Delegat's Wine Estate New Zealand

Contract

for

Construction of

Wairau Valley Reservoir

July 2014

MARLBOROUGH MANAGEMENT SERVICES LTD

Delegat's Wine Estate New Zealand

Contract

for

Construction of

Wairau Valley Reservoir

July 2014

MARLBOROUGH MANAGEMENT SERVICES LTD

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A. INSTRUCTIONS TO TENDERERS

A.1. INTRODUCTION

The Contract includes the construction of an irrigation reservoir in the Wairau Valley, for Delegat's Wine Estate New Zealand Ltd.

It should be noted that, due to the reservoir requiring to be completed, filled and operational before the next irrigation season, the construction shall start with stripping and clearing from the time that the necessary resource consents required for the Works are received, although no embankment construction can commence until the Building Consent has been obtained.

The necessary resource consents and the building consent applications have been completed and are with the Marlborough District Council. Assuming there are no issues that delay the approvals, these consent could be granted in early August 2014.

Delegat's Wine Estate New Zealand Ltd requires a high standard of construction that reflects the importance of this reservoir, and high quality materials and workmanship are to be used to ensure its long-term reliable performance.

A.2. CONDITIONS OF TENDERING

The conditions of tendering shall be those included in NZS 3910:2003 - Conditions of Contract for Building and Civil Engineering Construction.

A.3. SCHEDULE TO CONDITIONS OF TENDERING

Clause numbers refer to conditions of tendering clauses.

102.2
(a) A Tender Documents deposit is not required;

103.1
(a) An appointment to view the Site shall be made by contacting the Tim Smit on his cell phone on (021) 221 0003

105.1
Tenders shall close at the offices of Delegat's Wine Estate Ltd,
1st Floor, Riverside House, 13 Alfred Street, Blenheim for the attention of Dr Rengasamy Balasubramaniam (Bala), at 4pm on Friday the 18th day of July 2014.

Tenders shall be in one envelope and marked in the outside top left corner, "Construction of Wairau Valley Irrigation Reservoir - Delegat's Wine Estate New Zealand Ltd".

(b) Emailed tenders will be acceptable.

105.3
(b) No percentage for On-Site Overheads shall be nominated in the tender.

(d) No percentage for Off-Site Overheads and Profit shall be nominated in the tender.

(e) The rate per Working Day in compensation for time related On-Site Overheads, Off-Site Overheads and Profit incurred in relation to an extension of time shall be nominated in the tender.

(g) Supplementary information required to be submitted with the tenders is:

a) Completed Tender form, Appendix AA.1;

b) Response to Contractor's Health and Safety Questionnaire, Appendix AA.2;

c) Completed Schedule of Prices, Appendix AA.3;

d) Tenderer's Information Form, Appendix AA.4;

e) Completed Agreement as to Arbitration, Appendix AA.5;

f) Construction Programme, in Gantt Chart form identifying and sequencing all the key tasks to complete the Contract Works and identifying the Critical path. The programme shall contain sufficient information to provide the Principal with confidence that the Tenderer has a good understanding of the project requirements.

106.1
The lowest priced or any tender will not necessarily be accepted.

106.3
The separate agreement required to satisfy section 11 of the Arbitration Act 1996 may be in the form as shown in Appendix AA.5.

107.1
Tenders shall be valid for eight weeks.

A.4. SPECIAL CONDITIONS OF TENDERING

Modifying and Extending the Conditions of Tendering

Tender Evaluation

Tenders shall be evaluated using a Lowest Conforming Price method, consisting of the following 2-step process:

Stage 1
This stage shall consist of ranking tenders in ascending order based on their Tender Price.

Stage 2
This stage shall consist of determining the Tenderer acceptability when assessed against the required tender information including non-price attributes. Determination of acceptability shall commence with the lowest price tender, continue with the next lowest price tender, etc. and shall cease when the first acceptable tender is determined.

Appendix AA.1 - FORM OF TENDER

Contract for *Construction of Wairau Valley Irrigation Reservoir*

To: *Delegat's Wine Estate New Zealand Ltd*

Having examined the tender documents dated July 2014 for the construction of the above-named Contract Works, we offer to complete, hand over to the Principal and remedy defects in the whole of the said Contract Works in conformity with these Tender Documents for the sum of .....($……)

This Price is stated exclusive of Goods and Services Tax together with such other sum as may be ascertained in accordance with the contract.

This tender includes full allowance for Notice(s) to Tenderers number(s) ……..

We undertake to complete and deliver the whole of the said Contract Works within the time stated in the Conditions of Contract.

We agree to abide by this tender for a period of 8 weeks from the date fixed for receiving the same and it shall remain binding upon us and may be accepted by you at any time before the expiry of that period.

Unless and until a Contract Agreement is prepared and executed, this tender, together with your written acceptance thereof, shall constitute a binding contract between us.

We understand that you are not bound to accept the lowest or any tender you may receive, and that you may accept a non-conforming tender.

We understand that no contract shall come into existence, and no legal or other obligations shall arise between us and you (or between us and any other agent of the Principal) in relation to the conduct, outcome or otherwise of the tender process, prior to and apart from your acceptance of our tender.

We provide the following information required to be submitted with this tender.

- Response to Contractor's Health and Safety Questionnaire, Appendix AA.2;
- Completed Schedule of Prices, Appendix AA.3;
- Tenderer's Information Form, Appendix AA.4;
- Completed Agreement as to Arbitration, Appendix AA.5;
- Construction Programme.

Signature: ……..

Tenderer: ……

Address: ……

……

Date: …… Phone No. .....

Email address: ..... Facsimile No. .....

Appendix AA.2 – CONTRACTOR'S HEALTH AND SAFETY QUESTIONNAIRE

Contract for *Construction of Wairau Valley Irrigation Reservoir*

Please supply the following health and safety information:

(a) Confirmation that your health and safety plan is current.

(b) The name of the person who co-ordinates health and safety in your company.

(c) A list of hazards relevant to the project and controls proposed as identified by you. You should note the hazards identified by the Principal as set out in C2.4 of the Specification. Your list should incorporate Principal's list. Where you consider a hazard identified by the Principal is not relevant to this project you should give reasons.

(d) An outline of your health and safety plan relevant to the provision of the services requested by this tender and the way in which your obligations under the health and Safety in Employment Act 1992 will be fulfilled. Your outline should cover:

- The extent to which you will accept responsibility for those risks and to which the tenderer expects other persons (including the Principal) to accept responsibility for those risks.
- The way you will manage risks and health and safety obligations that will be your responsibility both as allocated under the Contract and under the Health and Safety in Employment Act 1992.
- The name and relevant qualifications/work experience of the person you propose to appoint for the purpose of ensuring compliance, with all health and safety requirements.
- Your personnel who have training in first aid, cardio-pulmonary resuscitation (CPR) and obstruction plan reading.
- Your accident and incident reporting and recording procedure in relation to significant events affecting the health and/or safety of any person under the tenderer's supervision.
- Your emergency programme for the handling of emergencies or imminent danger arising while providing services to the Principal.

(e) A summary of your accident statistics for the last two years.

Appendix AA.3 – SCHEDULE OF PRICES

Contract for *Construction of Wairau Valley Irrigation Reservoir*

Tender Schedules of Prices

ITEM	DESCRIPTION	UNIT	QTY	RATE	TOTAL
1	**PRELIMINARY & GENERAL**				
1.1	Establishment:				
1.1.1	*Site establishment.*	LS	1		$ -
1.1.2	*Construction administration costs.*	LS	1		$ -
1.1.3	*Disestablishment and cleanup.*	LS	1		$ -
1.2	Programming and Documentation:				
1.2.1	*Provide programme, bar chart and cashflow prediction.*	LS	1		$ -
1.2.2	*Provide and implement safety plan.*	LS	1		$ -
1.2.3	*Provide and implement project specific environmental plan and allow for costs associated with complying with all consent obligations.*	LS	1		$ -
1.2.4	*Quality assurance documentation.*	LS	1		$ -
	TOTAL PRELIMINARY & GENERAL				**$ -**
2	**CLEARING**				
2.1	Clearing of fences, trees and other obstructions not required for the construction, including removal off site.	LS	1		$ -
	TOTAL CLEARING				**$ -**
3	**BULK EARTHWORKS**				
3.1	Strip topsoil to stockpile (150mm layer) from proposed reservoir footprint.	sq.m	33,740		$ -
3.2	Foundation preparation for embankment construction.	sq.m	17,026		$ -
3.3	Cut to compacted embankment fill (measured in compacted fill)				
3.3.1	*from within reservoir*	cu.m	22,300		$ -
3.3.2	*from borrow area to the east*	cu.m	37,200		$ -
3.4	Sediment Control:				
3.4.1	*Construct new sediment control works*	LS	1		$ -
3.4.2	*Operate and maintain sediment control works*	wk	16		$ -
3.4.3	*Remove and/or bury sediment control*	LS	1		$ -
3.5	Water control for excavations and fill including pumping and conditioning as required.	LS	1		$ -
	TOTAL BULK EARTHWORKS				**$ -**

ITEM	DESCRIPTION	UNIT	QTY	RATE	TOTAL
4	**UNDERLINER DRAINAGE**				
4.1	Excavate trench including reuse in fill or backfill:				
4.1.1	*In floor of pond*	cu.m	101		$ -
4.1.2	*Under embankment and to terrace edge*	cu.m	300		$ -
4.2	Supply and place ND 150 UPVC PN12.5 pipe (undrilled) under future embankment to discharge point at lower terrace face	m	100		$ -
4.3	Supply and place UPVC PN 12.5 pipe (drilled) under, around and across floor of pond				
4.3.1	*ND 80*	m	500		$ -
4.3.1	*ND 100*	m	175		$ -
4.4	Supply and place geotextile for underliner drains	sq.m	1,013		$ -
4.5	Supply, place, and compact drainage material	cu.m	101		$ -
	TOTAL UNDERLINER DRAINAGE				**$ -**
5	**LINER INSTALLATION**				
5.1	Win silt/sand from site and place reworked as blinding layer (minimum 50mm layer):				
5.1.1	*In areas steeper than and equal to 1 vertical to 2.5 horizontal*	sq.m	10,567		$ -
5.1.2	*In areas flatter than 1 vertical to 2.5 horizontal*	sq.m	10,725		$ -
5.2	Import crusher dust from off site and place reworked as blinding layer (minimum 50mm layer): PROVISIONAL				
5.1.1	*In areas steeper than and equal to 1 vertical to 2.5 horizontal*	sq.m	10,567		$ -
5.1.2	*In areas flatter than 1 vertical to 2.5 horizontal*	sq.m	10,725		$ -
5.3	Supply and place 1.5mm thick HDPE liner, including all cutting, double track welding, wastage and testing (measured on slope)				
5.3.1	*In areas steeper than and equal to 1 vertical to 2.5 horizontal*	sq.m	10,567		$ -
5.3.2	*In areas flatter than 1 vertical to 2.5 horizontal*	sq.m	10,725		$ -
5.4	Supply and construct liner / pipe interface structure, including reinforced concrete slab, embedded HDPE E-Lock channel surround, and extrusion weld of liner to E-Lock channel.	LS	1		$ -
5.5	Liner edge detail, including excavation of key trench, supply and lay of 2.2m wide liner and controlled backfill	m	574		$ -
5.6	Construct spillway liner, including supply of liner, preparation, shaping, and edge detail	LS	1		$ -
5.7	Construct HDPE boot around 200mm diameter inlet pipe (supplied and installed by others) at crest of reservoir	LS	1		$ -
	TOTAL LINER INSTALLATION				**$ -**

ITEM	DESCRIPTION	UNIT	QTY	RATE	TOTAL
6	**REHAB AND MISCELLANEOUS**				
6.1	Uplift from Stockpile, re-topsoil and grass face of dam - slope area (150mm layer)	sq.m	9,856		$ -
6.2	Supply and place compacted gravel on dam crest (150mm layer)	cu.m	354		$ -
6.3	Supply and place Type 1 rock armouring at end of HDPE spillway (450mm layer)	cu.m	65		$ -
6.4	Supply and place Type 1 rock armouring along base of reservoir on western and norther sides up to a height of 1.5m (450mm vertical thickness layer)	cu.m	565		$ -
	TOTAL REHAB AND MISCELLANEOUS				**$ -**
7	**SUCTION PIPES**				
7.1	Supply and install 250mm OD PE100 PN16 outlet pipe through embankment wall, including PE Tee with electrofusion couplers, puddle flanges, stub flanges and galvanised steel backing rings at all three ends, resilient seated flanged gate valve, and concrete surround under emabnkment only.	m	85.0		$ -
	TOTAL SUCTION PIPES				**$ -**
8	**UNSCHEDULED ITEMS**				
8.1	Any other item/s the Contractor considers necessary to complete the work as specified				
8.1.1					$ -
8.1.2					$ -
8.1.3					$ -
	TOTAL UNSCHEDULED ITEMS				**$ -**
	TOTAL PRICE CARRIED FORWARD TO TENDER FORM (Excluding GST)				**$ -**

Appendix AA.4 – INFORMATION FROM TENDERERS

Contract for *Construction of Wairau Valley Irrigation Reservoir*

Tenderer: ……..

Address: ……

……..

Telephone: ……24 hr Contact No.: ……

Tenderer's Representative: ……..

Tenderer's GST Number: ……..

Details of personnel proposed for this Contract:

Name	Qualifications	Experience

Details of Sub-Contractors proposed for this Contract:

Name	Work to be undertaken

Our Proposed Construction Programme and Statements of Relevant Experience and Track Record are attached.

Appendix AA.5 – AGREEMENT AS TO ARBITRATION

Contract for *Construction of Wairau Valley Irrigation Reservoir*

THIS AGREEMENT is made on ..... *(insert date)*

BETWEEN *Delegat's Wine Estate New Zealand Ltd*..... ("the Principal")

AND ..... ("the Contractor")

The Contractor has submitted a tender for a contract for

Construction of Wairau Valley Irrigation Reservoir

The Principal intends to accept such tender by the letter of acceptance which accompanies this agreement. Such tender and its acceptance, together with the General Conditions and other documents intended to form part of the contract, will constitute a contract. By clause 106.3 of the Conditions of Tendering, no acceptance of tender is valid and effective unless accompanied with a separate agreement to the effect there set out.

By this present separate agreement, and in consideration of the Contractor's tender, the Principal certifies that, having read and understood the arbitration agreement contained in section 13 of the General Conditions, it agrees to be bound by it.

SIGNED on behalf of the Principal by

.....

in the presence of:

.....

B. CONDITIONS OF CONTRACT

B.1. GENERAL CONDITIONS OF CONTRACT

The General Conditions of Contract shall be those included in *NZS 3910:2003 – Conditions of Contract for Building and Civil Engineering Construction.*

B.2. SCHEDULES TO GENERAL CONDITIONS OF CONTRACT

B.2.1. First Schedule - Special Conditions of Contract

(Clause numbers refer to General Conditions)

1.2
The Principal is Delegat's Wine Estate New Zealand Ltd

of 1st Floor, Riverside House, 13 Alfred Street, Blenheim

(b) There are no Separable Portions in this Contract.

2.1.1
This contract is a:
(b) Measure and value contract;

2.5
This contract is:
(c) Neither a construction contract in public roads nor a term maintenance contract.

2.6.1
This contract is:
(b) Not a local authority contract.

2.6.3
(b) Shall not apply to this contract.

2.6.4 (a)
A safety plan for the Site:
(a) Is required, as set out in Section C.1.3 of the Contract Documents;

2.6.4 (b)
A traffic management plan:
(b) Is not required.

2.8.1
Three sets of Contract Documents shall be supplied free of charge to the Contractor upon the acceptance of tender in addition to tender, consent, and Contract Agreement sets.

3.1.1
A Contractor's bond:
(a) Is required.

3.1.2
The Contractor's bond shall be for the sum of 10% of the Contract Price

3.2.1
A Principal's bond:
(a) Is not required;

5.4.1
The Contractor shall be given Possession of the Site upon receipt of the necessary resource and building consents required for the Works, which the Principal has applied for. For programming purposes, the Contractor shall assume that this will be:
(b) 12th of August 2014.

5.11.1
(b) There are no parts of the Contract Works to which Appendix D applies.

5.17.1
Quality management systems:
(a) Are required and details shall be submitted by within 10 Working days from acceptance.

5.18.1 (a)
(a) As-built drawings, are required, as set out in:
(i) C.1.14 As-Built Details

5.18.1 (b)
(b) Operation and maintenance manuals are not required.

6.1.2
The Engineer is Tim H Smit

whose professional qualification is BSc Eng (Civil) Hons, MIPENZ (Civil)

8.1 and 8.6
(a) The Contractor shall insure as provided in 8.1;

8.1.2 or 8.6.1
(To be completed irrespective of whether the Principal or the Contractor is insuring.)

The amount of the insurance to be effected in respect of the Contract Works and Materials shall be for not less than the sum of the following:

(a) The Contract Price, after the acceptance of the tender or other offer, excluding any additions or deductions which may be required to be made during the course of the contract;

(b) For the Cost of demolition, disposal and preparation for replacement work, the sum of:

(i) 5 % of the Contract Price as described in (a) above; or

(c) For professional fees including the Cost of clerks of works and inspectors, the sum of:

(i) 5 % of the Contract Price as described in (a) above; or

(d) The value of items incorporated, or to be incorporated, in the Contract Works, the Cost of which is not included in the Contract Price, the sum of $Nil

(e) For increased construction Costs not already provided for in the Contract Price during the period from the acceptance of the tender or other offer until the issue of the Defects Liability Certificate for the Contract Works, the sum of:

(i) 5 % of the Contract Price as described in (a) above; or

The insurance shall make provision for automatic change of cover for items (a) and (e) above, to provide insurance for any additions to or deductions from the Contract Price which occur after acceptance of the tender or other offer.

8.2.1
Contractor's Plant insurance is required for each item of construction machinery on the Site owned by the Contractor that has a market value of more than:
(a) $50,000;

8.3 and 8.7
(a) The Contractor shall insure as provided in 8.3;

8.3.1 or 8.7.1
(To be completed irrespective of whether the Principal or the Contractor is insuring.)
Public liability insurance shall be effected for an amount not less than $2M.

8.3.2
Motor vehicle third party liability insurance shall be effected for an amount not less than $2M.

8.4.1
(b) Professional indemnity insurance for design by the Contractor is not required.

8.6.2
The existing structures are:
(i) None

10.2.1
The periods to be used for calculating the Due Date for Completion are:
(a) In respect of the Contract Works 14 Weeks

10.4.5
Prior to the issue of the certificate of Practical Completion:
(a) A producer statement in the form of the Sixth Schedule is required;

10.5.1
Liquidated damages shall be applied as follows:
(a) In respect of the Contract Works: $250.00/day

10.6.1
A bonus shall be paid as follows:
(a) In respect of the Contract Works $Nil per Week;

11.1.1
The Period of Defects Liability shall be:
(a) In respect of the Contract Works: 26 weeks

11.3.2
Prior to the issue of the Defects Liability Certificate:
(a) A producer statement in the form of the Sixth Schedule is required;

11.5.1
(a) The Contractor shall provide guarantees as set out below:
(i) A written guarantee, valid for 10 years from the Date of issue of the Practical Completion Certificate, that in all respects the manufacture, storage, handling installation and protection of the flexible liner membrane and associated works are in accordance with the manufacturer's requirements,

11.5.2
The form of guarantee shall be in the form annexed as the Twelfth Schedule:

12.1.2 (b)(iv)
(b) Advances for Temporary Works, Plant or Materials not yet on Site shall not be made to the Contractor.

12.3.1
The percentage to be retained from each progress payment and the limit of the total sums retained shall be:

(a) In respect of the Contract Works:
Total retention
10 % of the first $200,000, plus
5 % of the next $800,000, plus
1.75 % of any amount in excess of $1,000,000
with a maximum of $200,000 when aggregated

Defects liability retention
50 % of total retention

12.8.2
Cost fluctuation adjustments:
(a) Shall not be paid;

12.9.1
(c) Provisional Sums for Dayworks are included in the Schedule of Prices.

12.10.1
(c) There are no Prime Cost Sums.

12.11.1
The contingency sum to be included in the contract is $Nil.

15.1.2
For the purpose of service of payment claims or notices, the postal address of:

(a) The Principal is Delegat's Wine Estate New Zealand Ltd
PO Box 305
Blenheim
For the attention of: Dr Rengasamy Balasubramaniam (Bala)
Fax No.: (03) 579 1292
E-mail: bala@delegats.co.nz

(b) The Engineer is Tim Smit
65 Cob Cottage Road
Marlborough Management Services Ltd
RD 4, Riverlands
Blenheim
Fax No.: (03) 578 5481
E-mail: tim@smitventures.co.nz

(c) The Contractor is

For the attention of:
Fax No.:
E-mail:

B.2.2. Second Schedule - Contract Agreement

Contract for *Construction of Wairau Valley Irrigation Reservoir*

THIS AGREEMENT is made on.....

BETWEEN.....
("the Contractor")

AND *Delegat's Wine Estate New Zealand Ltd.*.....
("the Principal").

IT IS AGREED as follows:

1. **THE** Contractor shall carry out the obligations imposed on the Contractor by the Contract Documents.

2. **THE** Principal shall pay the Contractor the sum of *$*..... or such greater or less sum as shall become payable under the Contract Documents together with Goods and Services Tax at the times and in the manner provided in the Contract Documents.

3. **EACH** party shall carry out and fulfil all other obligations imposed on that party by the Contract Documents.

4. **THE** Contract Documents are this Contract Agreement and the following which form part of this agreement:

a) The Conditions of Tendering;
(b) Notices to tenderers (give details with dates);
(c) The Contractor's tender;
(d) The notification of acceptance of tender;
(e) The General Conditions of Contract, NZS 3910:2003;
(f) The Special Conditions of Contract;
(g) Specifications issued prior to the Date of Acceptance of Tender;
(h) Drawings issued prior to the Date of Acceptance of Tender;
(i) The Schedule of Prices;
(j) The following additional documents: (Identify any documents to be included for example agreed correspondence.)

WITNESS to the signature
of the Contractor:

.....
Contractor

WITNESS to the signature
of the Principal:

.....
Principal

B.2.3. Third Schedule - Form of Contractor's Performance Bond

Contract for *Construction of Wairau Valley Irrigation Reservoir*

THIS DEED is made on .....

BY .....

of .....
("the Contractor")

AND .....

of .....
("the Sureties")

IT IS MADE IN THE FOLLOWING CIRCUMSTANCES:

A The Contractor has entered into an agreement with *Delegat's Wine Estate New Zealand Ltd* of *1st Floor, Riverside House, 13 Alfred Street, Blenheim*.....("the Principal") to carry out and fulfil the obligations imposed on the Contractor by the Contract Documents.

B The Contract Documents require the Contractor to provide the Principal with security in the form of a bond to ensure performance of the Contractor's obligations under the Contract Documents.

BY THIS DEED:

1. **THE** Contractor and Sureties are jointly and severally held and bound to the Principal in the sum of
$NZ..... and bind themselves, their successors and assigns jointly and severally for the payment of that sum.

2. **THE** condition of this bond is that it shall be null and void if:

(a) The Contractor duly carries out and fulfils all the obligations imposed on the Contractor by the Contract Documents prior to the commencement of the Period of Defects Liability referred to in the Contract Documents; or

(b) The Contractor satisfies and discharges the damages sustained by the Principal in respect of all defaults by the Contractor up to the commencement of the Period of Defects Liability or the termination of the contract; or

(c) The Sureties satisfy and discharge up to the amount of the bond the damages sustained by the Principal in respect of all defaults by the Contractor up to the commencement of the Period of Defects Liability or the termination of the contract; or

(d) A Practical Completion certificate has been issued in respect of the Contract Works in accordance with clause 10.4 of the General Conditions of Contract.

3. **EXCEPT** as provided in clause 2 above this bond shall be and remain in full force and effect.

4. **THE** Sureties shall not be released from any liability under this bond:

(a) By any alteration in the terms of the contract between the Principal and the Contractor;

(b) By any alteration in the extent or nature of the Contract Works to be completed, delivered and having defects remedied;

(c) By any allowance of time by the Principal or by the Engineer appointed by the Principal under the Contract Documents;

(d) By any forbearance or waiver by the Principal or by the Engineer in respect of any of the Contractor's obligations or in respect of any default on the part of the Contractor.

5. **THIS** bond shall be governed by New Zealand law.

THE COMMON SEAL of)

was affixed in the presence of:)

THE COMMON SEAL of)

was affixed in the presence of:)

SIGNED by)

in the presence of:)

SIGNED by)

in the presence of:)

NOTE – This bond must be executed by the Contractor and by the Surety or Sureties in the manner required for execution of a deed. Any of these parties which are a company must execute the bond by having it signed, under the name of the company, by two or more directors. If there is only one director, it is sufficient if the bond is signed under the name of the company by that director, but the signature must be witnessed by another person. The witness must not only sign but must also add his or her occupation and address. Alternatively, companies may execute under power of attorney. Any party which is a body corporate (other than a company) must execute by affixing its seal, which must be attested in the manner provided for in the rules of, or applicable to, the body corporate. In the case of a party who is an individual, the party must sign and the signature must be witnessed by another person. The witness must not only sign but must also add his or her occupation and address.

B.2.4. Sixth Schedule - Form of Producer Statement - Construction

ISSUED BY: .....
(Contractor)

TO: *Delegat's Wine Estate New Zealand Ltd*
(Principal)

IN RESPECT OF: *Construction of Wairau Valley Irrigation Reservoir*
(Description of Contract Works)

AT: Redwood Pass Road, Wairau
(Address)

..... has contracted to *Delegat's Wine Estate New Zealand Ltd*
(Contractor) *(Principal)*

to carry out and complete certain building works in accordance with a contract, titled *Construction of Wairau Valley Irrigation Reservoir* (" the Contract")
(Project)

I ..... a duly authorized representative of .....
(Duly Authorized Agent) *(Contractor)*

believe on reasonable grounds that ..... has carried out
and completed *(Contractor)*

☐ All ☐ Part only as specified in the attached particulars of the building works in accordance with the contract.

..... Date .....
(Signature of Authorized Agent on behalf of)

.....
(Contractor)

.....
.....
.....
(Address)

B.2.5. Seventh Schedule - Information as to contract works insurance

To Whom It May Concern:

From: .....
(Name of insurance company)

.....
(Branch)

.....
(Address)

We confirm having effected contract works insurance for:

.....
(The Contractor)

Delegat's Wine Estate New Zealand Ltd
(The Principal)

In respect of: *Construction of Wairau Valley Irrigation Reservoir*
(Project title)

8.1.2 The sums insured are:

(a)	Contract price	$	(Plus GST)
(b)	Costs of demolition	$	(Plus GST)
(c)	Professional fees	$	(Plus GST)
(d)	Value of items incorporated or to be incorporated	$	(Plus GST)
(e)	Increased construction costs	$	(Plus GST)
	TOTAL SUM INSURED	**$**	(Plus GST)

The policy deductibles are:

Non earthquake	(GST inclusive)	$
Earthquake	(GST inclusive)	$
Other *(name)*	(GST inclusive)	$

We advise the 'special' terms, copy attached, have been applied to this policy Yes / No

8.5.3, 8.8.4 Policy cover terms included are:

(a)	Automatic reinstatement	Yes / No
(b)	No cancellation for non-payment without prior notification	Yes / No
(c)	Severally insured	Yes / No
(d)	No settlement delay due to exercise of subrogation	Yes / No

Project specific policy Yes / No

8.1.3 Construction period
Defects liability period
(both subject to alteration under construction contract)

Annual run-off policy Yes / No

8.1.5 Annual cut-off policy Yes / No
Policy expiry date

We undertake that this policy will not be cancelled or amended by us within the period of insurance without written advice to the insured party which has arranged the insurances.

The insurance issued is subject to the terms and conditions of the policy. We do not warrant that this policy complies with the requirements of NZS 3910:2003.

Insurance Company Stamp ..... **Date** .....
(Or name of insurance broking company confirming cover)

SIGNED BY .....

SIGNATORY TITLE .....

(Clause numbers refer to NZS 3910:2003 and are for information only)

B.2.6. Eighth schedule - Information as to public liability insurance

To Whom It May Concern:

From: .....
(Name of insurance company)

.....
(Branch)

.....
(Address)

We confirm having effected public liability insurance for:

.....
(The Contractor)

Delegat's Wine Estate New Zealand Ltd
(The Principal)

In respect of: *Construction of Wairau Valley Irrigation Reservoir*
(Project title)

	Annual policy Policy expiry date:			Yes / No
8.3.1	The limit of indemnity Sub limit insured for vibration, removal or weakening of support		$ $	(Plus GST) (Plus GST)
	Deductible is Deductible for vibration, removal or weakening of support	(GST inclusive) (GST inclusive)	$ $	
	We advise that "additional" terms, copy attached, have been specifically applied to this project			Yes / No
	The policy covers liability arising out of: The ownership / use of construction machinery not required to be registered for road use The use of hired plant The ownership / use of watercraft up to 8 m The ownership / use of aircraft The use of explosives			 Yes / No Yes / No Yes / No Yes / No Yes / No
8.5.3, 8.8.4	Policy cover terms included are: (a) Automatic reinstatement (b) No cancellation for non-payment without prior notification (c) Severally insured (d) No settlement delay due to exercise of subrogation			 Yes / No Yes / No Yes / No Yes / No

We undertake that this policy will not be cancelled or amended by us without written advice to the insured party which has arranged the insurances.

The insurance issued is subject to the terms and conditions of the policy. We do not warrant that this policy complies with the requirements of NZS 3910:2003.

Insurance Company Stamp ..... **Date** .....
(Or name of insurance broking company confirming cover)

SIGNED BY .....

SIGNATORY TITLE .....
(Clause numbers refer to NZS 3910:2003 and are for information only)

B.2.7. Ninth Schedule - Information as to the Contractor's construction machinery insurance

To Whom It May Concern:

From: .....
(Name of insurance company)

.....
(Branch)

.....
(Address)

We confirm having effected construction machinery insurance for:

.....
(The Contractor)

In respect of: *Construction of Wairau Valley Irrigation Reservoir*
(Project title)

	Annual policy			Yes / No
	Policy expiry date:			
8.2.1	The sums insured are:			
	Schedule of construction machinery attached	$		(Plus GST)
	The policy deductible is		(GST inclusive) $	
	We advise that "special" terms, copy attached, have been applied to this policy			Yes / No
8.5.3	Policy cover terms included are:			
	(a) Automatic reinstatement			Yes / No
	(b) No cancellation for non-payment without prior notification			Yes / No
	(c) No settlement delay due to exercise of subrogation			Yes / No

We undertake that this policy will not be cancelled or amended by us within the period of insurance without written advice to the insured party which has arranged the insurances.

The insurance issued is subject to the terms and conditions of the policy. We do not warrant that this policy complies with the requirements of NZS 3910:2003.

Insurance Company Stamp ..... **Date** .....
(Or name of insurance broking company confirming cover)

SIGNED BY .....

SIGNATORY TITLE .....

(Clause numbers refer to NZS 3910:2003 and are for information only)

B.2.8. Tenth Schedule - Information as to the Contractor's motor vehicle insurance

To Whom It May Concern:

From: .....
(Name of insurance company)

.....
(Branch)

.....
(Address)

We confirm having effected motor fleet insurance for:

.....
(The Contractor)

In respect of: *Construction of Wairau Valley Irrigation Reservoir*
(Project title)

Annual policy Yes / No
Policy expiry date:

8.3.1 The sums insured are:
Section 2 – liability $ (Plus GST)

The policy deductibles are:
Section 2 (GST inclusive) $

We advise that "special" terms, copy attached, have been applied to this policy Yes / No

8.5.3 Policy cover terms included are:
(a) Automatic reinstatement Yes / No
(b) No cancellation for non-payment without prior notification Yes / No
(c) No settlement delay due to exercise of subrogation Yes / No

We undertake that this policy will not be cancelled or amended by us within the period of insurance without written advice to the insured party which has arranged the insurances.

The insurance issued is subject to the terms and conditions of the policy. We do not warrant that this policy complies with the requirements of NZS 3910:2003.

Insurance Company Stamp ..... **Date** .....
(Or name of insurance broking company confirming cover)

SIGNED BY .....

SIGNATORY TITLE .....

(Clause numbers refer to NZS 3910:2003 and are for information only)

C. SPECIFICATION

C.1. SPECIFICATION – GENERAL

C.1.1. INTRODUCTION

C.1.1.1. Interpretation and Use of Specification

This Specification forms part of the contract for the Contract Works.

The Drawings form part of the contract. If there is a discrepancy between this Specification and the Drawings, the Drawings take precedence.

Design of all Temporary Works is to be by the Contractor.

C.1.1.2. Brief Description and Location of Contract

The Contract includes the construction of an irrigation reservoir in the Wairau Valley, for Delegat's Wine Estate New Zealand Ltd.

The Works generally consist of:

(a) Establishment on site
(b) Preparation and obtaining approval of contract management plans
(c) Preparation of earth fill foundations
(d) Cut to compacted fill earthworks
(e) Supply and installation of sub-liner drainage
(f) Supply and installation of pipes through embankment
(g) Supply and placement of blinding layer material and preparation of inside of dam surface for installation of liner
(h) Supply and installation of welded synthetic liner including anchor trenches
(i) Excavation, formation and lining of spillway
(j) Construction of gravel capping along crest
(k) Placement of rock armour along west and north sides of reservoir embankment and at bottom of lines spillway
(l) Placement of topsoil and grassing
(m) Provision of QA documentation and as-built plans
(n) Disestablishment and site tidying
(o) Care of the works through the Defects Liability Period

C.1.2. STANDARD OF CONSTRUCTION

The works shall comply with all relevant standards, such other Acts and Regulations in force and in all other respects the best trade practices shall prevail.

The Conditions of Contract shall apply to this section of the contract works, and should be read in conjunction with each other.

C.1.3. HEALTH AND SAFETY

C.1.3.1. General

The Contractor shall do everything reasonably necessary to avoid any liability pursuant to the Health and Safety in Employment Act 1992 accruing to the Principal and without derogating from the generality of this obligation the Contractor shall:

(a) Carry out all of his duties as an employer in terms of the Act.
(b) Give immediate advice in writing to the Principal if any breach of the Act occurs or if anything which could be interpreted as a breach of the Act or which could lead to a breach of the Act occurs.

The Contractor shall immediately cease operations if required in writing to do so by the Principal or Engineer where a breach of the Health and Safety in Employment Act 1992 has occurred or is in the opinion of the Principal or Engineer likely to occur and shall not resume operations until such time as the Principal or Engineer is satisfied on reasonable grounds that the Contractor will meet and continue to meet its obligations pursuant to the Act. The Principal or Engineer shall not be liable for any loss of any kind which the Contractor may suffer as a result of the required cessation of operations.

References to the Health and Safety in Employment Act 1992 include references to any statutory modification thereof.

No excavation shall be left open by the Contractor during a period of darkness unless adequate barriers are erected by the Contractor.

The Contractor shall exercise any rights and duties completely at its own risk and if in the exercise of any such works the Contractor shall be injured or if any equipment of the Contractor shall be damaged or destroyed in any manner or by any means whatsoever in respect thereof, no part of the loss, injury or damage occasioned thereby shall under any circumstances be borne by the Principal.

The Contractor shall comply with the New Zealand Electrical Code of Practice for Electrical Safety Distances.

The Contractor has possession and control of the Site and is responsible for Health and Safety.

The Contractor shall establish and maintain a Site Safety Management System that ensures the safety of all persons on the Site in accordance with the Health and Safety in Employment Act 1992 ("HSEA"), a copy of which shall be submitted to the Engineer before the commencement of any work on the Site.

Without limiting their responsibilities under the HSEA or their separate contracts, all separate contractors will be required to co-ordinate their safety management systems with that of the Contractor.

The Contractor shall provide the Engineer within two days of any accident occurring on or about the Site, a copy of the Contractor's accident report.

The Contractor's attention is drawn to the list of potential hazards at C1.1.3.

The Contractor shall undertake its own hazard assessment of the Site and identify how those hazards will be managed.

The Contractor shall be responsible for making all notifications to OSH for notifiable work, with copies of all notifications sent to the Engineer at the same time.

The Contractor shall ensure all employees and the employees of all subcontractors are competent and appropriately qualified or adequately supervised. All safety and skills training required by law must be completed. Proof of training may be required. Employees should be fit enough for the tasks required.

The Contractor must ensure that adequate first aid equipment is provided. Refer to OSH guidelines for standards. Means of transport must be available in event of any medical emergency. Alcohol, drugs and intoxicating substances are not permitted on or near the Site while work is in progress.

The Contractor's Site Safety Management System shall provide a system of checks and audits to ensure compliance with safety requirements including:

- An up to date register of all hazards;
- Safety procedures relevant to the Site;
- Contractors safety policy, training procedures and recent safety records;
- Requirements for appropriate safety equipment including specialised equipment for specific tasks;
- Requirements for safety meetings, as frequently as is necessary, and in any event at least weekly;
- Evacuation and emergency procedures.

The Contractor shall develop a procedure that complies with the HSEA and any other relevant legislation for identifying, assessing, eliminating, isolating and minimising hazards that are or may exist on the Site.

The Contractor shall conduct Site-wide safety audits as frequently as required to ensure the safety of all persons on the Site and, in any event, at least fortnightly.

The Contractor shall conduct Safety Management System reviews as frequently as required to ensure the safety of all persons on the Site and, in any event, at least monthly.

All Contractor's staff should be supplied with a copy of the Contractor's workplace emergency procedures so that the employees are informed.

All tools and equipment shall comply with relevant safety standards and be kept properly maintained. Written information should be available on their safe use. Personal protective equipment (PPE) must be supplied by the Contractor, maintained in good condition, worn on all relevant occasions. All training in the use of PPE must be documented.

The Contractor shall not allow unauthorised access to Site, except as provided for in the safety management plans.

The Site shall be maintained in a safe and tidy condition.

C.1.3.2. Hazardous Substances and Materials

Hazardous substances and materials may be specified and used in construction. It is the Contractor's responsibility to ensure that all persons who may come in contact with such hazardous substances and materials are adequately protected from unnecessary exposure. This also includes a responsibility to ensure that all persons using hazardous substances and materials are properly trained and are provided with appropriate operating equipment, safety clothing, etc.

C.1.3.3. Hazard Identification and Control of Hazards

The Principal is aware of the following hazards associated with the work and provides some suggestions for control of those hazards. It is the Contractor's responsibility to identify all hazards and develop adequate measures for the control of each.

HAZARD	LOCATION OF HAZARD	REASON(S) FOR BEING HAZARDOUS	SOME SUGGESTED METHODS OF CONTROL
a) Groundwater	Trenches and Excavations.	Increased risk of failure of ground.	Pump groundwater to lower watertable below trench or excavation. Dispose of groundwater without causing further hazard or nuisance.
b) Trench excavation and excavation for underground structures.	Where trenches and excavations required.	Potential failure of ground. Undermining of existing pipelines and thrustblocks.	Take precautions and shield or shore or sheet pile as required.
c) Working at height above excavations.	Pipeline trenches.	Fall injury	Railing, solid fencing, fall arrestors.
d) Construction machinery.	Site.	Personal injury	Appropriate PPE such as High-Viz vests.
e) Flooding.	Site.	Personal injury/drowning	Monitor weather forecasts and be aware of changing weather conditions
f) Wind.	Site, particularly during liner deployment.	Personal injury	Monitor weather forecasts and be aware of changing weather conditions
g) Fire	Where works being conducted.	Injury	Have means for fighting fires on hand.

C.1.4. SETTING OUT AND LEVELS

The Principal has arranged for setting out of control points by Gilbert Haymes & Associates.

All further site setting out and as-built surveys shall be relative to these control marks and be undertaken at the Contractor's cost.

C.1.5. CONTRACT MEETINGS

Prior to commencing work on site an initial contract meeting will be held to discuss proposed work methods, bonds, insurances, the Contractor's programme and other contractual issues.

This meeting will be held on site or in the Contractor's or Principal's offices. The Engineer will take and distribute minutes of the meetings.

Further fortnightly meetings are to be held on site or other agreed venue, at a mutually agreeable time. The Engineer will take and distribute minutes of the meetings.

C.1.6. NOTIFICATION TO THE ENGINEER

The Engineer shall be notified when work commences and if for any reason work on site is stopped.

Apart from regular site visits the Engineer must be notified at the following stages for inspection. Work is not to proceed until the Engineer has so authorised and to avoid

delays the Contractor is advised to give adequate notice of times when work is ready for inspection.

(a) During excavation and while laying of any underground drainage or water supply pipes.
(b) After laying and before backfilling of each underground pipe.
(c) Before pouring concrete for pipe surrounds.
(d) Prior to pressure testing.
(e) After stripping of topsoil and before placement of any structural fill.
(f) Before undertaking a compaction trial on specific embankment construction materials.
(g) Before placement of the under-liner blinding layer.
(h) Before placement of the liner.
(i) Before pouring of concrete for liner anchor around pipes.
(j) When the Contractor considers all contract work is completed. Before so advising he must check all work including surfaces, and chambers, including lid levels.
(k) At the end of the Defects Liability Period and after again checking all work and carrying out any necessary maintenance work.

At the end of the Defects Liability Period, after being advised by the Contractor that all work is complete, the Engineer will inspect the work and list any work that he considers require attention. If more than one subsequent inspection is required, then the costs of these further inspections shall be paid by the Contractor.

In all cases the Contractor must plan his work and give reasonable notice to the Engineer. The Engineer will attend to these inspections as quickly as possible but may not always be available at short notice and will not be responsible for any delays resulting from inadequate notice. Where detailed checking is required the Contractor shall allow time in his programme accordingly.

C.1.7. KEEPING SITE TIDY AND REINSTATEMENT

Disturbance to the general area is to be kept to a minimum. At the completion of the contract the Contractor shall remove all his unused materials, rubbish, debris or other resulting from construction activities. Any damaged areas of public or private property shall be reinstated to at least their original condition.

The Contractor shall ensure that his operation does not cause a dust or mud problem. Any mud tracked on to the seal should be removed daily.

C.1.8. ENVIRONMENTAL MANAGEMENT

The Contractor shall comply with the relevant conditions of the MDC Resource Consent when it becomes available.

It is likely that this consent will require the Contractor to provide a Site Management Plan to the Team Leader, Resource Consents, M.D.C. at least 5 working days prior to any earthworks or right of way construction commencing on site. This plan shall as a minimum cover the following:

C.1.8.1. Stormwater and Silt Run-off/Sediment Control

Earthworks shall be undertaken in a controlled manner to minimise disturbance and prevent eroded material from leaving the Site. Special measures shall be taken to confine run-off from earthworks areas through the use of bunding, decant structures, silt control devices such as hay bales or silt fences, armouring of concentrated run-off flow paths, etc. These facilities shall be checked and cleaned at regular intervals to ensure that there is continuous effective operation.

Earthworks shall only be carried out in fully drained conditions with no free water on the working surfaces and work areas shall be so shaped to allow effective drainage of surface water by either gravity or pumping if necessary.

There shall be no use of, or discharge to, natural water environments, unless approved by the Engineer, or allowed for under a specific resource consent.

The Contractor shall limit the extent of the ground to be cleared to the minimum necessary to carry out the earthworks detailed on the drawings. The Contractor shall provide and maintain slopes and drains on all earthworks to prevent damage to the works or surrounding property.

All bare earthworks surfaces shall be graded to prevent ponding and scouring, and when rain is forecast or when the site is unattended the surfaces shall be capped with a rubber tyred machine.

Completion of disturbed ground shall proceed as soon as possible after final grades have been achieved. Completion is deemed to include the placing of basecourse layers or topsoil and grassing.

C.1.8.2. Dust Control

The Contractor shall allow for and take the appropriate action to prevent dust from carrying from the site. The Engineer will instruct the Contractor to cease operations immediately if the problem is allowed to continue.
Noise Control

C.1.8.3. Noise

The Contractor shall carry out work in accordance with the noise requirements as outlined in the Marlborough Resource Management Plan, and also NZS6803:1999, the Health and Safety Act 1992 and any subsequent amendments. The Contractor shall co-operate with Council's Environmental Health Officers.

C.1.8.4. Material Storage

Waste oil, grease, paint or other chemical containers shall not be disposed of on site.

Any fuel or oil storage facilities shall be in appropriately bunded areas.

C.1.8.5. Artefact, Historical, Cultural or Archaeological Discovery

If any Artefact, Historical, Cultural or Archaeological sites are uncovered during operations, work shall cease immediately and the Contractor shall advise the relevant Iwi or Department of Conservation office and the Engineer.

C.1.9. CONTRACTOR'S REPRESENTATIVE

The Contractor shall nominate a suitable person to act as his Representative. The Contractor's Representative shall be contactable 24 hours a day by the Engineer or his representative throughout the contract.

C.1.10. CONSTRUCTION PROGRAMME

Prior to work commencing on site, and within one week of acceptance of tender, the Contractor shall submit to the Engineer a construction programme in the form of a Gantt Chart. The activities shall be shown on a weekly basis, with inter-task dependencies and the project critical path shown.

This programme will be used by the Engineer as one of the documents for assessing the Contractor's extension of time claims, if submitted.

The programme must be updated at the request of the Engineer, if he thinks the work is falling behind schedule, to show how the Contractor will complete the Works in the remainder of the Contract Period, including any proposed changes/addition of resources.

C.1.11. QUALITY MANAGEMENT

The Contractor shall determine a sufficient level of quality management and testing and carry out this management to maintain a high level of confidence that all specified requirements are being consistently achieved.

A copy of the quality plan shall be submitted within 14 days of acceptance of tender. During review, the Engineer may request additional information from the Contractor, or resubmission if the plan is not satisfactory. The plan shall be a living document for the duration of the contract.

The Contractor shall include a methodology outlining how they propose to carry out the works.

The Contractors management structure, including site management of this contract shall be included. The Quality Plan shall show how any sub-contractors are to be controlled regarding quality.

The Quality Plan shall show what actions will be taken to ensure only those materials (both supply and in-place) that comply with the relevant specifications are used in the contract. This section shall also show what will happen to non-complying materials.

Information that shall become part of the Quality Records for the project include document control, product identification and traceability, production control, inspection, measuring and testing and equipment information, quality audits, training and statistical records.

Quality Records shall show that inspections and testing have been carried out and corrective actions taken where required. The records shall be provided on forms specifically designed for the purpose, be clean and clearly legible. Location, time, names of persons who conducted testing, and certifying signature shall be recorded in all instances.

Copies of all test reports, conforming and non-conforming, shall be provided to the Engineer.

The Engineer may reject any work or materials that do not comply with the Specification.

C.1.12. CO-OPERATION WITH THE PRINCIPAL

The Contactor shall plan and execute the contract works so that interference with the Principal's activities on and adjacent to the site is kept to a minimum, and all reasonable requests by the Principal are met.

C.1.13. PRODUCER STATEMENT

Prior to the issuing of the Defects Liability Certificate the Contractor shall provide a Producer Statement (Construction). Refer to the Sixth Schedule.

C.1.14. AS-BUILT DETAILS

The Contractor will be provided with an additional set of drawings for marking up As-Built dimensions and details of all new works.

These plans must be submitted to the Engineer prior to Practical Completion being granted.

C.1.15. PROTECTION OF PERSONS AND PROPERTY

(a) So far as the site and the contract works are under the Contractor's control, take all reasonable steps to keep them in an orderly state and in such a condition as to avoid danger to persons and property.

(b) Provide, erect maintain and when no longer required remove all barricades, fencing, temporary footpaths, signs and lighting necessary for the effective protection of property and the public.

C.1.16. TEMPORARY POWER AND WATER SUPPLY

The Contractor shall be responsible for the supply of temporary electrical power and water that he may require.

C.2. SPECIFICATION – EARTHWORKS

C.2.1. GENERAL

This section covers the work related to the clearing, stripping, foundation preparation and earthworks including the preparation of the flexible membrane liner subgrade.

C.2.2. CLEARING

The area of the Works shall be cleared of all loose debris, surface rubbish, trees, brush, plants or any vegetative growth, paving materials and fencing. All cleared materials shall be removed off site unless otherwise directed by the Engineer and shall include for all disposal costs.

Clearing shall not extend more than 5m beyond the designated limits of earthworks in any area, without the Engineer's prior written approval.

C.2.3. STRIPPING

Stripping refers to the removal of all topsoil, humus and organic material remaining after clearing.

Stripping shall be to the depth as is easily identifiable on site, or to the depth as directed by the Engineer, to ensure the removal of all significant organic material and roots.

All stripped topsoil shall be placed in stockpiles for later re-use with remaining un-used material left in areas on site for later reuse by the Principal, as directed by the Engineer.

C.2.4. UNSUITABLE MATERIAL

Unsuitable materials are those, which because of their inherent properties or particular condition make them unsuitable for use as controlled compacted fill, after every effort has been made in accordance with this Specification.

Materials will only be considered as unsuitable when so deemed by the Engineer.

All unsuitable material shall be stockpiled, or placed in areas on the site, as directed by the Engineer.

C.2.5. EARTH FILL

C.2.5.1. Surface Preparation

All fill areas, following clearing and stripping, shall be shaped and compacted so as to achieve a similar compaction, as what is required for the fill material to be placed on it, for a depth of at least 200mm. The Contractor shall take care to avoid over stripping beyond that necessary for the Works. Any areas over stripped or likewise damaged shall be reinstated by the Contractor at their own cost.

Prior to filling commencing, the prepared surface shall be inspected and approved by the Engineer. If so directed by the Engineer, any soft or compressible areas identified during this inspection, shall be undercut and replace with suitable compacted fill material.

The stripped footprint shall be shaped to eliminate sharp changes in grade and to provide a smooth surface, ready for filling. If fill is to be placed against and slope steeper than 1 vertical to 4 horizontal, the surface shall be prepared by creating benches into the surface, not exceeding 0.5m in height.

If any subsurface water seepage is encountered in the prepared surface, these shall be brought to the attention of the Engineer, for his consideration of drainage methods.

C.2.5.2. Fill Material

All fill required in the Works shall be obtained from the cut or nominated borrow areas within the site, except where otherwise stated.

The Contractor shall wherever possible use all suitable material won from cut or borrow areas and shall avoid wastage of materials which would have been suitable if they were effectively drained, conditioned and mixed. If the Contractor wastes such suitable material, and it becomes necessary to expand the borrow, or bring in material from other sources at additional costs, such costs shall not be paid for.

The Contractor shall take all necessary steps to prevent over excavation in cut areas, beyond the design profiles. The making good of any over excavation, with appropriately placed and compacted fill material, on benched subgrade where required, shall be at the Contractor's cost.

Bulk Fill shall consist of reworked alluvial silty gravels and gravelly silts.

Sand or silt blinding shall consist of selected silt or sand encountered in the cut or borrow areas and shall be free from stones larger than 10mm and any sharp materials which may endanger the integrity of the flexible membrane liner. If insufficient linding material is able to be sourced from site, alternative imported crusher dust or silt materials will be considered by the Engineer.

C.2.5.3. Placing, Conditioning and Compaction

Fill material from cut or borrow areas shall be placed and spread in near horizontal layers, by appropriate methods that avoids segregation of fines from larger materials.

Fill shall be placed in layers, not exceeding 200mm loose thickness, in layers as close to horizontal as is practicable. Any rocks exceeding 150mm shall be either broken down or removed from the fill layer, prior to compaction.

When the water content of the cut or borrow material is below what is required to achieve the specified compaction requirements, water shall be added and thoroughly mixed with the loose material to bring it to the required water content. Similarly, if the water content is above what is required the soils hall be dried by scarification using discs or harrows.

No fill material shall be placed on wet underlying material, or when it is raining, such that the water content shall exceed the specified requirements. The Contractor shall also ensure that any complete fill material shall be left in a manner that surface water shall drain off it. Any fill material that has deteriorated due to wet weather shall be dried or replaced prior to subsequent fill material being placed on it at the Contractor's cots.

Fill batters shall be compacted by overfilling and cutting back, or by rolling with compaction plant up and down the slope to ensure the fill is properly compacted including the outside shoulders.

Finished surfaces of completed earth fill shall conform to the design levels and grades within the following tolerances:

- Road subgrade – 10mm
- Slopes flatter than 1 in 5 – 50mm
- Slopes between 1 in 5 and 1 in 2 – 100mm
- Slopes steeper than 1 in 2 – 200mm

Following placement and conditioning, the fill material shall be compacted, using appropriate special purpose compaction equipment, to meet the following requirements:

- There shall be noticeable weave of the fill material under the passage of the compaction plant.

- Shear Vane tests shall give an average strength no less than 130kPa over ten tests with no individual test being less than 100kPa. Test Method BS 1377:1975 test 18. Test Frequency = 1 test per 500 cubic metres of compacted fill.
- Moisture Content shall be in the range between Optimum Moisture Content (OMC) and OMC + 4%. Test Method NZS 4402 Test 4.1.1. Test Frequency = 1 test per 500 cubic metres of compacted fill.
- Air Voids shall not exceed an average strength of 8% over ten tests with no individual test being greater than 10%. Test Method NZS 4402 Test 3A and 3B. Test Frequency = 1 test per 500 cubic metres of compacted fill.
- Dry density shall achieve an average of at least 95% of Maximum Dry Density (MDD) over ten tests with no individual test being less than 93% of MDD. Test Method NZS 4402 Test 4.1.1. Test Frequency = 1 test per 500 cubic metres of compacted fill.

Prior to commencing with earthworks filling a compaction trial will be undertaken by the Contractor, in the presence of the Engineer, to demonstrate that the proposed construction/compaction method will achieve the specification. This compaction trial will be fully documented and form part of the quality control for the project.

Testing of fill shall be done in accordance with the methods and frequencies specified and the Contractor shall record, collate and present the results for acceptance by the Engineer, before the work is covered. Recording of test results shall include sufficient information to allow individual tests to be identified and their location within the fill to be known.

The Engineer may undertake any additional testing as an audit of the Contractor's tests at any depth or location. The Contractor shall allow the Engineer full access by stopping or diverting plant to other fill areas.

As soon as the Engineer is satisfied that the materials are consistent and work is being carried out in a systematic and consistent manner, The Contractor may apply to reduce the frequency of testing to a level deemed appropriate by the Engineer.

Where any of the Contractor's or the Engineer's tests indicate that the specified compaction criteria are not being met, the filling work shall cease and the non-conforming fill shall be rectified. Any costs associated with the Engineer's re-testing and additional observation shall be borne by the Contractor.

C.3. SPECIFICATION – SUBSOIL DRAINS

C.3.1. GENERAL

This section covers the work related to the installation of a subsoil drains under the flexible membrane liner.

C.3.2. MATERIALS

The type, class and diameter of subsoil drain pipes shall be as shown on the Drawings. Pipes shall be manufactured to conform to the appropriate New Zealand Standards.

Perforations in subsoil drain pipes shall conform to the size and spacing patterns shown on the drawings.

Filter material used around the subsoil drain pipes and shall be a clean, washed, durable aggregate with a uniform grading between the 4.75 and 26.5mm sieves.

The geofabric filter membrane, wrapped around the filter material shall be Bidim A24 as shown on the Drawings, or equivalent approved. A minimum of 300mm overlap shall be used between loose ends of adjoining fabric. All geofabric shall be transported, stored and deployed in accordance with the manufacturer's recommendations.

C.3.3. CONSTRUCTION

The Contractor shall use appropriate equipment and plant to ensure that subsoil drains are installed, following accurately set out horizontal and vertical alignments, to ensure free flow of collected water, without ponding occurring in the drainage pipes.

C.4. SPECIFICATION – TRENCHING AND BACKFILLING

C.4.1. GENERAL

This section covers the work related to the excavation in earth and/or rock in trenches, the bedding of piped services or cabling, backfilling and reinstatement.

C.4.2. TRENCHING

Trenches shall be excavated to sufficient depth and width to allow a safe working environment, the proper installation of the service to be installed and the necessary dewatering, if required.

Shoring or benching back of the trench sides shall be undertaken to ensure the safety of all workmen and to comply with the Health and Safety in Employment Act. The Contractor shall ensure that any trenches deemed notifiable under this Act have been notified to the appropriate authorities.

Excavated material shall be placed sufficiently clear of the trench edge to ensure a safe working environment and proper access. Any surplus material shall be disposed of, to approved disposal areas.

The Contractor shall not open up more trenching than can be backfilled in any specific working day.

Any over-excavation beyond the depth shown on the drawings shall be rectified by the introduction and compaction of suitable granular material, at no cost to the Principal.

C.4.3. CONTROL OF WATER

Should water be encountered in the trenches, the level of this water shall be kept below the top of the bedding material, until adequate backfill has been carried out to prevent flotation of the installed piped service.

The Contractor shall provide adequate dewatering equipment to collect and dispose of the water encountered in the trench, without interfering with the safe and efficient laying of the service.

The Contractor shall ensure that the collected and pumped water is disposed of without causing flooding or nuisance to property, roadways or footpaths.

The dewatering equipment used shall prevent the pumping of sand or silt from the excavation and the Contractor shall employ suitable measures to ensure any sand or silt suspended in the water is removed prior to the approved discharge point. Such measures may include retention, filtration or decant operations.

If dewatering is required outside working hours, the Contractor shall ensure that mechanical equipment complies with acceptable noise limits allowed under the appropriate local authority by-laws.

C.4.4. BEDDING

Material used as bedding and pipe surround shall be as defined on the drawings. Bedding material shall be placed and spread evenly along the trench and be shaped to receive the pipe allowing for pipe collars and joints. The bedding material shall support the pipe at least for half its diameter and shall be well compacted under and around the pipe before further backfilling commences.

C.4.5. BACKFILLING

Backfilling and surface reinstatement shall follow directly on from pipe laying and testing of each section of pipe laid. Depending on the location of the trench with respect to existing or future roads etc, the trench shall either be backfilled with selected excavated material, or imported granular fill.

Backfilling shall be undertaken in 150mm layers and compacted by hand around and over the pipe to a depth of 300mm. The remainder of the backfill shall be continued in layers not exceeding 300mm and compacted using appropriate mechanical equipment, to ensure that the backfill density is at least equal to that of the adjacent in-situ earth.

C.4.6. REINSTATEMENT

Following backfill, the surface of the trench shall be reinstated to the levels and the type of surfacing to match what exists on either side of the trench.

This matching shall include where applicable any foundation layers, sealed, asphalt or concrete surfaces or topsoil, grass or landscaped areas.

The Contractor shall maintain the reinstated surface for the duration of the Contract and Defects Liability periods and repair any failures, particularly in trafficked areas, within 2 days of being advised of such failure.

Any excess material left over from the trenching operation shall be removed and disposed of from the site by the Contactor as part of the trenching operation.

C.5. SPECIFICATION – PIPE INSTALLATION

C.5.1. GENERAL

This section covers the work related to the supply and installation of piped services.

C.5.2. MATERIALS

Unplasticised PVC pipes and fittings shall be rubber ring jointed pipes to AS/NZS1254:2002.

High Density Polyethylene pipes shall be butt or electrofusion welded pipes to AS/NZS4130

Concrete pipes shall be rubber ring jointed reinforced concrete pipes to NZS3107:1978.

Manholes, sumps and headwalls shall be reinforced concrete structures to NZS 3107:1978 and cast iron covers and frames to NZS/AS 1830:1986 and galvanised steel sump grates to NZS 1650:1989.

C.5.3. PIPE LAYING

All pipes shall be laid in accordance with the manufacturers guidelines by, or under the direct control, of a registered drainlayer.

All pipelines shall be kept clean of dirt during installation, and particular care shall be taken to prevent dirt entering joints preventing adequate sealing.

The installed pipe shall not be used to assist with water control of the excavated trench.

C.5.4. TESTING

All gravity pipelines shall be tested using either a low pressure air test, or hydrostatic water test, as described in the Building Regulations.

All manholes and structures shall be made watertight using appropriate proprietary sealants. If directed by the engineer, a hydrostatic test shall be applied to the structures to check this requirement.

All pressure pipelines shall be tested in accordance with the manufacturer's specifications with the test pressure being either 1.5 times the maximum working pressure or the rated pressure of the pipe, whichever is the lesser. In the case of HDPE pipelines, the test shall be in the form of a re-bound test.

C.6. SPECIFICATION – MINOR CONCRETE WORKS

C.6.1. GENERAL

This section covers the work related to the formwork, reinforcing, supply, placing, finishing and curing of concrete works.

C.6.2. MATERIALS

Unless otherwise specified, concrete shall be ordinary Portland cement complying with NZS 3109 and 3122.

Aggregate shall have a nominal size of 19mm and shall comply with NZS 3121.

Reinforcement shall be to the size and grade as shown on the drawings and comply with NZS 3402.

C.6.3. CONCRETING

Before pouring of concrete, the Engineer or his Representative shall be advised and reasonable notice given, to inspect the formwork, reinforcement and construction joints.

All concrete shall be high grade which shall have the following strength at 28 days:

Blinding concrete	10Mpa
Foundation pads and strip footings	25Mpa
Slabs on grade	20Mpa
Precast products and panels	30Mpa
General superstructure	30Mpa
Unspecified other areas	25Mpa

Formwork shall be clean and free from debris and damage that shall affect the concrete and finish after stripping. Formwork shall be treated with a suitable releasing oil to ensure proper separation from the concrete.

Concrete shall be placed in accordance and properly vibrated to ensure compaction of the concrete.

The concrete shall be cured using water or curing compounds prior approved by the Engineer.

The concrete surface shall have a surface finish appropriate for its exposure as follows:

Slabs	U3
Top surface of foundations	U2
Concrete below ground	F1
Unexposed concrete surfaces	F3
Exposed concrete surfaces	F5
Precast concrete surfaces	F5X

Precast concrete components shall have shop drawings approved by the Engineer prior to fabrication.

The Contractor shall be responsible for the location, design and provision and subsequent removal or patching of lifting eyes on precast components. The Contractor shall accurately place and be responsible for the design of temporary propping, shoring and/or scaffolding or other means of support to precast items.

Reinforcement shall be cleaned to remove any material which adversely affects the bond to the concrete, which shall include the removal of concrete/cement off starter bars before subsequent pours.

C.7. SPECIFICATION – FLEXIBLE MEMBRANE LINER

C.7.1. GENERAL

This section covers the work related to the installation of a 1.5mm thick HDPE membrane liner within the prepared pond area.

C.7.2. SUBGRADE PREPARATION

The Contractor shall prepare the subgrade to ensure that it is a firm, clear, flat, dry surface without rocks, cracks, surface water or other impediments which may affect the liner installation or long term performance.

Once the Contractor deems that the subgrade is ready for the liner installation to commence, he shall request that the Engineer and the Liner Installer jointly inspect and approve the subgrade. This acceptance shall be certified in writing by the liner installer before any liner is placed.

C.7.3. TRANSPORTATION, HANDLING AND STORAGE

Transportation, handling and storage of the liner is the Contractor's responsibility and any damage to materials incurred during the transportation, handling and storage shall be rectified at the Contractor's cost. During these processes, the Contractor shall follow the requirements of the manufacturer of the liner and shall protect the material from excessive heat or cold, puncture, cutting or other damaging condition.

C.7.4. INSTALLER QUALIFICATION

The installation of the flexible membrane liner shall only be undertaken by an installer approved by the manufacturer of the liner material, using only the manufacturer's approved equipment and methodologies.

The Contractor shall provide the names and qualifications of site personnel confirming that the installers have undergone the required training in laying, welding and site Quality Control testing, appropriate to the material being deployed.

The Contractor shall also provide details of the Quality Control testing laboratory being used for sample testing.

C.7.5. LINER INSTALLATION

C.7.5.1. Liner Anchor/Key Trench

The Flexible Membrane Liner shall be anchored by key trenches around the perimeter of the area to be lined. These trenches shall be to the dimensions shown on the drawings and shall be backfilled with excavated material. The edges of the trench shall be sufficiently rounded so as not to expose the liner to sharp edges of to form creases. Care shall be taken during the compaction of the key trench backfill to prevent damage or puncture of the liner.

C.7.5.2. Installation of Flexible Membrane Liner

Prior to installing the liner the Contractor shall produce a drawing showing the proposed liner panel layout, order of deployment, and details of locations of all seams. Each panel shall be given a unique identification code consistent with the layout plan, tying each component of the completed liner back to original resin and the factory roll identifying data.

Panels shall be deployed and welded whilst ensuring that adequate ballast such as sand bags is deployed for protection against wind effects. The Contractor shall not deploy any more panels than can be welded on that same day.

Liner deployment and seaming shall not take place when weather conditions are such that they will affect the weld integrity. These conditions include excessive heat, cold, wind or moisture. Weather conditions shall be recorded daily as part of the Quality Control documentation.

The method chosen by the Contractor to deploy the panels, shall ensure that no damage is caused to the liner or the prepared subgrade by handling, trafficking, leakage of hydrocarbons, crimpling or wrinkling.

Personnel working on the liner shall not smoke, wear damaging footwear, or engage in any other activity which could damage the liner.

Any panel or part thereof which becomes damaged (torn, cut, twisted or crimped) shall be replaced with new material at the Contractor's cost.

C.7.5.3. Field Seaming

Field seams shall be oriented to run up and down slopes and in corners or change of direction the number of seams shall be kept to a minimum. No seams shall be located in areas of potential stress concentration such as along anchor trench edges. All overlaps along seams shall be appropriate for the welder used and shall be placed with the loose edge pointing down the slope and shall be aligned to minimise the number of wrinkles and "fishmouths".

Prior to seaming, the seam areas shall be clean and free of moisture, dust, dirt, debris, grease or oils.

Seaming shall extend to the outside edge of panels to be placed into the anchor trench and shall be completed in a single continuous operation.

Approved seaming methods include automatic travel, dual track, hot wedge heat fusion welding and extrusion welding only, with the fusion welding being the primary method. Extrusion welding shall only be used for repairs and approved complex situations.

All welding equipment shall have controls of temperature and speed and these shall be confirmed by calibration certificates not more than 90 days old.

Trial seams shall be made on off-cut liner pieces in order to verify that the chosen equipment and seaming method will produce the required result. The Contractor shall ensure that the trial seams shall be undertaken under similar conditions as the actual seams.

The trial seams shall be of adequate length to allow enough test samples to be cut for both shear and peel tests. All trial seam tests shall be recorded as part of the overall Quality Control data.

At the start of each weld, the heat fusion welder shall be positioned and the drive engaged, setting the welder in motion and then steered and controlled continuously by the operator. Should any "fishmouths" occur they are to be slit and patched. Tee-joints shall also be patched.

All patching shall be done using manual extrusion welds. Manual extrusion welds shall be undertaken after purging of all preheated extrudate from the extruder and the weld bead shall be laid carefully along the line of the edge of the top sheet such that the fillet is evenly distributed between the two sheets.

C.7.6. LINER TESTING

C.7.6.1. Non-destructive Testing

The Contractor shall non-destructively test all field seams over their full length using an air pressure test for dual track hot edge welds and vacuum tests for extrusion welds.

Air pressure tests shall be undertaken by sealing both ends of the seam, inserting a needle, or other approved device, into the tunnel created between the two weld tracks and applying an air pressure between 135 and 140kPa, which shall be sustained for no less than 5 minutes..

Vacuum tests shall be undertaken using a test box with transparent top, rubber base seal and a connection to a vacuum pump. A soapy solution is applied to the whole area of the liner covered by the box and a vacuum of 35kPa applied. After observation for bubbles for 10 seconds the vacuum is released and the process repeated on the next section of seam, allowing sufficient overlap to ensure continuity.

All non-destructive testing shall be recorded as part of the Quality Control data.

C.7.6.2. Destructive Testing

Destructive seam tests shall be performed on samples collected from selected locations to evaluate seam strength and integrity. Destructive seam tests shall be carried out as the seaming work progresses, not at the completion of all field seaming.

Destructive test samples shall be collected at a minimum frequency of one test per 300m of weld length.

Weld samples shall consist of two 25mm wide and 300mm long strips cut with the seam centered parallel to the width of the sample. The strips shall be taken 1 m apart. These two strips shall be tested in the field and if they pass, a laboratory sample may be taken. The laboratory sample shall be at least 0.3m wide by 1 m long with the seam centered lengthwise. This sample shall be cut into three equal parts of which one is to be used by the Contractor for laboratory testing, one is to be kept by the Engineer for laboratory testing and one retained by the principal for archive storage.

The field tests on the 25mm samples shall be for peel and shear respectively using a tensiometer. Both tests shall be at a test speed of 50mm per minute and acceptance for the peel test shall be based on a Film Tear Bond (FTB) which requires that the weld face not peel apart and that the weld fail by necking and elongation in other part of the specimen. Acceptance for the shear test is that the ultimate tensile strength of the weld should exceed 80% of the ultimate tensile strength of the base material.

Laboratory testing acceptance shall be on the same basis as the field tests.

In the event of a failure of a field or laboratory destructive test, two further samples shall be taken 5m each side of the location where the failed sample was taken. If both these samples pass testing, the weld between them will be patched. If one or both further samples fail, further samples will be taken at 5m intervals until a passing sample is obtained.

Full Quality Control records of all sampling locations and test results shall be collected as part of the QA data.

C.8. SPECIFICATION – ROAD CONSTRUCTION

C.8.1. GENERAL

This section covers the work related to the construction of roads, including preparation of subgrade and the supply and placement of subbase, basecourse and surfacing layers.

C.8.2. MATERIALS

AP65 Subbase shall be a strong and durable material, free from non-mineral matter, with a grading which meets the following:

Aperture Size	Percentage Passing by Weight
65	100
37.5	50 to 70
19	30 to 50
9.5	20 to 35
4.75	10 to 25
2.36	8 to 21
0.6	4 to 13

AP40 Basecourse shall comply with TNZ specification M/4.

C.8.3. SUBGRADE

Following completion of earthworks, the subgrade shall be trimmed, shaped and rolled to the required profiles and grades as shown on the drawings.

The Contractor shall obtain the approval of the subgrade from the Engineer, prior to placing of any subbase material.

If the Contractor chooses to work machinery n the subgrade, resulting in pugging or weaving of this layer, any dig outs and replacement of affected material shall be undertaken at no cost to the Principal.

C.8.4. SUBBASE

Following acceptance of the subgrade layer, a layer of compacted AP65 subbase material shall be constructed to the levels and grades shown on the drawings.

C.8.5. BASECOURSE

Following acceptance of the subbase layer, a layer of compacted AP20/M/4 basecourse material shall be constructed to the levels and grades shown on the drawings.

The basecourse layer shall be finished t a well compacted, tightly bound, stone mosaic finish.

D. DRAWINGS & OTHER INFORMATION

D.1. CONTRACT DRAWINGS

The drawings are forming part of this Contract are the following:

Delegat's Wine Estate New Zealand

- Gilbert Haymes & Associates / Marlborough Management Services – Moleta Block Reservoir Area – Proposed Reservoir - Sheets 1 to 7 Revision A _ Issued for Building Consent & Pricing

These drawings shall not be used for construction.

The Building Consent has been applied for by the Principal. Upon receipt of the Consent, Marlborough Management Services will issue a set of Construction Issue drawings, which shall be used for Construction purposes.

D.2. OTHER INFORMATION

D.2.1. RESOURCE CONSENT APPLICATION

Resource Consent Application U140469 received by Council on 17 June 2014, as prepared by Wilkes Resource Management Solutions, including Reservoir Technical Report.

Resource Consent Application U140523 received by Council on 3 July 2014, as prepared by Wilkes Resource Management Solutions, including Stream Realignments and Crossings Technical Report.

D.2.2. RESOURCE CONSENT DECISION

Decision on Application of Resource Consent No. ?????, dated ??????