate. Any costs involved in opening up, maintaining or restoring borrow areas or quarries shall be borne by the Contractor.

The Contractor shall provide the Superintendent with details of the proposed locations, quantities and types of material, before delivering imported material to the site.

23 CONTRACTORS SITE REPRESENTATIVE

The Contractor shall provide a suitably qualified Project Manager on the site at all times during which any activities relating to the execution of the work under the Contract are taking place. The minimum qualifications for the Project Manager shall be two years proven and demonstrated contract management experience including programming of works, and engagement and management of subcontractors on similar sized works.

24 COMMUNITY LIAISON

24.1 GENERAL

The Contractor shall be responsible for advising the local community of construction activities which could directly affect the community. Prior to releasing such advice, the Contractor shall give the Superintendent at least two weeks notice of the advice. The Contractor shall nominate a contact person and their telephone number for community enquires about operational

matters relating to construction activities. All other enquires from the public shall be referred to the Superintendent.

24.2 ADJACENT LANDOWNERS/OCCUPIERS NEGOTIATIONS

The Contractor shall be responsible for informing and negotiating with adjacent land owners with respect to any requirements for the temporary relocation of property fences associated with any aspect of construction, including any issues associated with property access.

The Contractor shall be responsible for the undertaking of the removal, relocation and erection of existing property fences to new temporary locations during the construction phase for these Works. The Contractor shall also be responsible for reinstating any temporarily relocated fences to their original position during rehabilitation of each site by the Contractor.

25 LIVESTOCK PASSAGE

The Contractor shall be responsible for negotiation with all affected parties with respect to the requirements and provision of a livestock passage through the work site, in the vicinity of Structure 2766.

The livestock movement passage shall allow for the movement of livestock during the construction and post construction phases. The Contractor shall be responsible for negotiation and agreement with the livestock owner for suitable means of passage during the various phases of the Works.

The Contractor shall notify the livestock owner by written notice at least two days prior to the intention to undertake any construction activities which may in any way, affect or prohibit the safe movement of livestock through the site when the agreed arrangements would be triggered.

The Contractor shall remove any temporary livestock passage works on completion of the works under this Contract.

26 COORDINATION AND REVIEW

The Superintendent will convene regular project co-ordination meetings to review progress and consider any issues relating to this project. The Contractor shall be represented at these meetings by at least the Contractor's Project Manager and construction supervisor.

The Contractor shall prepare and distribute one week prior to each project co-ordination meeting, a report on the following:

- Progress in relation to construction programme, achieving milestones and date for completion
- Quality status, conformance results, non-conformance and corrective action close-outs
- Effectiveness of environmental control measures
- Progress payment claims, work completed but not claimed, plus cash flow forecast for next two months

- Any variations or extension of time claims (current and proposed)
- Traffic control and construction staging
- Community issues
- Potential delays and construction problems

Project Co-ordination meetings will normally be held monthly in the second week of each month.

The Superintendent or the Superintendent's duly authorised representative shall be chairman of the meeting and shall arrange for the recording of minutes. Within one week of the meeting the Superintendent shall issue to the Contractor a copy of the minutes. Within three days of issue of the copy of the minutes the Contractor shall notify the Superintendent of any item from the meeting which in its opinion has not been correctly recorded. The agreed minutes shall be confirmed at the next Site Meeting held.

27 SUPERINTENDENTS ACCOMMODATION

The Superintendents Accommodation shall be provided in accordance with Specification G4.

28 WORK AS EXECUTED DRAWINGS

The Contractor shall, throughout the duration of the Contract, maintain an up to date full size set of Drawings for the Works, which show the work-as-executed details as construction of each part of the Works is completed.

As part of the Contractor's obligations to achieve practical completion of each bridge (under Clause 65.2 of the Conditions of Contract), the Contractor shall submit to the Superintendent one full size set of Drawings amended by the Contractor in RED to show in detail the work-as-executed condition of that bridge. Amendments necessary to clearly depict work-as-executed details shall be carefully and accurately prepared.

The Contractor shall ensure that the completed work satisfies the requirements of Clause 6.1 and shall provide certification by suitably qualified professionals that the work has been executed in accordance with the verified drawings.

The Contractor shall also prepare a Construction Report on the completed works. This report shall include, but not be limited to, details of the excavation of the work, actual founding conditions, materials and of location materials used, methods of placement, significant changes in design due to site conditions.

The intention is to provide the Principal with an accurate record of the work to enable designers of future upgrading works and/or maintenance works a better understanding of configuration in place and issues with the site. It would be an advantage that sketches and records be incorporated/issued rather than lengthy textual description.

The cost of preparing work-as-executed Drawings shall be deemed to be included in the rates and prices generally for the work under the Contract. Where "work as executed" is referred to in the contract, this also means the construction report unless stated otherwise.

29 MEASUREMENT AND PAYMENT

Unless expressly indicated all works described in G1 shall be deemed to be included in the Contract Lump Sum.

ANNEXURE G1/1 - SCHEDULES OF HOLD POINTS AND IDENTIFIED RECORDS

1. Schedule of Hold Points

A HOLD POINT means that point beyond which a work process must not proceed without the Superintendent's express written authorisation. The list is not exhaustive. Refer to Specification G2 Clause 3.

Clause	Description
6.4	Concept Design of each Bridge & Approaches
6.4	Detailed Design of each Bridge & Approaches

2. Schedule of Identified Records

The records listed below are Identified Records for the purposes of RTA G2 Clause 19

Clause	Description of the Identified Record
6.1	Verification certificates
6.2	Design Management Plan
6.3	Concept & Detailed designs of bridges, road approaches, sidetracks & road safety audit.
7	Tender Submission requirements
9	Design drawings, reports & specifications.
10	Quality Plan
11	Pre-qualifications
12	D & C Programme, PEMP, Soil & Erosion Control Plan, Concrete Mixes, POH & S Management Plan, PRMP, TMP
21	Confirmation of disposal of CCA treated material
22	Obtained permits & licences etc. Details of materials.
24, 25	Copies of correspondence with 3rd parties

26	Progress report
28	Work as executed drawings. Construction report.
29	Geotechnical investigation report

ANNEXURE G1/2 – RTA MODEL SPECIFICATIONS

- List of RTA Model Specifications
- List of Amendments to RTA Model Specifications

LIST OF RTA MODEL SPECIFICATIONS

The list of Specifications to be submitted to the Superintendent, in accordance with the specification submission programme includes, but is not limited to, the following:

GENERAL SPECIFICATIONS

RTA. Specification	Title
G1	Contract Specific Requirements
G2	General Requirements
G10	Control of Traffic
G22	Occupational Health & Safety (Minor Works)
G35	Environmental Protection (Management Plan)
G73	Detail Survey in CADD Format

QUALITY SYSTEM SPECIFICATIONS

RTA Specification	Title
Q5	Quality System (Type 5)

ROADWORKS SPECIFICATIONS

Specification	Title
R2	Erosion and Sedimentation Control (Temporary)
R11	Stormwater Drainage
R32	Subsurface Drainage- Materials
R33	Trench Drains
R41	Clearing and Grubbing
R44	Earthworks (Cut, Fill, Imported Fill and Imported Selected Material)
R49	Construction of Verges
R55	Rock Filled Gabions and Mattresses
R63	Geotextiles (Separation and Filtration)
R71	Unbound Pavement Course (Normal Duty)
R106	Sprayed Bituminous Surfacing (with Cutback Bitumen)
R107	Sprayed Bituminous Surfacing (with Polymer Modified Binder)
R131	Guide Posts
R132	Safety Barrier Systems
R141	Pavement Marking
R142	Raised Pavement Markers
R143	Signposting
R161	Fencing
R162	Vegetation
R179	Landscape Planting

BRIDGEWORKS SPECIFICATIONS

RTA Specification	Title
B30	Clearing, Excavation and Backfill for Bridgeworks
B50	Driven Reinforced Concrete Piles
B59	Bored Cast-in-Place Reinforced Concrete Piles (without Permanent Casing)
B80	Concrete Work for Bridges
B110	Manufacture of Pretensioned Precast Concrete Members
B115	Precast Concrete Members (Not Pretensioned)
B150	Erection of Pretensioned Precast Concrete Members
B242	Manufacture and Supply of Aluminium Railings
B264	Erection of Barrier Railings and Minor Components
B280	Unreinforced Elastomeric Bearing Pads and Strips
B312	Cold Applied Elastomeric Joint Sealants
BG314	Demolition of existing Structure
B344	Bituminous Waterproof Membrane for Concrete Bridge Decks
B345	Supply of Bridge Nameplates

MATERIALS SPECIFICATIONS

RTA Specification	Title
3051 N	Unbound and Modified Base And Subbase Materials For Surfaced Road Pavements
3151	Cover Aggregate for Sprayed Bituminous Surfacing
3152	Polymer Modified Bitumen
3253	Bitumen for Pavements
3258	Aggregate Precoating Agent (for Bitumen)
3259	Bitumen Adhesion Agent (for Bitumen)
3261	Cutback Bitumen
3268	Aggregate Precoating Agent (for Polymer Modified Binder)
3269	Bitumen Adhesion Agent (for Polymer Modified Binder)
3351	Road Marking Paint
3252	Polymer Modified Binder
3353	Glass Beads
3354	Adhesives for Raised Pavement Marker Installation
3356	Water Borne Road Marking Paint
3385	Barrier Boards
3400	Manufacture and Delivery of Road Signs
3412	Supply of Guide Posts – Non-Timber
3552	Drainage Pipe (Corrugated Perforated Plastic)

LIST OF AMENDMENTS TO RTA MODEL SPECIFICATIONS

Part No.	Clause No.
G2	8, Annexure G2/3
G10	4.6, 5, Annexure G10/1, Annexure G10/2
G22	5
G35	4.1.2, 5, 6.15, 6.17, 8, Annexure G36/1, Annexure G36/6
Q5	Annexure Q/2
R71	

ANNEXURE G1/3 - DETAILS FOR BITUMINOUS WATERPROOF MEMBRANE

1. LOCATION

Description of site: ***Gwydir River Overflow Bridges 2266, 2268 and 2269.***

ROADLOC Chainages (shown below) ____

SH 12, Gwydir Highway, 59km East of Moree, R[12, 0570, A1, 1.444]
SH 12, Gwydir Highway, 58km East of Moree, R[12, 0570, A1, 1.958]
SH 12, Gwydir Highway, 59km East of Moree, R[12, 0570, A1, 1.444]

Width Full width between parapets

Detail shown on Drawing No: N/A

2. TYPE OF TREATMENT

The Contractor shall provide a bituminous membrane in accordance with CBE 99/16, RTA Specification B344, R107 and RTA 3252.

This shall consist a double sprayed seal. The Contractor shall first apply a quick drying primer (reference Specification B344 before placement of seals). The first layer 14mm sprayed SAM seal and the second layer 7mm ordinary sprayed seal.

With reference to RTA 3152 Appendix B, Section B, the Contractor shall use a Grade S45R polymer modified bitumen unless otherwise agreed with the Superintendent.

ANNEXURE G1/4 - DETAILS OF WORK - PERMANENT APPROACH ROADWORKS

Section	Prime	Geo-textile	Primerseal		Seal or Reseal	
~~From~~ ~~To~~ *Seal Location*			Binder	Aggregate	Binder	Aggregate
Main Alignment (primer seal)					***Cl.170***	***7mm***

ANNEXURE G1/5 - INDICATIVE GRASS AND NATIVE SEEDING MIXTURE FOR INTIAL STABILISATION

(Refer Clauses 2.4 & 3.5 of R162)

All Areas	**Application Rate (kg/ha)**
Grass Seed	
May to August	
Japanese Millet (Sterile)	***70***
Or Rye Corn	***30***
Sub-Total (May to August)	***100***
September to May	
Japanese Millet (Sterile)	***30***
Or Rye Corn	***70***
Sub-Total (September to May)	***100***

ANNEXURE G1/6 - PAVEMENT INFORMATION

- Permanent pavement Profiles
- RTA design proforma (for sidetracks)

ANNEXURE G1/7 - BRIDGE INFORMATION

- Historical Drawings of Existing Bridges
- RTA Proforma TD – DF062

ANNEXURE G1/8 - RTA CONCEPT DESIGN DRAWINGS