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AQUA IRRIGATION



Ministry of Works
and Development

Alexandra Residency

OMAKAU IRRIGATION SCHEME

Review of Old Central Otago Irrigation Schemes.

Phase 1
Scheme Description and Inventory of Components.

MINISTRY OF WORKS AND DEVELOPMENT
ALEXANDRA RESIDENCY

REVIEW OF OLD CENTRAL OTAGO IRRIGATION SCHEMES
PHASE 1: SCHEME DESCRIPTION AND INVENTORY OF COMPONENTS
OMAKAU SCHEME

Field Assessment: R Hawkes, P Amos
Photographs: P D Amos
Compilation: K Rhodes, A Jolly

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- (A) Refer also to report No: R/85/16 vol 2 for photographs which are referred to in inventory.
- (B) Refer also to set of Aerial photographs series 7/547/7/2706/Sheet No's 16, 19, 20, 21, 22, 23, 24, 25, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 45, 46, 47, 51, 52, 53, 57, 58

OMAKAU
SCHEME DESCRIPTION

The original concept of irrigation for this area was so large (25,600 hectares) and costly it never got under way because of the lack of community interest and government funding.

The original idea for the dam was retained but for a greatly reduced scheme.

The Falls Dam is a substantial rockfill 33½ metres above the stream bed and containing 128,500 cubic metres. The face is reinforced concrete and when built the structure was designed for a future possible raising of 12 metres. Water is discharged by a balanced needle valve into a spillway tunnel which is fed by a vertical "morning glory" circular spillway.

The dam began functioning in the spring of 1935 and fed what is now the Omakau Main Scheme.

This consists of the Main Race which is 48.5 kilometres long and carries initially 60.70 head (cusecs) of water and approximately 20 distributaries of varying sizes which total 25 kilometres in length. The Main Race also supplies a continual supply of 5 cusecs over a saddle at Tiger Hill. A pump raises the water 7½ metres to irrigate an area of 200 hectares. Included in this scheme is 4,900 metres of syphons and 4 concrete lined tunnels totalling 650 metres.

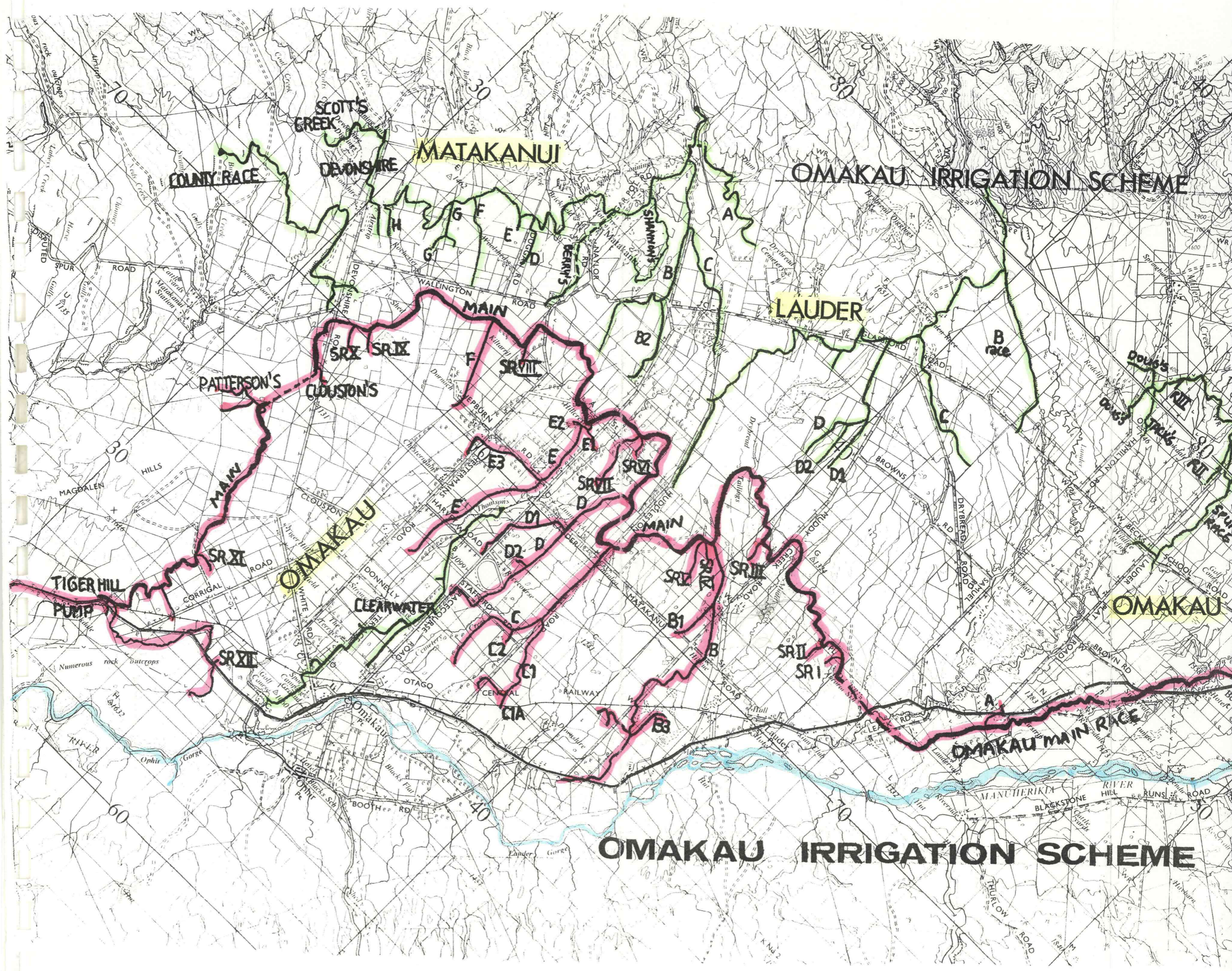
Two smaller schemes started up at the same time. These were the Matakanui and the Lauder, and they utilised the old miners water races. Each of these schemes is fed by a major stream for which the Government has a primary water right.

The Dunstan scheme which started 3 years later had to construct the required main race line and the distributaries. The Dunstan is the only sub scheme of the Omakau that has a secondary water right. This means they have "second call" on the water.

The total area supplied in the Omakau scheme is 6000 hectares of which 340 hectares is on the left bank of the Manuherikia. This area is serviced by the Blackstone Hills Race which draws water from the Manuherikia 4 kilometres upstream of the Lauder Intake (Omakau Main Race).

A headraceman, three racemen and a handyman service the whole scheme including the operation of the Falls Dam flow. The exception is the Blackstone Hills Race which apart from the initial 3 kilometres approximately is run solely by the farmers.

R Hawkes
Engineering Officer
22.2.85





DUNSTAN

BLACKSTONE HILLS

Manuherikia River

Fiddlers Dam

OMAKAU IRRIGATION SCHEME
OPERATIONAL PROBLEMS AND POSSIBLE IMPROVEMENTS

The Omakau Irrigation Scheme is, in general, in fairly good condition except for some major structures which are in a very poor state of repair.

Falls Dam and the main intake structure on the Manuherikia River have already been covered by: "Manuherikia Valley Irrigation: Prefeasibility Report on Civil Engineering Aspects of Irrigation Options" (January 84).

Three Urgent Problems have been identified.

(i) Omakau Main Race : Lauder Syphon (Structure 56)
This syphon crosses Lauder Creek in three stages:

The first stage is a concrete pipeline 873 metres long. Leakage from joints has caused swampy ground thereby aggravating settlement and leakage problems.

The second stage is a concrete-lined steel pipeline, 233 metres long, crossing the creek bed. The spread of willow trees across the creek bed has led to aggradation, reducing clearance between the pipeline and ground. On a previous occasion debris and flood water has backed up behind the pipeline until a section of pipe gave way. Concrete lining in the pipe has deteriorated to such an extent that it is non-existent in most places.

The third stage is a concrete pipeline 521 metres long. This length is in good condition with few minor leaks.

(ii) Omakau Main Race : Tiger Hill Pump (off structure 209)
Although the pump is working well at present, it is old and will require extensive servicing. The shed housing the pump however needs replacement.

The present position of the pump machinery is poor. When the pump fails the pumphouse is flooded very quickly.

The rising main is on unstable ground. Settlement has caused leaks at collars and cracks in the pipes. Emergency repairs to the pipeline have aggravated the situation leading to further cracking of pipes.

(iii) Dunstan Main Race : Hamilton Syphon (Structure 48)
This syphon crosses Becks Creek above Mee Road in three stages.

The first stage is a concrete pipeline. Leaks at the intake have caused erosion alongside the downhill length of pipe. Leaks at joints along the flat section are common now, causing swampy ground.

The second stage is a concrete-lined steel pipeline across the creek bed. This appears to be in good order.

The third stage is a concrete pipeline. Joints in this section are also causing leakage problems.

The following Major problems have been identified:

(i) Omakau Main Race : Becks (or Manuherikia) Syphon
(Structure 23)

This syphon crosses the Manuherikia River near Becks in three stages.

The first stage is a concrete pipeline down to the river. This has several large leaks, especially at joints.

The second stage is concrete-lined steel pipe on concrete pedestals across the river. The concrete lining has worn considerably.

The third stage is a concrete pipeline which gives few problems.

(ii) Omakau Main Race : Becks Slips (between structures 32 & 33)

The introduction of irrigation above the Main Race opposite Becks Hotel by the farmer appears to have caused slips in the slopes above the race. These slips have been cleared but the hillside is still unstable and likely to slip again.

(iii) Dunstan Main Race : Concrete Channel (Structure 3)

This channel was built to cut water losses through extremely porous ground. It is now quite badly cracked. Race losses are now high during summer, while water enters the race when the water table is high during winter.

(iv) Dunstan Main Race : Harley's Syphon (Structure 18)

This syphon is starting to develop leakage problems which will become serious in the near future.

(v) Matakanui Main Race : Intake Weir (Structure 1)

Several large cracks have developed in this structure. Some leaks are present and this problem will increase.

(vi) County Race : Scott's Creek Flume (Structure 21)

This is a steel pipeline spanning between the creek banks. There is a bolted joint in the centre of the span which has split allowing leaks from the pipeline.

There are several minor problems which have been identified.

(i) Omakau Main Race : Silt trap and bywash (Structure 3)

This system is not working satisfactorily. Material jams the gates of the bywash so that full operation is not possible. Material which has settled in the bywash outlet pipes cannot be removed because the pipes are too small and too long even for hand cleaning. Machine cleaning of the main structure is impossible as well because of the gate positions.

(ii) Omakau Main Race : Huddleston Syphon (Structure 177)

This 1.15 km long concrete pipe and collar syphon sits on the ground with a thin earth covering over it. Mortar in the joints does not last long so leaks are becoming more frequent.

(iii) Omakau Main Race Distributaries : 'E' Race (Structure 1)
This pipeline crosses a small swampy gully. Joints in the pipeline are leaking continuously.

(iv) Lauder Main Race (between Structures 5 & 7)
The Lauder Main Race has been built alongside a steep gravel face. Material falling from the face falls straight into the race.

(v) Matakanui Distributary A : Thomson's Creek Syphon (Structure 1)
This syphon has had a blowout in the past which has been repaired. However, leakage problems still persist.

(vi) Matakanui Distributary D : Thomson's Creek Syphon (Structure 8)
Erosion of the creek bed has exposed this buried pipeline. There is now a danger of damage to it during flooding.

There are several other details which would improve the scheme's operation:

Continuous vehicle access along racebanks including gates between paddocks, especially at boundary fences.

The replacement of old, damaged and ineffective minor structures such as measuring boxes, bridges and culverts.

The repair and resiting of structures and sections of race which have minor leakage problems at present.

The equipping of racemen with suitable equipment including radios.

This report should be read in conjunction with the "Manuherikia Valley Irrigation : Prefeasibility Report on Civil Engineering Aspects of Irrigation Options" (January 1984) which includes general options for the Omakau Irrigation Scheme.

Comments from Alexandra O & M Staff will be forwarded when available.

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MEETINGS WITH OMAKAU IRRIGATION SCHEME COMMITTEE

Two meetings were held between the Omakau Irrigation Scheme Committee and MWD personnel to discuss refurbishment of the Omakau Scheme.

The first meeting was held on Tuesday 5th February 1985 as part of a regular MWD Operations and Maintenance meeting with the Committee. Here the Committee were advised of the programme for Phase 1 of refurbishment and the type of input the MWD would like from the Committee for this report.

The second meeting was held on Tuesday 5th March 1985. MWD personnel were invited to this meeting so that the Committee could outline their concerns and priorities for refurbishment of their scheme.

Members of the Committee had participated with MWD representatives in a walkover of the main problem areas of the scheme in July 1984 and this formed the basis for discussion.

Falls Dam

The Committee expressed concern that no work appears to have been done on the Morning Glory Spillway yet. They are aware of damage to the concrete walls of the spillway and that when it is operating water could undermine material in the core of the dam. The loss of Falls Dam is their greatest concern as all irrigation off the Omakau Main Race will be affected.

The Committee were advised that a Prefeasibility Report on Manuherikia Valley Irrigation has been produced which includes options to be considered for Falls Dam. However no construction work has started yet.

Omakau Main

Main Intake

The Committee regards the main intake bywash structure to be of poor design. It was felt that automatic bywashing is necessary here. The present system of manual operation of the structure is ineffective, especially when the Manuherikia River is in flood.

Installation of automatic bywashing systems at all intake structures should be a priority, especially at the mountain stream intakes where flash floods are likely.

Becks Syphon

The Committee felt the Becks Crossing Syphon to be in pretty good condition except for the first section of concrete pipes.

Slips above Main Race

Concern was expressed as to the state of the slips opposite Becks Hotel. The Committee was assured that these slips have been stabilised for the time being.

Lauder Syphon

The Committee regards the Lauder Syphon to be a major concern. It is in very poor condition and in urgent need of attention. MWD engineers had mentioned to them moving the syphon completely. The Committee expressed interest in the options being considered by MWD and inquired whether stockpiles of concrete pipes located nearby were for rebuilding this syphon. The Committee were informed that these pipes were for Operations and Maintenance use and not suitable for the worst parts of this structure.

Golden Gate Syphon

This syphon has started to cause problems but the Committee is fairly happy with it, although they did inquire whether it was large enough to cope with the flow.

Huddlestone Syphon (or Tiger Hill Syphon)

The Committee feels this syphon is inadequate. It is causing problems with leaks and there is concern that the pipe is too small and too long for the water it is expected to carry.

The Committee has, in the past, suggested shortening the length of the pipeline and replacing the extra length with a large fill and open race.

Tiger Hill Pump

The Committee is very concerned with the state of the Tiger Hill Pump rising main. It is very important that this is fixed immediately as it has reached the end of its life.

Distributaries off the Omakau Main Race

These distributaries give few problems, although continual race cleaning leaves races too deep to get water out when the flow is low.

Dunstan Section

Irrigators on the Dunstan section of the scheme are, at present, trying to break away from the Omakau Irrigation Committee and form their own scheme committee. Nevertheless, irrigators from this section were reluctantly present at the meeting and did discuss their section of the scheme.

The Hamilton Syphon on the Main Race is of concern, with losses of more than 1 cusec in the pipeline. The Committee wished to know what MWD has planned for remedying this problem and whether it would be done as part of refurbishment or sooner as part of Operations and Maintenance.

Lauder Creek Section

The Committee would like to see an improved flood control system on the intake in Lauder Creek. They also suggest lifting the intake weir to give another 2-3 cusecs flow and improve supply in drier months.

Concern was also expressed about the proximity of the Main Race to an unstable cliff face 500 m downstream of the intake weir. The Committee would like to see a debris bench constructed below the cliff to reduce the risk to the race.

The culvert under Glassford Road is a constriction in the race and the drop at the outlet leads to scouring. The Committee suggested that a different crossing and a flume down the hill should be considered.

Matakanui (or Thompsons Creek) section

The Committee expressed concern at the state of the intake structure. Bad cracking in the wall of the dam should be looked into immediately.

Leaks in the syphon at the start of Distributary A were pointed out by the Committee. They inquired if putting in a new high level race from the intake down to the present race would be a more feasible option.

The possible resiting of measuring boxes in the races to boundary fences was raised. The present positions of some imply that some farmers may not be paying their correct water charges.

Blackstone Hills

The Committee would like to see the resiting and lowering of the intake from the Manuherikia River to get a better supply when the river level is low.

Future Water Charges

The issue of future water charges was raised. The Committee wish to know if water charges for "run of the river" schemes, namely Dunstan, Lauder, Matakanui, County, Devonshire and Clearwater, will be the same as those for irrigation off the Omakau Main Race. "Run of the river" schemes rely solely on fluctuating mountain streams as their source, whereas the Omakau Main Race uses storage from Falls Dam as its supply. Some members of the Committee feel that these differences are important and should be considered when future water charges are fixed.

P Amos
Asst. Engineer

OMAKAU SCHEME

3 (c) Operation Cost Data

- (1) 1982/83, 1983/84 and 1984/85 (up to 15.1.85) costs are attached.
- (2) Completion of the refurbishment of the entire scheme would result in the following estimated annual operational costs. (All x \$1,000 at CCI = 2200). It is assumed that a staff of 5 racemen will continue to be required.

SEG 1 Raceman Wages	83.0
Wages - Alex. Irrig. Section	17.5
SEG 2 Raceman Vehicles	28.5
Other	5.5
SEG 3 Plant - Race cleaning etc.	23.0
SEG 4 Weedspray	5.5
M & E Mtce.	2.5
Stores	4.0
10% Admin. Charge	17.5
	187.0

Income based on

\$200/irrigator x 72	14.4
\$50/hectare x 5775	288.8
\$300/pipe x 6	1.8
	305.0

NB : (1) Estimate is ROC

(2) No allowance has been made for electricity charges. This will depend on the outcome of the renewal of the Fraser Power Agreement. It is possible that some power costs will be charged to the scheme.

COSTS INCURRED - OMAKAU SCHEME

All costs (x 1,000)	1982/83 (CCI AV = 2000)					1983/84 (CCI AV = 2030)					1984/85 (CCI AV = 2180) Costs up to 15.1.85				
	Seg 1	Seg 2	Seg 3	Seg 4 & Others	Total	Seg 1	Seg 2	Seg 3	Seg 4 & Others	Total	Seg 1	Seg 2	Seg 3	Seg 4 & Others	Total
General	27722	4403	420	36512	69057	17099	3287	62	48948	69396	22802	1694	-	24707	49203
Water Management	27429	16016	-	101	43546	17996	12855	62	328	31241	5642	4046	-	85	9773
Seed Spraying	4943	1636	-	4162	10741	3081	1793	-	480	5354	2567	1106	-	1075	4748
Machine Cleaning	2795	1313	11406	-	15514	3454	1181	23531	140	28306	2053	617	13645	-	16315
and Cleaning	6996	947	-	-	7943	17613	2353	224	20	20210	14111	1210	-	-	15321
Minor R & R's	26916	7188	2632	9383	46119	17923	7272	2785	7405	35385	17175	6630	2495	8527	34827
elec. Maintenance	-	-	-	735	735	-	-	-	259	259	-	-	-	2197	2197
mech. Maintenance	260	197	-	601	1058	-	58	-	491	549	-	-	-	73	73
Water Meter Syphon	1713	377	290	1769	4149	-	-	407	-	407	-	-	-	-	-
Water Meter Syphon	1887	22	1577	5	3491	-	226	160	-	386	-	-	-	-	-
Ball Dam Repairs	2202	1401	108	843	2868	-	-	10	-	10	36	117	58	-	211
Access Tracks	660	-	1062	-	1722	-	-	-	-	-	-	-	-	-	-
Slip Damage	-	-	-	-	-	801	314	2733	-	3848	1814	198	4214	54	6280
Total	103523	33500	17495	52425	206943	77967	29339	29974	58071	195351	66200	15618	20412	36718	138948
Total Schemes NK MGT and General Costs											Predicted expenditure to 31.3.85 = \$233100				
											9.8% 4.1				
											12.2% 31.6				

REFERENCES

"MANUHERIKIA VALLEY IRRIGATION : PREFEASIBILITY REPORT ON CIVIL ENGINEERING ASPECTS OF IRRIGATION OPTIONS" (January 1984) MWD Dunedin District Office R 84/10.

APPENDIX A

OMAKAU IRRIGATION SCHEME : RACE INDEX

<u>RACE</u>	Length (to nearest 0.1 km)	Race Capacity (m ³ /hr)
BLACKSTONE HILLS	0.7	1000
OMAKAU MAIN RACE	49.3	7500
'A' Race	0.8	100
SR I	0.8	200
SR II	0.7	200
SR III	0.5	200
'B' Race	7.5	1000
Distrib. B1	1.0	200
Distrib. B2	1.0	200
Distrib. B2A	0.4	200
Distrib. B3	0.5	200
SR IV	0.7	200
SR V	0.8	200
'C' Race	3.8	1000
Distrib. C1	3.2	400
Distrib. C1A	0.3	100
Distrib. C2	0.1	100
'D' Race	4.2	1000
Distrib. D1	1.9	300
Distrib. D2	0.2	100
SR VI	0.4	300
SR VII	0.7	300
'E' Race	4.7	1000
Distrib. E1	0.3	300
Distrib. E2	0.1	300
Distrib. E3	1.7	300
Distrib. E4	0.6	300

	(km)	(m ³ /hr)
SR VIII	0.2	150
'F' Race	1.6	500
SR IX	0.4	200
SR X	0.4	200
Clouston's Distributary	0.4	200
Patterson's Distributary	1.8	400
Patterson's Distrib. 1	0.4	200
SR XI	0.3	200
Grass Flume	0.6	100
Tiger Hill Pump Race	0.2	500
Tiger Hill Pump Distributary	0.1	300
SR XII	0.03	300
	<hr/>	
Total Length :	92.63	
CLEARWATER	7.4	800
Distrib. 1	0.2	100
Distrib. 2	1.2	200
Distrib. 3	0.02	200
Distrib. 4	0.3	400
	<hr/>	
Total Length :	9.12	

	(km)	(m ³ /hr)
DUNSTAN MAIN RACE	3.5	1500
Shaw's Race	0.2	300
Mee's Race	0.8	100
RI	0.02	100
Kane's Race	2.4	400
Kane's Distrib. 1	0.8	200
Kane's Distrib. 2	0.7	200
Spur Race	2.0	400
Spur Distrib. 1	0.4	200
R II	1.1	100
R III	0.1	100
George's Race	0.8	200
Jack's Race	0.7	300
Doug's Race	0.8	200
Total Length :	14.32	
LAUDER MAIN RACE	16.8	1200
Distrib. B	3.1	300
Distrib. C	3.0	300
Distrib. D	3.3	400
Distrib. D1	1.2	300
Distrib. D2	0.8	300
Total Length :	28.2	

	(km)	(m ³ /hr) ⁴
MATAKANUI MAIN RACE	12.4	1600
Distrib. A	4.8	300
Distrib. B	4.9	600
Distrib. C (or Distrib B)	2.3	200
Distrib. B2	1.8	300
Shannan's Distributary (or Distrib. C)	3.1	200
Berry's Race	0.8	200
Distrib. D	1.0	200
Distrib. E	0.2	200
Distrib. F	1.7	200
Distrib. G	0.9	200
Distrib. G1	0.5	200
Distrib. H	0.6	200
Total Length	<u>35.0</u>	
SCOTT'S CREEK RACE	1.9	100
DEVONSHIRE RACE	1.8	200
COUNTY RACE	7.6	500
Distributary	0.8	200
Total Length :	<u>8.4</u>	
Total Length of all races =	192.1 km	

APPENDIX B

OMAKAU IRRIGATION SCHEME : RACE INVENTORY

<u>RACE</u>	Page No.
FALLS DAM	1
BLACKSTONE HILLS	2
OMAKAU MAIN RACE	3
'A' Race	20
SR I	21
SR II	22
SR III	23
'B' Race	24
Distrib. B1	28
Distrib. B2	29
Distrib. B2A	30
Distrib. B3	31
SR IV	32
SR V	33
'C' Race	34
Distrib. C1	37
Distrib. C1A	39
Distrib. C2	40
'D' Race	41
Distrib. D1	43
Distrib. D2	44
SR VI	45
SR VII	46
'E' Race	47
Distrib. E1	51
Distrib. E2	52
Distrib. E3	53
Distrib. E4	55

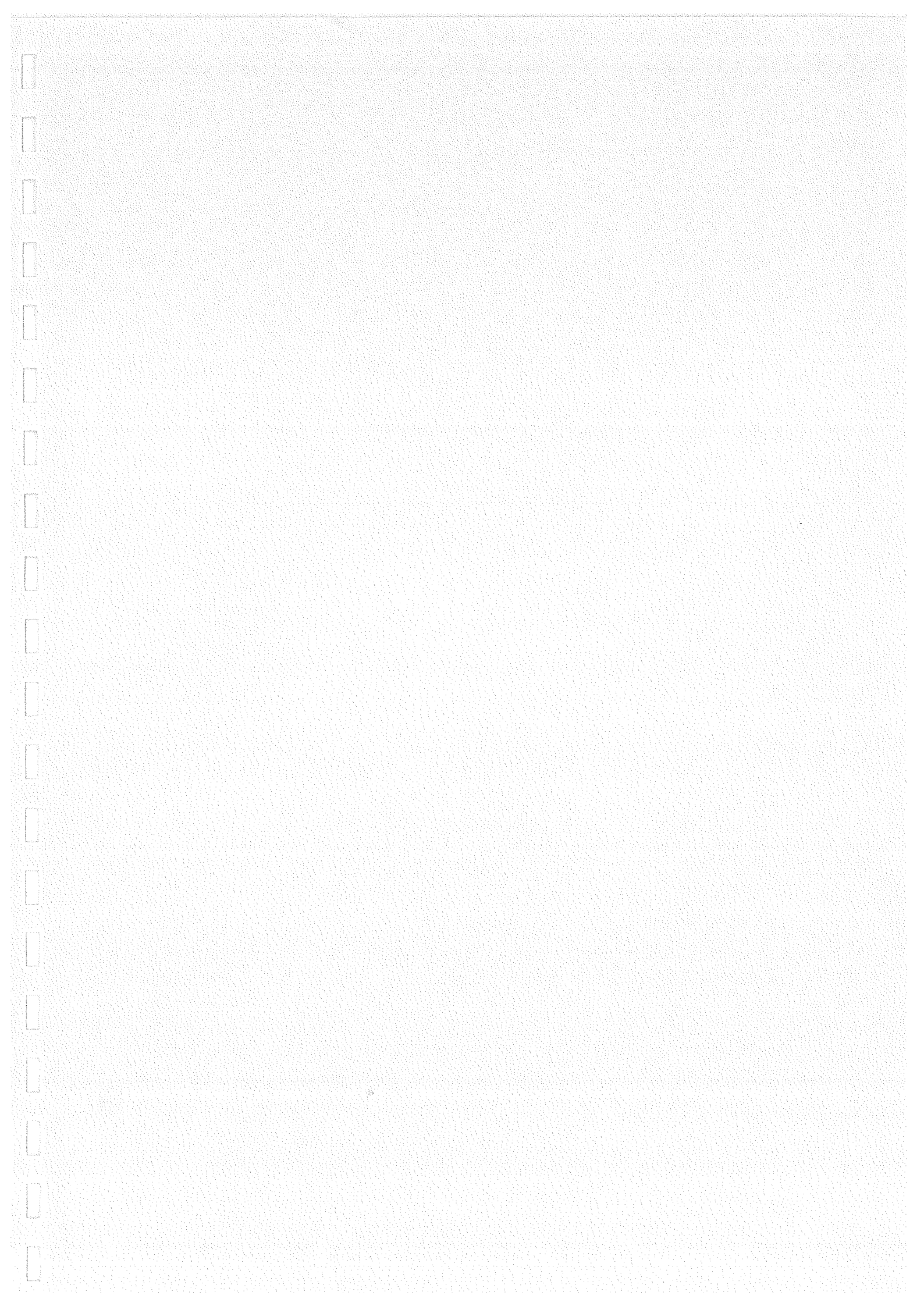
	Page No.
SR VIII	56
'F' Race	57
SR IX	58
SR X	59
Clouston's Distributary	60
Patterson's Distributary	61
Patterson's Distrib. 1	62
SR XI	63
Grass Flume	64
Tiger Hill Pump Race	65
Tiger Hill Pump Distributary	66
SR XII	67
CLEARWATER	68
Distrib. 1	72
Distrib. 2	73
Distrib. 3	74
Distrib. 4	75

	Page No.
DUNSTAN MAIN RACE	76
Shaw's Race	83
Mee's Race	84
R I	85
Kane's Race	86
Kane's Distrib. 1	88
Kane's Distrib. 2	89
Spur Race	90
Spur Distrib. 1	91
R II	92
R III	93
George's Race	94
Jack's Race	95
Doug's Race	96
LAUDER MAIN RACE	97
Distrib. B	103
Distrib. C	104
Distrib. D	105
Distrib. D1	107
Distrib. D2	108

	Page No.
MATAKANUI MAIN RACE	109
Distrib. A	114
Distrib. B	115
Distrib. C (or Distrib. B1)	118
Distrib. B2	119
Shannan's Distributary (or Distrib. C)	120
Berry's Race	121
Distrib. D	122
Distrib. E	123
Distrib. F	124
Distrib. G	125
Distrib. G1	126
Distrib. H	127
SCOTT'S CREEK RACE	128
DEVONSHIRE RACE	129
COUNTY RACE	130
Distributary	133

Struct. no.	Dist. (m)	I T E M			Cond.	Detail	Remarks	Last Ass.	Access	Photo no.	Drawing no.
		Acc-X	T/Obox	Pipeline							
						Rock fill dam Concrete slab face on upstream side of dam 'Morning Glory' Spillway (Bell mouthed inlet to tunnel)	Dam slumped near True Right abutment Leaks at joints in concrete face plugged and sealed with pitch. Leaks now minimal Concrete walls eroded by water especially at joints Reinforcing steel exposed. Eroded to the extent that water leaks into pipeline from lake			1,2 3 4-11	

Struct.	Dist. (m)	I T E M			Cond.	Detail	Remarks	Access	Photo no.	Drawing no.
		Acc-X	T/Obox	Pipeline						
1	0	-	-	-	Good	Intake - gated 450 mm pipe set in concrete	On bank of Manuhirikia River	12,13	21	
2	50	/	-	-	Poor	6.0 m x 560 mm dia. steel access	Under Creek	14		
3	180	-	-	/	Bad	12.0 m x 560 mm dia. steel pipe	Under Waldrons Access	15,16		
4	450	/	-	-	Good	600 mm dia. concrete pipe x 9.5 m		17		
5	650	-	/	-		Bywash. Steel gate on 375 mm concrete pipe		18,19		
		-	-	-		Concrete Weir 580 mm D x 900 mm W 0.5 m drop	Ideal installation for a Neyrpic gate			



REASSESSMENT OF SCHEME: OMAKAU										RACE: MAIN		DATE: 13.12.84		sheet 3 of 132	
Structure no.	Dist. (m)	I			E		M	Cond.	Detail	Remarks	Access	Photo no.	Drawing no.		
		Acc-X	T/Obox	Pipeline	Misc.										
1	0	-	-	-	-	Intake	Fair	Concrete diversion weir, automatic gate and four steel intake gates	Weir needs some work at true right end. Gates are original but seem to be in good condition		20-22	25			
2	10	-	-	/	-	-	Bad	Pipe dia. 1.37 m x 609.6 m	Eroded and floor reinforcing exposed Joints require filling						
3	510	-	-	-	-	Silt trap	Bad	N.B. River close to pipeline may need some erosion protection Silt trap and bywash and measuring weir steel gates (9) on concrete pads Weir concrete 4.8 m wide	MINOR Very hard to clean silt trap, also material in silt trap clogs gates when bywashing		23-26				
4	640	/	-	-	-	-	Good	Concrete Bywash Twin culverts 900 mm pipes, 8.6 m long Concrete Headwalls	Too small to clean with machine or manually Under St. Bathans Downs Road		27,28				
5	790	-	-	-	-	Drop	Good	Concrete drop, 900 mm drop, cut-off wall and still pond			29				
6	940	-	-	-	-	Drop	Fair	Concrete drop 900 mm, cut-off wall and still pond	Cracking in concrete need replastering		30	31			
7	1110	/	-	-	-	-	Fair	Concrete Box culvert Syphon under Main Highway 1.15 m x 840 mm x 41.5 m	Leaks at road edges		31,32				
8	1630	/	-	-	-	-	Good	Concrete Bridge 4.0 m wide			33				
9	1850	-	-	-	-	Drop	Good	Concrete Drop 400 mm D x 5.8 m wide Cut-off wall			34				



REASSESSMENT OF SCHEME: OMAKAU										RACE: MAIN	DATE: 13.12.84	sheet 4 of 133	
Stn. No.	Dist. (m)	I			E		M	Cond.	Detail	Remarks	Access	Photo no.	Drawing no.
		Acc-X	T/Obox	Pipeline	Misc.								
10	1910	-	-	-	-	Drop	Good	Concrete drop 600 mm. Cut-off wall	As for No. 9		35	31	
11	1980	-	-	-	-	Drop	Good	Concrete drop 600 mm. Cut-off wall	As for No. 9		336		
12	2025	-	-	-	-	Drop	Good	Concrete drop 600 mm. Cut off wall	As for No. 9		37		
13	2110	-	-	-	-	Drop	Good	Concrete drop 600 mm. Cut-off wall	As for No. 9		38		
14	2160	-	-	-	-	Drop	Good	Concrete drop 600 mm	As for No. 9		39		
15	2230	-	-	-	-	Drop	Good	Concrete drop 600 mm	As for No. 9		40		
16	2285	-	-	-	-	Drop	Good	Concrete drop 600 mm	As for No. 9		41		
17	2330	-	-	-	-	Drop	Good	Concrete drop 600 mm	As for No. 0		42,43		
18	2360	-	-	-	-	Drop	Good	Concrete drop 600 mm			44		
19	2480	-	-	-	-	Bywash	Good	Gate mechanisms could be rusted up. Choked up both sides with weeds	Bywash not used, was designed to be used in conjunction with Automatic radial gate No. 20		45,46		
20	2840	-	-	-	-	Gate	Good	10.67 m Concrete Automatic Bywash and 3 Drain ports and steel control gates			47-49		
21	3060	/	-	-	-	-	Good	Concrete pipe road culvert 18.9 m x 1.22 m Concrete headwalls	Built into inlet structure of road culvert Armitages Road to farmhouse				
22	3200	-	-	-	-	-	Good	Concrete pipe road culvert 1.07 m x 10.9 m Concrete headwalls	Blackstone Hill Road Crossing		50,51		
23	3250	-	-	/	-	-	Fair	Measuring box 375 mm	Only used when working on syphon		52		
		-	-	-	-	-	Good	1.07 mm dia. pipe x 1026.5 m Concrete headwalls Initial concrete piped section leaking badly	Becks (or Imanuherikia) syphon. Major		53-56		

REASSESSMENT OF SCHEME: OMAKAU										RACE: MAIN			DATE: 13.12.84			sheet 5 of 133		
S.P. No.	Dist. (m)	I			E		Cond.	Detail	Remarks	Dist. Access	Photo no.	Drawing no.						
		Acc-X	T/Obox	Pipeline	Misc.													
23	(Cont)	-	-	-	-	Fair Good Good	Steel piped section Final concrete piped section 3 Manholes and 150 mm Drain (Installed 1973)	MAJOR		53-56	31							
24	4400	-	/	-	-	Good	Measuring Box 750 mm	L.H.S.		57								
25	4460	-	-	/	-	Good	1.00m dia. concrete pipe 15.3 m long Concrete headwalls	Culvert under SH 85		58,59								
26	4690	-	-	/	-	Good	Concrete pipe 450 mm dia.	Culvert under race		60,61	30							
27	4750	/	-	-	-	Good	Concrete pipe 1.07 dia. x 17.07 m long Concrete headwalls	Culvert under St. Bathans		62,63								
28	4910	/	-	-	-	Good	Concrete Bridge 4.3 m wide	Concrete deck and stringers on concrete abutments		64								
29	5170	-	-	/	-	Fair	Concrete pipe syphon 1.07 dia. x 14.6 m long Concrete headwalls	Pipeline bowed to the left Under Becks Creek		65,66								
30	5225	-	/	-	-	Good	Steel gate on 300 mm dia. concrete pipe	Leads to large diesel pump		67								
31	5270	-	/	-	-	Good	Steel gate on 450 mm dia. concrete pipe	T/O into Becks Creek		68								
32	5290	/	-	-	-	Good	2.40 m wide Wood Bridge	True Right Bank prone to slips. Stabilised at present. MAJOR		69								
33	5790	/	-	-	-	Good	Concrete Bridge 4.3 m wide	Leads to Pumping RHS		69A-69C 70								
34	5980	-	/	-	-	Good	Concrete pipe 450 mm dia.	LHS		71								
35	6050	-	/	-	-	Good	500 mm M/B	Max. wheel load 30 cwt.		72								
36	6100	/	-	-	-	Good	Concrete Bridge 4.6 m wide	Under SH 85 extended 1971		73								
37	6620	/	-	-	-	Good	Concrete pipe 1.07 mm dia. x 24.4 m long Concrete headwalls	LHS.		74,75	36							
38	6680	/	-	-	-	Good	Measuring Box 500 mm	Some wear in invert		75								
38a	7130	-	-	-	Tunnel	Tunnel,	1.37 m high x 1.22 m wide x 329.2 m long			76,77								

REASSESSMENT OF SCHEME: OMAKAU

RACE: MAIN

DATE: 14.12.84

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Dist. (m)	I T E M			Cond.	Detail	Remarks	Dist. (m)	Access	Photo no.	Drawing no.
	Acc-X	T/Obox	Pipeline							
39 7660	-	-	/	-	Concrete pipe syphon 1.07 m dia. x 66.0 m Concrete headwalls	L Under road to Clouston's homestead Drain plug-heads to be replaced. Present method unacceptable (Willow branch in bung hole)		← BENCHED RHS →	78-80	36
40 8020	/	-	-	-	Wooden Bridge 2.44 m wide Measuring Box 500 mm	Stock Bridge Not used			81,82	
41 8520	-	-	/	-	Concrete syphon 1.07 m square, 23.77 m L Concrete headwalls	Clouston's back road No bung to drain syphon		← BENCHED RHS →	83,84	35
42 8900	-	/	-	-	Measuring box 500 mm	Not used			85	
43 8910	/	-	-	-	Wooden Bridge 1.5 m wide	Not used			86	
44 9130	-	/	-	-	Measuring Box 500 mm	LHS			87	
45 9490	/	-	-	-	Concrete pipe syphon 1.07 m x 9.8 m long Concrete headwalls	Leask's air strip No bung to drain syphon		← BENCHED RHS →	88,89	
46 9740	-	/	-	-	Measuring Box 500 mm	LHS			90	41
47 9980	-	/	-	-	Measuring Box 500 mm	LHS			91	
48 10,200	-	/	-	-	Measuring Box 500 mm	RHS 9857.2 m 'A' race Minor			92	
49 10,260	/	-	-	-	Wooden Bridge 2.44 m wide	Holes in decking Needs new deck			93	
50 10,390	-	/	-	-	Measuring Box 500 mm	RHS			94	
51 10,540	-	/	-	-	Measuring Box 500 mm				95	
52 10,600	/	-	-	-	Concrete Bridge 4.0 m wide	2 fence gates needed here			96	
53 10,860	-	/	-	-	Measuring Box 500 mm	RHS			97	
54 11,020	/	-	-	-	Concrete Bridge 3.96 m wide	Concrete gate needed here			98	

ID	Dist. (m)	I		E		M	Cond.	Detail	Remarks	Access	Photo no.	Drawing no.
		Acc-X	T/Obox	Pipeline	Misc.							
55	11,350	-	/	-	-	-	Fair	Measuring Box 500 mm	RHS LAUDER SYPHON. Leaking badly at joints	Bench	99	41
56	11,400	-	-	/	-	-	Bad	Concrete pipe 873.5 m	Pipes well worn internally		100-109	
							V.Bad	Drain Valve	Valve for steel outlet pipe uselessly (Critical)			
							Fair	Steel pipe 233.0 m	Lining badly eroded (Pipes worn. Position poor during flood conditions)			
							Good	Concrete pipe 521.0 m				
							Good	Concrete Headwalls				
57	13,070	-	/	-	-	-	Fair	500 mm M/B			109	
58	13,400	/	-	-	-	-	Good	3.96 m wide concrete bridge			110	
59	13,770	/	-	-	-	-	Poor	2.44 m wide wooden bridge			111	
60	13,800	-	/	-	-	-	Fair	500 mm M/B			112	
61	13,950	-	-	/	-	-	Fair	Concrete pipe syphon 1.07 m dia. 253.9 m long			113	
							Fair	Concrete headwalls			114	
62	14,420	/	-	-	-	-	Fair	2.44 m Wooden Bridge			115	
63	14,450	-	/	-	-	-	Bad	Measuring Box 500 mm			116	
64	14,730	-	-	/	-	-	Poor	Concrete pipe syphon 375 mm dia.			117	40
65	14,950	-	/	-	-	-	O'K	Measuring Box 500 mm			118	
66	15,100	/	-	-	-	-	Good	3.96 m Concrete Bridge			119	
67	15,140	-	-	/	-	-	Poor	Concrete pipe under race 375 mm dia.			120	
68	15,380	/	-	-	-	-	Poor	1.5 m Wooden Bridge			121	
69	15,440	-	-	/	-	-	Poor	Earthenware pipes syphon 150 mm dia.			122	

BENCHED LHS

SHUTTERS

Dist. (m)	I T E M			Cond.	Detail	Remarks	Access	Photo no.	Drawing no.
	Acc-X	T/Obox	Pipeline						
70	-	-	-	Spillway	Syphonic spillway 1.22 m crest	Blocked off with fill. Access over it only by means of fill. Designed to bywash into Gully. No main race control	←	124-127	40
71	-	-	/	-	Concrete pipe syphon 375 mm dia	Under race	←	128, 129	
72	/	-	-	-	Wooden Bridge 2.44 m			130	
73	-	-	/	-	Concrete pipe 686 mm dia.	Under race		131, 132	
74	-	/	-	-	Measuring Box 500 mm	Turnout to SR II		133	
75	-	-	-	Tunnel	Tunnel - standard Cross-section Concrete Headwalls			134, 135	
76	-	/	-	-	Measuring Box 500 mm	LHS		136	
77	/	-	-	-	1.5 m Wooden Bridge			137	
78	/	-	-	-	1.5 m Wooden Bridge			138	
79	/	-	-	-	3.96 m Concrete bridge	Cracking between deck and uphill abutment - probably caused by overloaded vehicles crossing it. Max. load 30 cwt.		139-144	
80	/	-	-	-	1.8 m Wooden Bridge			142	
81	-	-	/	-	Concrete pipes - twin 900 dia. Concrete headwalls	Under race		143, 144	
82	/	-	-	-	2.44 m Wooden bridge			145	
83	/	-	/	-	1.5 m wooden bridge 600 mm overhead steel pipe	Farmer's		146-148	
84	-	/	-	-	M/B 500 mm Concrete pipe culvert 1.22 m dia. x 6 m	LHS Under Muddy Creek		149, 150	

REASSESSMENT OF SCHEME: OMAKAU RACE: MAIN DATE: 14.12.84 sheet 9 of 133

Struct.	Dist. (m)	I			E		M	Cond.	Detail	Remarks	Access	Photo no.	Drawing no.
		Acc-X	T/Obox	Pipeline	Misc.								
85	17,760	-	-	/	-	Good	Concrete pipe 1.22 m dia. x 73.2 m	Wall by drain plug cracked	151-153	40			
86	17,910	-	/	-	-	Good	M/B 500 mm	LHS. leads off	154				
87	18,440	-	/	-	-	Good	M/B 500 mm	LHS	155				
88	18,660	-	-	-	Flume	V.Bad	225 mm square galvanised flume across race	Supported on beam Woodwork O'K but iron bent, with some rust. Should be removed	← BENCHED LHS →				
89	18,700	/	-	-	-	Good	Concrete pipe 305 mm dia.	Under race. Pipe completely exposed in race bed.	156, 157				
90	18,810	-	-	-	Flume	Bad	Concrete Bridge 3.96 m	Overloading bridge causes cracking	158-160				
91	18,970	/	-	-	-	V.Bad	225 mm square flume over race	Sagging Should be removed	161				
92	19,350	-	-	/	-	Fair	Wooden Bridge 1.5 m wide		162				
93	19,390	/	-	-	-	Good	1.22 m dia. concrete pipe culvert Concrete Headwalls	Under race	163, 164	34			
94	19,600	-	-	-	Bywash Stop	Bad	Concrete Bridge 3.96 m wide	As for No. 89	165				
95	19,780	-	/	-	-	Good	Syphonic spillway 1.22 m crest Slide gate over pipe Concrete pipe syphon 1.07 m dia. x 136.25m Concrete Headwalls	Seized	166-169				
96	19,870	-	-	/	-	Good	Measuring Box 500 mm	LHS.	← BENCHED RHS →				
97	20,170	/	-	-	-	Good	375 mm pipe under race						
98	20,700	-	/	-	-	Good	Wooden Bridge 2.44 m						
99	21,000	/	-	-	-	Good	M/B 500 mm						
99	21,000	/	-	-	-	Good	Concrete pipe culvert 1.22 m dia. x 5 m L Stone headwalls			40			

Station	Dist. (m)	I T E M			Cond.	Detail	Remarks	Access	Photo no.	Drawing no.
		Acc-X	T/Obox	Pipeline						
100	21,275	-	/	-	Good	M/B 500 mm	LHS.			40
101	21,280	-	//	-	Good	M/B 750 mm Twin	Turnout "B" Race			
102	21,490	/	-	-	Good Bad	Concrete Bridge 3.96 m M/B 500 mm	Turnout for SR IV & V			
		-	-	/	Good	Concrete pipe syphon 375 mm dia. Concrete headwalls	Under race			
103	21,620	-	/	-	Good	M/B 750 mm				
104	22,450	/	-	-	Good	Concrete Bridge 3.96 m				
105	22,680	-	/	-	Good	M/B 500 mm				
106	22,810	/	-	-	Bad	Concrete Bridge 3.96 m	Cracking caused by overloading		170-172	
107	23,260	/	-	-	Fair Bad	M/B 500 Wooden Bridge 2.44 m	Needs replanking			
108	23,500	-	-	P/L	Poor	3.75 mm steel pipe across race	Farmer's			47
109	23,580	/	-	-	Good	Box culvert 3.7 m wide x 1.22 m deep x 6.4 m long Concrete headwalls	Under Huddleston Road		173	
	23,690	-	//	-	Bad	Twin 750 mm M/B	Turnout "C" race			
	23,800	-	-	Stop	Good	Radial gate 1.8 m wide	No side seals			
110	23,650	/	-	-	Fair	Gauge No. 4 40 cfs=450 mm deep 3 m bed			174	
111	23,820	-	-	-	Fair	Wooden bridge 2.44 m	Needs a couple of new planks			
112	24,900	-	-	/	Bad	Concrete pipe with steel gate 300 mm dia.	LHS Needs a proper box			46
113	24,010	-	/	-	Fair	M/B 500 mm	LHS			
114	24,200	/	-	-	Good	Wooden bridge 2.44 m				
115	24,300	/	-	-	Fair	M/B 500 mm	LHS			39

178997

Sta. no.	Dist. (m)	I			E		M	Cond.	Detail	Remarks	Access	Photo no.	Drawing no.
		Acc-X	T/O	Box	Pipeline	Misc.							
116	24,440	-	-	-	-	Flume	Bad ½	round 375 mm dia. steel pipe	Across race Should be removed LHS	←		39	
117	24,650	/	-	-	-	-	Bad	M/B 500 mm	Pumping well. RHS Connected to race	←			
118	24,800	-	/	-	-	-	Good	Concrete Bridge 3.96 m	Creek enters race	←			
119	24,940	-	//	-	-	Stop	Fair	M/B 750 mm	RHS	←	175		
120	25,050	-	-	-	P/L	-	Good	M/B 2 x 750 mm Radial gate 1.8 m wide	'D' Race. Turnout Set in concrete. Winch operated. Control on Turnout	←			
121	25,080	/	-	-	-	-	Fair	Steel pipe over race	Farmer's	←			
122	25,100	-	/	-	-	-	Bad	Concrete Bridge 3.96 m	Cracked due to over-loading	←	176		
123	25,750	/	-	-	-	-	V.Bad	M/B 500 mm	LHS Gate should be on bench not half way down bank	←			
124	25,800	-	-	/	-	-	Good	Wooden Bridge 2.44 m	Under race	←			
125	25,880	/	-	-	-	-	Good	Concrete pipe culvert 450 mm dia.	Drain flowing into race	←			
126	26,420	Bridge	-	-	-	-	Good	Concrete Bridge 3.96 m	Creek enters race RHS	←			
127	26,840	/	-	-	-	-	Good	Concrete Bridge 3.96 m	LHS. leaks badly	←			
128	26,930	-	/	-	-	-	Bad	M/B 500 mm	26152 m SR VI & VII Turnouts	←	177, 178		

REASSESSMENT OF SCHEME: OMAKAU										RACE: MAIN		DATE: 17.12.84		sheet 12 of 133	
Struct. no.	Dist. (m)	I			E		M	Cond.	Detail	Remarks	Access	Photo no.	Drawing no.		
		Acc-X	T/O	Box	Pipeline	Misc.									
129	27,240	-	-	-	-	Bywash	Good	900 mm wide steel slide gate and measuring weir into creek	Thompson's Creek		179-182	39			
130	27,510	/	-	-	-	Stop	Good	Steel gate in concrete headwall (upstream) 900 mm W Concrete pipe syphon 1.05 mm dia. x 44.8 m L Concrete headwalls	Under Racecourse Road						
131	27,700	-	-	-	P/L	-	Bad	525 mm dia. concrete pipe	Under the race blocked						
132	27,720	Bridge	-	-	-	-	Good	Concrete Bridge 3.96 m W							
133	27,820	-	/	-	-	Stop	Good	1.0 m M/B set in concrete channel	"E" Race Turnout		183,184				
134	28,160	/	-	-	-	-	Good	Concrete and wood stop 650 mm D x 1.7 m W	Rough						
135	28,320	-	-	-	P/L	-	Good	1.5 m wooden bridge							
136	28,510	-	-	-	-	Tunnel	Fair	450 mm dia. concrete pipe under race	LHS						
137	28,700	-	-	-	-	-	O'K	M/B 500 mm	Not used.						
138	28,960	/	-	-	-	-	Bad	Wooden bridge 1.5 m	Should be removed						
139	29,150	/	-	-	-	-	Good	Steel pipe across race 375 mm dia.							
140	29,300	-	-	-	-	-	Good	Concrete lined tunnel 1.22 m x 900 mm x 116.7 m long Concrete headwalls			185,186				
141	29,400	/	-	-	-	-	Fair	M/B 500 mm	Under race						
142	29,450	-	-	-	-	-	Good	Bridge wooden 6 m x 2.44 m	Farmer's Water bypasses pipe and feeds into race						
		-	-	-	P/L	-	Good	Bridge concrete 3.5 m x 3.7 m	Flood Drain Race leaking into pipes						
		-	-	-	-	-	V.Bad	450 mm concrete flood pipeline							
		-	-	-	P/L	-	Bad	Steel pipe over race							
		-	-	-	-	-	Bad	Bridge wooden 6 m x 2.44 m							
		-	-	-	P/L	-	Bad	450 mm concrete pipes under race							

Dist. (m)	I	T	E	M	Cond.	Detail	Remarks	Dist. Oss.	Access	Photo no.	Drawing no.
143 29,570	/	-	-	-	Good	Bridge concrete 3.4 m x 3.7 m	Needs approaches built up				39
144 29,920	/	-	-	-	Bad	Bridge wooden 6 m x 1.37 m	Needs replanking				
145 30,050	/	-	-	-	O'K	Bridge wooden 6.2 m x 2.45 m W	Flood water disposal from Creek				
146 30,090	-	-	P/L	-	Bad	900 mm concrete pipe floodline under race	Race leaks into it				
147 30,240	-	/	-	-	Good	Concrete headwalls	LHS				
148 30,510	/	-	-	-	V.Bad	500 mm M/B Concrete Intake from Matak. overflow	RHS				
149 30,530	-	/	-	-	Good	Concrete Box culvert 1.07 deep x 2.1 m wide x 9.8 m	Under Chestermain Rd.				
150 30,730	-	-	-	-	Good	M/B 500 mm	LHS				
151 31,030	/	-	-	-	Good	Concrete pipe under race 150 mm dia.					
152 31,160	-	/	-	-	Good	Bridge wooden 6 m x 1.5 m					
153 31,260	-	-	/	-	Fair	Steel pipe over race 178 mm dia.					
154 31,320	/	-	-	-	Fair	M/B 500 mm	LHS				
155 31,420	-	-	-	-	Good	Concrete culvert 225 m dia.	Under race				
156 31,770	-	-	-	-	Good	Bridge concrete 2.74 m x 3.4 m				187	38
157 32,260	-	/	-	-	Fair	Concrete pipes syphon 900 mm dia. x 264.3 m L	Blows the mortar out of joints				
158 32,380	/	-	-	-	Good	Concrete headwalls Manhole to drain plug	LHS				
	-	-	-	-	Good	Concrete 750 mm M/B	Flume built into and along side deck of bridge				
	-	-	-	-	Good	Bridge concrete 2.74 m x 6.4 m	LHS				
	-	-	-	-	Good	Concrete flume 12.8 m x 0.3 m deep x 225 mm wide	Not used. Boundary fence other side of race				
	-	/	-	-	Good	750 mm Concrete M/B					
	/	-	-	-	Good	Bridge concrete 2.74 m x 3.7 m					

REASSESSMENT OF SCHEME: OMAKAU

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Structure no.	Dist. (m)	I T E M			Cond.	Detail	Remarks	Access	Photo no.	Drawing no.
		Acc-X	T/Obox	Pipeline						
159	32,760	/	-	-	Good	Bridge concrete 2.74 m x 3.7 m	As for 164			38
160	32,875	/	-	-	Good	Bridge concrete 2.74 m x 3.7 m	Used to drain race Needs steel gate using sheet of flat iron.	188,189		
161	33,180	-	-	P/L	Fair	LHS Concrete pipe 375 mm and head frame	Not satisfactory Flood water disposal Drain under race			
162	33,340	-	-	Drain	Good	Concrete pipeline 450 mm. Drain under race	Flood water disposal Needs clearing out of willow roots			
163	33,640	/	/	Drain	Fair	Concrete pipeline 450 mm Drain under race	Drain under race			
164	34,100	/	-	-	Good	Bridge wooden 5.5 m x 2.44 m Measure Box 500 mm	Turnout SR IX			45
165	34,540	-	-	-	Good	Bridge concrete 2.74 m x 3.7 m				
166	34,740	/	-	-	OK	Concrete 750 mm M/B				
167	34,850	-	-	-	Fair	Bridge wooden 5.5 m x 2.44 m	Not used. Should be removed			
168	34,860	/	-	Flume	Fair	Concrete flume over race 8.5 m x 406 mm x 305 mm	Turnout SR X			
169	34,880	-	-	-	Fair	Concrete 500 mm M/B	Bywash from farm Dam above race. There is a fill over a Gully here to carry race. This is used as dam wall			
170	35,110	-	-	/	Good	Concrete P/L 559 mm under race	Erosion half way gully "Golden Gate Syphon"	190,191		
171	35,160	-	-	Bywash	Fair	Automatic concrete bywash 2.44 m long x 1.8 m wide x 600 mm deep and spill apron Concrete pipe syphon 600 mm dia. x 110.6 m Concrete headwalls (Golden Gate)	Across race			
		-	-	/	Bad	375 mm dia. steel pipe		Access Difficult		

BENCHED RS

REASSESSMENT OF SCHEME: OMAKAU										RACE: MAIN			DATE: 18.12.84			sheet 15 of 133		
Dist. (m)	I	T	E	M	Cond.	Detail	Remarks	Dist. Access	Photo no.	Drawing no.								
											Acc-X	T/Obox	Pipeline	Misc.				
172 35,900	-	/	-	-	O'K	750 mm M/B Concrete V notch 750 mm deep	RHS		192	45								
173 35,970	/	-	-	-	Good	4.88 m x 750 mm RC pipe crossing	Useless Should be removed											
174 35,070	-	-	/	-	V.Bad	420 mm dia. steel pipe across race												
175 36,270	-	/	-	-	Fair	500 mm M/B RHS	Leaking out above steel gate											
176 36,410	-	/	-	-	Fair	500 mm M/B LHS	Sitting on country and covered over Huddlestone Syphon. MINOR		193									
177 36,600	-	-	/	-	Bad	1151.2 m of 600 mm dia. concrete pipe syphon												
178 37,600	/	/	-	-	Fair	Concrete headwalls Bywash. Either farmer can use it or discharges into creek bed				51								
179 37,940	/	-	-	-	Good	750 mm M/B LHS	sons Race To Patter-											
180 38,220	-	/	-	-	Good	Bridge Wooden 2.44 m	Resting on wooden abutments											
181 38,300	/	-	-	-	Good	500 mm M/B LHS												
182 38,530	/	-	-	-	Good	Wooden bridge 2.44 m												
183 38,630	/	-	-	-	Bad	Wooden bridge 2.44 m W												
184 38,700	-	/	-	-	Good	Concrete pipe 1.4 m dia. x 3.7 m long No headwalls												
185 39,030	/	-	-	-	Fair	500 mm M/B	LHS											
186 39,270	-	/	-	-	O'K	Concrete pipe 1.4 m dia. x 1.8 m long	No cover											
187 39,720	/	-	-	-	Poor	500 mm M/B	LHS											
188 39,850	/	-	-	-	Good	Concrete pipe culvert 1.4 m dia. x 3.6 m L												
					Good	Concrete pipe culvert 1.4 m dia. x 1.8 m L												

ACCESS VERY DIFFICULT

REASSESSMENT OF SCHEME: OMAKAU										RACE: MAIN			DATE: 18.12.84			sheet 16 of 132		
ID	Dist. (m)	I			E		M	Cond.	Detail	Remarks	Ass.	Photo no.	Drawing no.					
		Acc-X	T/Obox	Pipeline	Misc.													
189	40,180	-	/	-	-	-	Fair	500 mm M/B	LHS			51						
190	40,230	-	-	-	Tunnel	-	Good	Tunnel, Arch roof 1.22 m high x 900 mm wide x 86.3 m long. Concrete headwalls			194, 195							
191	40,330	-	/	-	-	-	Bad	500 mm M/B	LHS Steel gate has holes through it caused by rusting	BENCHED LHS								
192	40,340	/	-	-	-	-	Bad	Collars (7) off 1.4 m dia. pipes laid in race as access 2.44 m long										
193	41,030	/	-	-	-	-	Bad	Collars (7) off 1.4 m dia. pipes laid in race as access 2.44 m long				57						
194	41,195	-	/	-	-	-	Bad	500 mm M/B	LHS									
195	41,230	/	/	-	-	-	Good	500 mm M/B										
196	41,500	/	-	-	-	-	Good	Concrete pipe culvert 1.4 m dia. x 5.5 m L	Under Access Road									
197	41,540	/	-	-	-	-	Good	Bridge Wooden 3.7 m x 2.44 m										
198	41,910	-	/	-	-	-	Good	Concrete 500 mm M/B										
199	42,080	/	-	-	-	-	Good	Wooden bridge 1.45 m W										
200	42,500	/	-	-	-	-	Good	Concrete pipes 4.88 m x 600 mm dia. Rock headwall										
201	42,720	/	-	-	-	-	Good	Bridge Wooden 3.7 m x 1.22 m										
202	42,930	-	/	-	-	-	Fair	500 mm M/B										
203	42,950	/	-	-	-	-	Good	Concrete pipes culvert 1.4 m dia. x 6.0 m L Rock headwalls										
204	42,980	-	/	-	-	-	Fair	500 mm M/B										
205	43,350	/	-	-	-	-	Bad	Concrete culvert 4.6 m x 1.4 m pipe collars										
206	43,450	-	/	-	-	-	Fair	Concrete 375 mm M/B	LHS									

Dist. (m)	I			E		M	Cond.	Detail	Remarks	Access	Photo no.	Drawing no.
	Acc-X	T/Obox	Pipeline	Misc.								
207 43,730	/	-	-	-	-	Bad	Steel pipe culvert 6 m x 750 mm	REMOVED				
208 44,100	/	-	-	-	-	Good	Concrete pipe culvert 3.7 m x 1.4 m pipes		To Tiger Hill Pump		196	
209 44,450	-	-	-	Turnout	-	Good	Race to Tiger Hill Screen (5 cusecs)		Under Railway lines Has a board stop to ensure 5 cusecs goes to Pump House		197, 198	
210 44,460	-	-	/	-	-	Good	Concrete pipe syphon 9.8 m x 600 mm					
211 44,480	-	-	-	-	-	Good	Concrete headwalls					
212 44,530	-	/	-	-	-	Poor	Steel pipe 150 mm over race					
213 44,550	/	-	-	-	-	Good	Concrete 500 mm M/B		LHS			
214 44,555	-	-	/	-	-	O'K	Concrete pipe culvert 4.88 m x 600 mm dia.					
215 44,620	-	-	/	-	-	Good	Steel pipe over race 300 mm					
216 44,690	-	-	/	-	-	Good	13.7 m x 600 mm concrete pipe		Under SH 85			
217 44,705	-	/	-	-	-	Good	Concrete headwalls					
218 44,760	/	-	-	-	-	Fair	Steel pipe 178 mm dia.		Over race			
219 44,950	-	-	/	-	-	Good	Concrete 500 mm M/B		LHS			
220 45,010	/	-	-	-	-	Fair	Access culvert concrete pipes 4.88 m x 600 mm					
221 45,160	-	-	/	-	-	Good	300 mm dia. concrete pipe		Drain under race			
222 45,170	/	-	-	-	-	Good	Bridge Wooden 3.7 m x 1.22 m					
223 45,280	-	/	-	-	-	Fair	Steel pipe 225 mm		Over race			
224 45,290	-	-	-	stop	-	Good	Bridge Wooden 3 m x 3.96 m					
225 45,350	/	-	-	-	-	Good	Concrete 500 mm M/B		LHS			
		-	-	-	-	Good	Concrete and wood stop 500 m x 1.3 m L					
		-	-	-	-	Bad	Steel pipe 280 mm dia.		Over race			
		/	-	-	-	Good	Concrete pipe culvert 600 m dia. x 4.9 m Stone headwalls					

REASSESSMENT OF SCHEME: OMAKAU

RACE: MAIN

DATE: 18.12.84

sheet 18 of 133

Dist. (m)	I		E		M	Cond.	Detail	Remarks	Dist. S.D.	Access	Photo no.	Drawing no.
	Acc-X	T/Obox	Pipeline	Misc.								
226 45,430	-	-	/	-	-	Bad	Steel pipe 280 mm dia	Over race				57
227 45,590	/	-	-	-	-	Good	Bridge Wooden 3m x 3.7 m	On bank - to be reinstated				
228 45,850	/	-	-	-	-	Good	Access culvert concrete pipes 4.88 m x 7.3 m					
229 46,300	-	/	-	-	-	Fair	Concrete 500 mm M/B	LHS				
230 46,350	/	-	-	-	-	Good	Access culvert concrete pipes 2.9 m x 1.14 m					
231 46,770	/	-	-	-	-	Good	Concrete pipe culvert 600 mm x 21.95 m Concrete headwalls	Under SH 85				
232 46,820	-	/	-	-	-	Good	Concrete 500 mm M/B	LHS				
233 47,060	/	-	-	-	-	Good	Bridge Wooden 2.44 m W x 3.4 m					
234 47,490	/	-	-	-	-	Poor	Bridge Wooden 3 m x 3.7 m	Needs new decking				
235 47,500	-	/	-	-	-	Bad	Concrete 500 mm M/B	LHS				
236 47,850	-	/	-	-	-	Good	Concrete 500 mm M/B	LHS				58
237 47,860	/	-	-	-	-	Good	Concrete and wood stop 500 mm D x 1.3 m W				199,200	
238 47,880	/	-	-	-	-	Good	12.2 m of 750 mm dia. pipe Concrete headwalls	Under old road			200	
239 48,080	-	-	/	-	-	Bad	Concrete pipe 600 mm dia. x 21.95 Concrete headwalls	Under SH 85				
240 48,200	-	-	-	-	-	Good	686 mm dia. steel pipe x 6.4 m L	Parallel to SH 85 Race in rock			201,202	
241 48,260	/	-	-	-	-	Good	Concrete headwall upstream Stone headwall downstream					
		/	-	-	-	Good	500 mm M/B	LHS turnout				
		-	-	-	-	Bad	Wooden Bridge 3 m	Needs redecking				

REASSESSMENT OF SCHEME: OMAKAU

RACE: MAIN

DATE: 18.12.84

sheet 19 of 133

No.	Dist. (m)	I T E M			Cond.	Detail	Remarks	Dist. Obs.	Access	Photo no.	Drawing no.
		Acc-X	T/Obox	Pipeline							
242	48,260	-	/	-	Good Bad	500 mm M/B Concrete wood stop 500 mm D x 1.3 m W	LHS				58
243	48,380	/	-	-	Good	Wooden Bridge 900 mm wide					
244	48,640	-	/	-	Good Good	500 mm M/B Concrete and wood stop 500 mm D x 1.3 m D	LHS				
245	49,170	/	-	-	Good	4.9 m x 450 mm dia. concrete pipe culvert					

REASSESSMENT OF SCHEME: OMAKAU

RACE: 'A' RACE
810 m long, cap : 1 cusec

DATE: 9.1.85

sheet 20 of 133

Struct. no.	Dist. (m)	I T E M			Cond.	Detail	Remarks	Ass. Gss.	Access	Photo no.	Drawing no.	
		Acc-X	T/Obox	Pipeline								Misc.
1	10	/	-	-	Good	Leads off No. 48 Omakau Main Race 375 mm dia. x 4.9 m concrete pipe culvert	Concrete pipe under State Highway 85 Headwalls of both joined forming a box 2 minor leaks at pipe joints Culvert feeds into farmer's headrace				41	
2	650	-	-	P/L	Good	21.3 m of 305 mm dia. concrete pipe Concrete headwalls						35
3	670	-	-	-	Good	Concrete pipe culvert 300 mm dia. x 87.0 m L Concrete headwalls						

REASSESSMENT OF SCHEME: OMAKAU

RACE: SR I

DATE: 17.1.85

sheet 21 of 133

Dist. (m)	I T E M			Cond.	Detail	Remarks	Last Ass.	Access	Photo no.	Drawing no.
	Acc-X	T/Obox	Pipeline Misc.							
200	Farm	-	-	Good	Capacity : 2 cusecs Length : 884 m Used as headrace Leads off No.60 Main race 375 mm dia. x 3.7 m concrete pipe	Farm Access				41

REASSESSMENT OF SCHEME: OMAKAU

RACE: SR II

DATE: 17.1.85

sheet 22 of 133

No. of struct.	Dist. (m)	I T E M			Cond.	Detail	Remarks	Ass. Dss.	Access	Photo no.	Drawing no.
		Acc-X	T/Obox	Pipeline							
						Capacity : 2 cusecs Length : 707 m Used as headrace Leads off NO. 63 Main Race No structure					41

REASSESSMENT OF SCHEME: OMAKAU

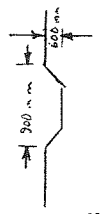
RACE: SR III

DATE: 17.1.85

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S. No.	Dist. (m)	I T E M			Cond.	Detail	Remarks	Dist.	Photo no.	Drawing no.
		Acc-X	T/Obox	Pipeline						
1	50	/	-	-	Fair	Capacity : 2 cusecs Length : 486 m Used as headrace No. 86 Main Race 375 mm x 3.66 m concrete pipe culvert	Farm Access			40

Struct. no.	Dist. (m)	I T E M			Cond.	Detail	Remarks	Access	Photo no.	Drawing no.
		Acc-X	T/Obox	Pipeline						
1	0	/			Fair	Capacity 10 cys Length 7450 m Starts structure 101			40	
2	100	/	-	-	Good	Concrete channel 460 mm wide x 380 mm deep x 9 / m				
3	200	/			Fair	Concrete bridge 4.8 m long cap. over race channel				
4	275	/	-	-	Good	Half 650 mm dia. steel flume	Across race			
5	290	-	-	-	Good	450 mm wide concrete bridge				
6	370	/			Good	End of concrete race channel				
7	400	-	/	-	Fair	Concrete pipe culvert 375 mm dia. x 4.9 m				
8	470	-	-	Drop	Good	Headwalls concrete				
9	560	/			Good	V notch weir and drop 600 mm x 900 mm wide				
10	720	-	-	Drop	Fair	375 mm M/B	RHS			
11	900	/			Good	V notch weir and drop	As for structure No. 6			
12	920	/			Fair	Concrete bridge (ex - sill boards) 1.20 m wide				
13	1000	-	/	-	Good	V notch weir and drop	As for structures No. 6 & 8			
14	1060	/			Good	4.88 m x 450 mm dia. concrete culvert pipe				
15	1150	/			Good	Stone headwalls				
					V.Bad	Wooden access 2.3 m wide				
					Okay	500 mm M/B				
					Good	Stop is a steel gated 450 mm dia. pipe x 1.3 m L				
					Good	Concrete pipe culvert 450 mm dia. x 7.6 m L				
					Good	Concrete pipe culvert 450 mm dia. x 2.4 m L				



REASSESSMENT OF SCHEME: OMAKAU										RACE: 'B' RACE			DATE: 10.1.85			sheet 25 of 133		
Sta. No.	Dist. (m)	I			E		M	Cond.	Detail	Remarks	Last Obs.	Access	Photo no.	Drawing no.				
		Acc-X	T/Obox	Pipeline	Misc.													
16	1360	/	-	-	-	-	Fair	Concrete pipe culvert 450 mm dia. x 5.0 m L	Under Muddy Creek Road				40					
17	1390	-	-	/	-	-	Good	Concrete pipe culvert 450 mm dia. x 14.5 m L	RHS LHS		220							
18	1440	-	/	-	-	-	Good	500 mm M/B										
			/				Good	225 mm pipe										
					/		Good	Gated 450 mm dia. concrete pipe x 2.5 m L										
19	1670	/	-	-	-	-	Good	Concrete pipe culvert 450 mm dia. x 2.5 m L	Farm Access									
20	1920	/					Good	Concrete pipe culvert 450 mm dia. x 2.5 m L					47					
							Good	Stone headwalls										
21	2110	/					Fair	Wooden bridge 1.3 m wide										
22	2120	-	-	/	-	-	Good	Concrete pipe culvert 600 mm dia. x 9.6 m	Under Launder-									
							Good	Concrete headwalls	Matakanui Road									
23	2160	/					Fair	Concrete pipe culvert 525 mm dia. x 1.9 m										
24	2190	/					Good	Concrete pipe culvert 525 mm dia. x 7.4 m										
							Good	Stone headwalls										
25	2220	-	-	-	-	-	Poor	Stop (750 mm M/B in race)	Services sod T/O									
26	2350	/					Good	Wooden bridge 1.25 m W										
27	2450	-		/	-	-	Okay	Concrete pipe 300 mm dia.	Under race									
28	2460	-	/	-	-	-	Okay	500 mm M/B	LHS									
29	2480	-	-	-	-	-	Fair	Steel gate on concrete pipe 450 mm dia. x 1.5 m L	Services Sod T/O									
30	2510	/					Fair	Wooden Bridge 1.6 m W										
31	2560	/					Fair	Concrete pipe culvert 450 mm dia. x 5.1 m L										
32	2670	/					Fair	Wooden bridge 1.6 m W										

Pile No.	Dist. (m)	I			E	M	Cond.	Detail	Remarks	Last Obs.	Access	Photo no.	Drawing no.
		Acc-X	T/Obox	Pipeline									
33	2860	-	-	-	-	Fair	Steel gate on 450 mm dia. concrete pipe x 1.3 m L	Services sod T/O				47	
34	2890	/	-	-	-	Good	Concrete pipe culvert 525 mm dia. x 3.7 m L						
35	3140	/	-	-	-	Good	Wooden Bridge 1.3 m W						
36	3200	/	-	-	-	Fair	Measuring Box 750 mm	LHS					
37	3430	/	-	-	-	Poor	300 mm (x3) concrete planks (ex sill boards)						
38	3450	-	-	/	-	Good	Concrete pipe culvert 600 mm dia. x 7.3 m L	Under Muddy Creek Road					
39	3510	-	-	/	-	Good	500 mm M/B	RHS Leaks around steel gate					
40	3720	-	-	/	-	Okay	7.3 m concrete pipe culvert 600 mm dia	Under Muddy Creek Road					
41	4075	-	-	/	-	Poor	Stone headwalls	LHS					
42	4200	-	-	/	-	Good	500 mm M/B				221-223		
						Good	Steel pipe 600 mm dia. x 25.6 m L						
						Good	Concrete headwalls						
						Good	Concrete well at outlet part of headwalls						
						Fair	Wooden trusses support pipe						
43	4240	/	-	-	-	Okay	Concrete pipe culvert 450 mm dia. x 4.9 m L					224, 225	
						Okay	Stone headwalls						
44	4275	-	-	/	-	Good	500 mm M/B	LHS					
45	4740	/	-	-	-	Fair	Concrete planks 4 x 300 mm (ex sill boards)						
46	4850	-	-	/	-	Good	500 mm M/B	B2 T/O RHS					
47	4960	-	-	/	-	Good	500 mm M/B	B3 T/O LHS					
48	5050	-	-	/	-	Poor	500 mm M/B	RHS Appears unused					

Sitting no.	Dist. (m)	I T E M			Cond.	Detail	Remarks	Access	Photo no.	Drawing no.
		Acc-X	T/Obox	Pipeline						
49	5080	/	-	-	Good	Concrete pipe 450 mm dia. x 4.8 m L Stone headwalls			47	
50	5350	/	-	-	Good	4 x 4.88 m long x 250 mm pre-cast planks			53	
51	5950	/	-	-	Good	4.8 m long concrete pipe 450 mm dia. Stone headwalls				
52	5990	-	/	-	Good	500 mm M/B	Constriction			
53	6250	/	-	-	Good	2 x 300 mm concrete planks	RHS	226		
54	6420	/	-	-	Good	2 x 300 mm concrete planks				
55	6430	-	/	-	Good	500 mm M/B	RHS			
56	6600	/	-	-	Fair	4.88 m x 350 mm dia. concrete pipe culvert No headwalls	Farm Access Restricts flow	227,228		
57	6900	-	/	-	Good	500 mm M/B	RHS			
58	6950	-	-	/	Good	11 m x 375 mm dia. concrete pipe RC headwalls and wing walls	Under SH 85	229,230		
59	7100	/	-	-	Poor	Stock bridge 3 x 305 mm concrete planks	Sagging badly	231		
60	7260	/	-	-	Good	Four x 200 m x 75 mm planks (wooden)				
61	7390	/	-	-	Good	Three x 200 x 75 mm planks (wooden)		232		
62	7426	/	-	-	Bad	500 mm M/B	Appears disused	233,234		
						Race ends at intake to pumphouse. Farmer's pumphouse dia. 450 mm rising main, over-flow to farmers race				

REASSESSMENT OF SCHEME: OMAKAU										RACE: No. 1			DATE: 10.1.85			sheet 28 of 133		
Struct. No.	Dist. (m)	I			T		E		M	Cond.	Detail	Remarks	Last Ass.	Access	Photo no.	Drawing no.		
		Acc-X	T/O	box	Pipeline	Misc.												
1	90	/	-	-	-	-	-	-	Good	- from No. 13 'B' Race								
2	130	/	-	-	-	/	-	-	Fair	Concrete pipe culvert 375 mm dia. x 2.4 m Steel gate on 300 mm dia. x 1.0 m long Concrete pipe	Services 2 sod T/O (1 LHS & 1 RHS)				40			
3	200	/	-	-	-	/	-	-	Fair	Steel gate on 500 mm box	Used as crossing and stop Services sod T/O							
4	210	/	-	-	-	-	-	-	Good	Concrete pipe culvert 375 mm dia. x 4.6 m L Stone headwalls								
5	300	/	-	-	-	-	-	-	Good	Concrete pipe culvert 375 mm dia. x 7.3 m L Stone headwalls								
6	990	/	-	-	-	-	-	-	Good	Concrete pipe culvert 300 mm dia. x 10 m L	Under Lauder-Matakanui Road				47			
										End of MWD responsibility								

REASSESSMENT OF SCHEME: OMAKAU

RACE 'B' RACE DISTRIBUTARY 2
STARTS FROM NO. 46 'B' RACE

DATE: 10.1.85

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Structure	Dist. (m)	I T E M			Cond.	Detail	Remarks	Dist. class.	Access	Photo no.	Drawing no.
		Acc-X	T/Obox	Pipeline							
1	10	/			Good	Concrete pipe 300 mm dia. x 1.0 m L Concrete headwall					47
2	320	/			Good	Concrete pipe 375 mm dia. x 3.6 m L Stone headwalls					
3	340		/		Good	Concrete pipe culvert 300 mm dia. x 9.1 m L No headwalls					
4	260	/			Fair	Concrete pipe culvert 525 mm dia. x 3.9 m L Stone headwalls					
5	550		/		Okay	300 mm dia. concrete pipe T/O Steel gate stop on 300 mm dia. concrete pipe x 1.0 m L					
6	650	/			V.Bad	Steel pipe 550 mm dia. x 3.5					
7	775	/			V.Bad	Wooden bridge 1.8 m W					

Struct. no.	Dist. (m)	I T E M			Cond.	Detail	Remarks	Access	Photo no.	Drawing no.
		Acc-X	T/Obox	Pipeline						
1	170	/			Good	Starts from structure No. 5 on Distrib B2 Concrete pipe 300 mm dia. x 3 m L Stone headwalls				
2	230			/	Good	Steel gate stop on concrete pipe 300 mm dia. x 1 m L				47

REASSESSMENT OF SCHEME: OMAKAU RACE 'B' RACE DISTRIBUTARIES DATE: 10.1.85 sheet 31 of 133

Dist. (m)	I T E M			Cond.	Detail	Remarks	Dist	Access	Photo no.	Drawing no.
	Acc-X	T/Obox	Pipeline							
					Length: 480m. From No. 47 'B' race No structures					47

REASSESSMENT OF SCHEME: OMAKAU

RACE: SR IV

DATE: 17.1.85

sheet 32 of 133

Struct.	Dist. (m)	I T E M			Cond.	Detail	Remarks	List Ass.	Access	Photo no.	Drawing no.
		Acc-X	T/Obox	Pipeline							
1	40	/			V.Bad	Capacity : 2 cusecs Length : 707 m from 102 Main race Concrete pipe 375 mm dia. 1.8 m L					40

Site No.	Dist. (m)	I T E M			Cond.	Detail	Remarks	Last Obs.	Access	Photo no.	Drawing no.
		Acc-X	T/Obox	Pipeline							
1	70	/	-	-	Good	Capacity : 2 cusecs Length : 884 m from 102 Main Race Concrete pipe 375 mm dia. x 3.7 m L Stone headwalls					40
2	100	/	-	-	Good	Concrete pipe 375 mm dia. x 3.7 m L Stone headwall					

REASSESSMENT OF SCHEME: OMAKAU										RACE: 'C' RACE		DATE: 11.1.85		sheet 34 of 133	
S.P. No.	Dist. (m)	I		T		E		M	Cond.	Detail	Remarks	Access	Photo no.	Drawing no.	
		Acc-X	T/O	Box	Pipeline	Misc.									
1	20	-	-	-	-	-	-	Weir	Good	Capacity: 140 cusecs Length: 3820 m long from No. 109 Main Race Ties in to Main Race with twin 750 mm M/B (Structure No. 109 Main) x 8.4 m L					
2	250	-	/	-	-	-	-	-	Poor	Measuring Weir 1.50 crest Set in concrete 3.5 m long			244	47	
3	260	-	-	-	-	-	-	-	Good	500 mm M/B and concrete and timber stop in race	RHS		245,246		
4	300	-	/	-	-	-	-	-	Good	Twin 500 mm M/B discharging into 13 m long syphon dia. 450 mm			247,249		
5	305	-	-	-	/	-	-	-	Good	500 mm M/B LHS 2 m long	Leads to pipe under road		249,250		
6	310	-	/	-	-	-	-	-	Good	300 mm dia. x 7.2 m syphon Earth headwalls Leads through fence to farmers race	Under Huddleston Road				
7	900	/	-	-	-	-	-	-	Good	750 mm M/B Some scouring at outlet	In Main Race		247,248		
8	1130	/	-	-	-	-	-	-	Good	4.8 m x 600 mm dia. Concrete pipe culvert Stone Headwalls	Farm Access				
9	1300	-	/	-	-	-	-	-	Poor	2 x 305 m concrete planks	Farm Access				
10	1300	-	/	-	-	-	-	-	Good	500 mm M/B RHS 2 m long			251		
11	1305	-	/	-	-	-	-	-	Good	750 mm M/B LHS, 2 m long			251,252		
12	1310	/	-	-	-	-	-	-	Good	750 mm M/B	To Distributary No.1		251,253		
13	1570	/	-	-	-	-	-	-	Good Good	4.8 m x 375 mm dia. concrete pipe Stone headwalls 4.8 m x 450 mm dia. Concrete pipe 300 mm dia. pipe turnout to RHS	Farm Access Farm Access used as stop		253		

Site No.	Dist. (m)	I T E M			Cond.	Detail	Remarks	Inst. Gsst.	Access	Photo no.	Drawing no.
		Acc-X	T/Obox	Pipeline							
14	1810	/	-	-	-	6 m x 525 mm dia. steel Farm Access	RHS In race				47
15	1850	-	/	-	-	375 mm dia. x 1.8 m long turnout pipe with steel plate					
16	1890	-	/	-	-	500 mm M/B, 2 m long					
17	2100	/	-	-	-	500 mm M/B in race. 2 m long sod turnouts both sides	In race as control				
18	2300	/	-	-	-	4.88 m x 450 mm dia. culvert Stone headwalls	Farm Access				
19	2395	-	/	-	-	500 mm M/B in race Sod Turnout RHS	In race as control				46
20	2400	-	-	-	/	500 mm M/B LHS	To distributary		254		
21	2410	-	-	/	-	1/2 section of steel pipe across race	Carries farmers small race		254, 255		
22	2600	-	-	/	-	375 mm dia. syphon, 219 m long	Across gully. Good condition		255		
23	2605	-	-	/	-	R.C. headwall with debris screen	Across Stafford Road		255, 256, 257		
24	2630	/	-	-	-	500 mm M/B to dia. 375 mm pipe RHS	Critical part of race. Accident damage or earthquake damage would be serious.				
25	2720	-	-	-	/	375 mm steel overhead pipe, gated			257		

Stn. No.	Dist. (m)	I T E M			Cond.	Detail	Remarks	Access	Photo no.	Drawing no.
		Acc-X	T/Obox	Pipeline						
26	2950	/	-	-	Poor	3.6 m x 375 mm RC pipe	Constriction		52	
27	3240	/			Good	Concrete pipe culvert 375 mm dia. x 4.5 m L Rock headwalls				
28	3270		/	/	Okay Okay Good	Concrete and wood T/O 400 mm D x 470 mm W Concrete and wood T/O 400 mm D x 470 mm W Steel gate on 450 mm dia. concrete pipe	RHS LHS	258		
29	3410	/			Good	Concrete pipe culvert 375 mm dia. x 3.75 m L				
30	3490			/	Good	500 mm M/B	Acts as control in race. Services sod T/O			
31	3650	/			Good	Concrete pipe culvert 375 mm dia. x 3.9 m L				
32	3695	/			Good	Wooden bridge 2.0 m W	Railway sleepers			

REASSESSMENT OF SCHEME: OMAKAU

'C' RACE DISTRIBUTARY
 RACE : No. 1 FROM No. 10
 UNDER HUDDLESTON ROAD

11.1.85

sheet 37 of 133

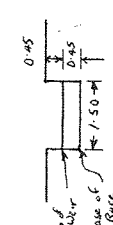
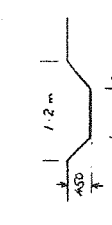
DATE:

Structure	Dist. (m)	I			E		M	Cond.	Detail	Remarks	Dist. Oss.	Access	Photo no.	Drawing no.
		Acc-X	T/Obox	Pipeline	Misc.									
1	0			/			Fair	7.3 m x 450 mm dia. concrete pipe Earth headwalls	In race for control LHS					47
2	30	-	/	-	-	-	Good	500 mm M/B 2 m long in race with new RC turnout						
3	190	/	-	-	-	-	Good	3.7 m x 375 mm dia. concrete pipe access Earth headwalls						
4	700	-	/	-	-	-	Good	500 mm M/B. in race with gate. Turnout RHS and sod turnout LHS	Supplies parallel race leading to boundary fence					
5	840	/					Good	dia. 450 mm concrete pipe x 3.6 m Stone headwalls	Farm Access					
6	1050		/				Good	500 mm M/B In race with gate 500 mm M/B turnout	RHS					
7	1130	/					Good	525 mm dia. RC pipe 4.8 m long Stone headwalls						
8	1140	-	-	-	-	/	Poor	305 mm x 450 mm wide concrete flume. Steel exposed	Across race					
9	1360	/					Good	Concrete pipe 4.9 m x 450 mm dia. access						
10	1520	-	/	-	-	Stop	Good Good	500 mm M/B Steel gate on 375 dia. concrete pipe x 3.9 m L Stone headwall	LHS					53
11	1910	-	/	-	-	Stop	Good Good	500 mm M/B Steel gate on 375 dia. concrete pipe x 1.4 m L Stone headwalls	LHS					
12	1960	/					Good	Concrete pipe culvert 375 mm dia. x 2.5 m L Stone headwalls						
13	2320	/	/			/	Good Okay	500 mm M/B Steel gate on 390 mm dia. concrete pipe 2.8 m L	LHS Turnout to Race CIA				259	

struct.	Dist. (m)	I T E M			Cond.	Detail	Remarks	Access	Photo no.	Drawing no.
		Acc-X	T/Obox	Pipeline						
14	2530	/	/		Okay Poor Poor	Concrete pipe 375 mm dia. T/O Concrete pipe culvert 450 mm dia. x 2.4 m L Stone headwall	Erosion around pipe up-stream headwall			53
15	2750	/			Okay Okay	Concrete pipe 375 mm dia. x 5.1 m L Stone headwalls				
16	2930		/		Fair Bad	Concrete pipe 300 mm dia. x 6.2 m L No headwalls	Under Huddleston Road			
17	2960	/			Good	Measuring box 500 mm	In race			
18	3175		/		Poor Bad	Concrete pipe culvert 300 mm dia. x 5.5 m L No headwalls	Under Huddleston Road. Metal falling into culvert ends restricting water flow		260,261	

Struct. no.	Dist. (m)	I T E M			Cond.	Detail	Remarks	Access	Photo no.	Drawing no.
		Acc-X	T/Obox	Pipeline						
1	0			/	Good Good	Starts from structure 13 on Race C Distributory 1 Concrete pipe 300 mm dia. x 177 m L Concrete headwalls	Down hill	262,263	53	
2	170	/			Okay Okay	Concrete pipe culvert 450 mm dia. x 3.8 m Stone headwalls				
3	210			/	Good Good Fair	Steel culvert 280 mm dia. x 24.4 m L Concrete headwalls 2 tall wooden trusses	Gorse burn off charred upstream wooden truss	264-266		

REASSESSMENT OF SCHEME: OMAKAU										'C' RACE DISTABUTARIES			sheet 40 of 122					
RACE NO 2										DATE: 11.1.85								
FROM NO. 19 'C' RACE																		
Struct.	Dist. (m)	I		T		E		M		Cond.	Detail	Remarks	Dist. Ass.	Access	Photo no.	Drawing no.		
		Acc-X	T/Obox	Pipeline	Misc.													
1	25	-	/	-	-	-	-	-	-	Poor	Sod T/O 1 m long 375 mm dia. steel pipe in race used as stop. Sod turnout LHS						46	
2	70	/	-	-	-	-	-	-	-	Poor	9.8 m x 375 mm dia. steel access							
3	80	-	-	-	/	-	-	-	-	Good	375 mm dia. concrete pipe syphon 17.1 m long	Under Stafford Road						

Structure	Dist. (m)	I T E M			Cond.	Detail	Remarks	Access	Photo no.	Drawing no.
		Acc-X	T/Obox	Pipeline						
1	20	-	-	-	Good	Cap = 10 cusecs Length = 4280 m leads off No. 119 Main Race 1.50 m wide crest. Measuring weir set in concrete Lip of weir to race 0.45 m Headwall to lip 0.45 m		267	39	
2	140	-	/	-	Good Good	750 mm M/B Concrete and wood stop 1.25 wide x 0.6 m D	Holes in top Not used now	268		
3	240	/	-	-	Poor	Steel pipe culvert 800 mm dia. x 6.0 m L	Not used (All made redundant by structure No. 2) Not used			
4	330	-	-	-	Bad Bad	Measuring Box 400 mm Concrete and wood stop 1.15 m W x 0.5 m D				
5	460	/	/	-	Bad Bad	Concrete and wood T/O 800 mm W x 550 mm D Concrete and wood stop 1.15 m W x 550 mm D				
6	470	/	-	-	Okay	6 m x 550 mm dia. steel pipe culvert				
7	760	-	/	-	Bad Bad	Concrete and wood T/O 550 mm D x 750 m W Concrete and wood stop 550 mm D x 900 m W				
8	1250	-	-	/	Good Good	9.8 m x 450 mm concrete pipe Concrete headwalls	Not used Under Lauder-Matakanui Road	269	46	
9	1270	-	/	/	Good Good Good	500 mm M/B 750 mm M/B Steel gate on 450 mm dia concrete pipe x 6.1 m L Headwalls U/S Concrete Headwalls D/S stone				
10	1550	-	-	-	Good	V notch drop 1.200 mm x 450 m				
11	1950	/	-	-	Poor	Concrete pipe culvert 2.44 m x 450 mm dia. Stone headwalls				
12	2060	/	-	-	Fair Good	Concrete pipe culvert 2.44 m x 450 mm Stone headwalls		270		

Line No.	Dist. (m)	I			E		M	Cond.	Detail	Remarks	Access	Photo no.	Drawing no.
		Acc-X	T/Obox	Pipeline	Misc.								
13	2330	-	/	-	-	-	Good	500 mm M/B	LHS to Distrib. D2		271	46	
		-	/	-	-	-	Good	500 mm M/B	RHS				
		-	/	-	-	-	Good	500 mm M/B	In race as control				
		-	/	-	-	-	Good	500 mm M/B	Unnecessary				
14	2540	/	-	-	-	-	Poor	2 x 305 mm concrete planks					
15	2570	/	-	-	-	-	Fair	Concrete pipe culvert 3.8 m x 450 mm dia.					
							Fair	Stone headwalls					
16	2940	-	/	-	-	-	Good	Steel gate on 375 mm dia. concrete pipe	In race as control				
			/				Good	500 mm M/B					
17	3050	-	-	/	-	-	Good	9.8 m x 600 mm dia. concrete pipe					
18	3160	-	/	-	-	-	Good	Steel gate on 375 mm dia. concrete pipe					
			/				Good	Steel gate on 375 mm dia. concrete pipe	RHS Race 'B' control		272,273		
			/				Good	Steel gate on 375 mm dia. concrete pipe	LHS				
19	3420	/	-	-	-	-	Okay	Concrete pipe culvert 375 mm dia. x 4.9 m L					
20	3440	-	-	/	-	-	Okay	9.8 m x 525 mm dia. concrete pipe culvert	Under Stafford Road				
21	3500	-	/	-	-	-	Good	500 mm M/B LHS	Turns water into race				
			/				Good	Steel gate on 450 mm concrete pipe	Clearwater feeder				
							Good	Concrete and wood stop 400 mm D x 800 mm W	RHS				
22	3670				/	/	Good	Concrete and wood stop 400 mm D x 800 mm W					
23	3775				/	/	Good	Concrete and wood stop 400 mm D x 800 mm W					
24	3880				/	/	Good	Concrete and wood stop 400 mm D x 800 mm W					
25	3930				/	/	Good	Concrete and wood stop 400 mm D x 800 mm W					
26	3740				/	/	Poor	Concrete and wood stop 500 mm D x 650 mm W					
27	3780				/	/	Good	Concrete and wood stop 400 mm D x 600 mm W	Under Racecourse Road				
28	4170				/	/	Good	Concrete pipe syphon 375 mm dia. x 28 m L					
					/	/	Good	Concrete headwalls					
29	4280				/	/	Poor	Steel pipe flume 560 mm dia. x 6 m L	Crosses Clearwater race		274	52	
					/	/	Poor	Concrete headwalls	End of MWD responsibility				

REASSESSMENT OF SCHEME: OMAKAU										'D' RACE DISTRIBUTUARIES				RACE: NO. 1			sheet 43 of 133		
										FROM NO 9 'D' RACE				DATE: 15.1.85					
Struct.	Dist. (m)	I			E			Cond.	Detail	Remarks	Last Obs.	Access	Photo no.	Drawing no.					
		Acc-X	T/O	Misc.	Pipeline	Misc.													
1	20	-	-	/	-	-	Fair	Steel gate on 450 mm concrete pipe x 1.3 m L					46						
2	190	/	-	-	-	Good	Concrete pipe culvert 450 mm dia. x 5.0 m L Stone headwalls												
3	230	-	/	-	-	Fair	450 mm M/B LHS												
4	240	/	-	/	-	Good	Steel gate on 300 mm dia. pipe x 4.6 m L Stone headwalls												
5	330	-	-	/	-	Fair	Concrete pipe 375 mm dia.	Under race											
6	640	-	-	-	-	Good	Concrete pipe culvert 375 mm dia. x 2.4 m L Stone headwalls												
7	790	-	-	/	-	Good	500 mm M/B	Used as control in race. Services sod T/O											
8	1120	-	-	-	/	Good	9.8 m x 300 mm dia. concrete pipe Concrete headwalls	Under road											
9	1140	-	/	-	-	Good	500 mm M/B	Used as control in race. Services sod T/O											
10	1310	-	-	/	-	Good	Steel gate on 375 mm dia. concrete pipe x 1.3 m L	Services sod T/O											
11	1900	-	-	/	-	Good	11 m x 300 mm dia. concrete pipe Stone headwalls	Under Harvey Road											
12	1930	-	/	-	-	Poor	500 mm M/B RHS	Used as control in race. Services sod T/O											
								Race ends											

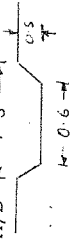
REASSESSMENT OF SCHEME: OMAKAU RACE: NO 2 DATE: 14.1.85 sheet 44 of 133

'D' RACE DISTRIBUTUARIES FROM NO. 13 'D' RACE


District	Dist. (m)	I T E M			Cond.	Detail	Remarks	Last Ass.	Access	Photo no.	Drawing no.
		Acc-X	T/Obox	Pipeline							
1	150	-	/	-	-	2 Concrete pipes x 375 mm dia. x 750 mm L Concrete pipe 375 mm dia. x 750 mm L	LHS Straight ahead End of race				46

REASSESSMENT OF SCHEME: OMAKAU RACE: SR VI DATE: 17.1.85 sheet 45 of 133											
Stn. No.	Dist. (m)	I T E M			Cond.	Detail	Remarks	Inst. Ass.	Access	Photo no.	Drawing no.
		Acc-X	T/Obox	Pipeline							
1	10	-	-	-	Fair	Capacity : 3 cusecs Length : 350 m from No. 128 Main race					39
2	25	/	/	/	Good	Steel gate on 300 m dia. conc. pipe x 1.2 m L Concrete pipe 375 mm dia. x 3.7 m L					

District	Dist. (m)	I T E M			Cond.	Detail	Remarks	Dist. Ass.	Access	Photo no.	Drawing no.
		Acc-X	T/Obox	Pipeline							
1	30	-	-	/	Good	Capacity : 3 cusecs Length : 670 m from No. 128 Main Race M/B 500 mm	Use as control in race				39
2	60	/			Good	Steel pipe 300 mm x 6.0 m L					
3	130	/			Good	Steel pipe 300 mm x 6.0 m L					
4	276	/			Good	Steel pipe 300 mm x 6.0 m L					
5	340	/		-	Good	Concrete pipe 375 mm dia. x 10.0 m L Concrete headwalls	Road to house				
6	620	/			Good	Concrete pipe 375 mm dia. x 3.7 Stone headwall					

REASSESSMENT OF SCHEME: OMAKAU										RACE: "E" RACE			DATE: 17.1.85			sheet 47 of 133		
SITC	Dist. (m)	I		T		E		M		Cond.	Detail	Remarks	Access	Photo no.	Drawing no.			
		Acc-X	T/Obox	Pipeline	Misc.													
1	30	-	-	/	-	-	-	-	-	Fair Good	Capacity : 10 cusecs Length : 4675 m from No. 133 Main Race 14.6 m x 525 mm dia. concrete pipe Concrete headwalls	Minor Joints across gully leak			39			
2	70	-	/	-	-	-	-	-	-	Okay	500 mm M/B	LHS						
3	80	-	-	-	-	-	/	-	-	Good	V Notch weir and drop	In race. Controls M/B						
4	200	-	-	-	-	-	-	/	-	Good	V notch weir and drop							
5	270	/	-	-	-	-	-	-	-	Good	Concrete pipe culvert 525 mm dia. x 5.0 m L No headwalls	Same as 3			277			
6	320	-	/	-	-	-	-	-	-	Good	500 mm M/B	RHS						
7	330	-	-	-	-	-	/	-	-	Good	V notch drop	In race, controls M/B						
8	360	-	-	-	-	P/L	-	-	-	V.Bad	375 mm dia. steel pipe	Across race						
9	480	-	-	-	-	-	-	Drop	-	Good	V notch weir and drop	Same as 3						
10	640	/	-	-	-	-	-	-	-	Good	525 mm dia. x 7.3 m concrete pipe Stone headwalls upstream end only							
11	750	-	/	-	-	-	-	-	-	Good	500 mm M/B LHS	Both M/B have 1 chain of race run- ning parrallel to 'E' race to a fence			278			
12	780	-	/	-	-	-	-	-	-	Good Good	500 mm M/B RHS Concrete and wood stop 600 m D x 1.6 m W	Control of M/B's						
13	910	/	-	-	-	-	-	-	-	Good	V notch drop and weir 3.7 m x 450 mm dia. access Stone headwall	Same as 3						

Dist. no. (m)	Dist. (m)	I			E		Cond.	Detail	Remarks	last dist.	Access	Photo no.	Drawing no.
		Acc-X	T/Obox	Pipeline	Misc.								
14	160	-	-	-	/	Good	V notch weir and drop						39
15	1320	/	-	-	-	Good	Concrete pipe culvert 525 mm dia. x 5.0 m						
16	1400	-	-	-	/	Good	V notch weir and drop						
17	1650	Farm	-	-	-	Good	4.88 m x 450 mm dia. access Stone headwalls						
18	1710	-	-	P/L	-	Good Good	9.8 m x 450 mm dia. concrete pipe Concrete headwalls	Under road					
19	1740	-	500 M/B	-	-	Good Okay	500 mm M/B RHS Steel and wood stop 800 mm D x 950 mm W	To distributary E 3					
20	1790	/	-	-	-	Okay	Concrete pipe culvert 600 mm dia. x 4.8	LHS					46
21	1840	-	/	-	/	Good Good	500 mm M/B Steel gate on 450 mm dia. concrete pipe x 950 mm L						
22	1860	-	-	/	-	Bad	Steel pipe 200 mm dia.	Across race Rusted holes in top			279		
23	1990	-	-	-	/	Good	450 mm concrete drop						
24	2090	-	-	-	/	Good	450 mm concrete drop						
25	2110	-	-	-	/	Good	450 mm concrete drop						
26	2120	-	-	/	-	Good	Concrete pipe culvert 450 mm dia. x 5.0 m	Race passes under a bank which supports farmers piped race					
27	2160	-	-	-	/	Good	450 mm concrete drop						
28	2210	-	-	-	/	Good	450 mm concrete drop						
29	2270	-	-	-	/	Good	450 mm concrete drop						
30	2300	-	-	-	/	Good	450 mm concrete drop						
31	2320	/	-	-	-	Good	Concrete pipe culvert 600 mm dia. x 5.0 m						
32	2370	-	-	-	/	Good	Concrete drop						

Dist. (m)	I			E		M	Cond.	Detail	Remarks	Dist. Ass.	Access	Photo no.	Drawing no.
	Acc-X	T/O	Box	Pipeline	Misc.								
33 2420					/		Good	Concrete drop					
34 2460	/						Good	Wooden bridge 800 mm W					
35 2480					/		Fair	Concrete drop					
36 2510	/			-			Good	4.9 m x 450 mm dia. concrete pipe culvert access	"modified" V notch weir and drop e.g. 				46
37 2570					/		Good	Concrete drop					
38 2680					/		Good	Concrete drop					
39 2785	/						Good	Wooden bridge					
2795	-	/					Good	500 mm M/B					
2800					/		Good	Steel gate on 450 mm dia. pipe x 2.5 m L	RHS Control for M/B				
40 2810	/						Fair	3 x 305 mm plank access					
41 2900					/		Good	Concrete drop					
42 2970					/		Good	Concrete drop					
43 3080	/						Good	5.0 m x 450 mm dia. concrete pipe culvert					
44 3150	/						Good	5.00 x 450 mm dia. concrete pipe culvert					
45 3160	-	/					Good	Stone headwall upstream					
46 3640	/						Good	Concrete headwall downstream					
47 3760	-				/		Good	Concrete and wood T/O 450 mm D x 700 mm					
48 3770	-	/					Good	750 mm M/B					
							Good	5.00 x 450 mm dia. concrete pipe culvert	In race as control				
							Good	10.0 m x 450 mm dia. concrete pipe	Under Harvey Road				
							Good	Concrete headwalls					
							Good	Steel gate on 375 mm dia. x 1.5	To distributary				
							Good	750 mm M/B RHS	E4				

REASSESSMENT OF SCHEME: OMAKAU

RACE: "E" RACE

DATE: 17.1.85

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Stn. no.	Dist. (m)	I			E		M	Cond.	Detail	Remarks	Ass.	Access	Photo no.	Drawing no.
		Acc-X	T/Obox	Pipeline	Misc.									
48	(Contd)	-	-	-	-	/	Good	750 mm M/B	Control in main race					46
49	3800	/	-	-	-	-	Good	4.88 m x 375 mm dia. concrete pipe culvert						
50	3970	/	-	-	-	-	Fair	Steel culvert 340 mm dia. x 3.8 m L						
51	4630	-	-	-	-	/	Good	Concrete and steel stop 550 mm D x 770 mm W						52
52	4675	-	/	-	-	-	Fair	500 mm M/B	In race as control					
									Race ends					

Struct.	Dist. (m)	I T E M			Cond.	Detail	Remarks	Ass.	Photo no.	Drawing no.
		Acc-X	T/Obox	Pipeline						
1	100	Farm	-	-	Okay	From No. 2 'E' race carrying water to East side of road Steel gate on 875 mm dia. concrete pipe x 3.8 m L	Height adjustment on gate needs straightening Under Racecourse Road			39
2	200	-	-	P/L	Good Good	9.0 m x 300 mm dia. concrete pipe Concrete headwalls End MWD responsibility				

REASSESSMENT OF SCHEME: OMAKAU

'E' RACE DISTRIBUTARIES

RACE: NO. 2

DATE: 17.1.85

sheet 52 of 133

Struct.	Dist. (m)	I T E M			Cond.	Detail	Remarks	Last Obs.	Access	Photo no.	Drawing no.
		Acc-X	T/Obox	Pipeline							
1	10	/			V.Bad	From No. 6 'E' race carries water to boundary fence Steel pipe culvert 480 mm dia. x 900 mm	Completely rusted out at the base				39

REASSESSMENT OF SCHEME: OMAKAU

'E' RACE DISTRIBUTARIES
 RACE: NO. 3
 FROM NO. 19 'E' RACE

DATE: 18.1.85

sheet 53 of 133

Structure	Dist. (m)	I			E		M	Cond.	Detail	Remarks	Dist. G.S.	Access	Photo no.	Drawing no.
		Acc-X	T/O	Box	Pipeline	Misc.								
1	50					/	Fair	Steel gate on 375 mm dia. concrete pipe x 1.3 m L	Services sod T/O				39	
2	250	/					Good	Concrete pipe culvert 375 mm dia. x 4.9 m L						
3	300					/	Fair	Steel gate on 375 mm dia. concrete pipe x 1.4 m L	Services sod T/O					
4	525	/				-	Okay	Concrete pipe culvert 375 mm dia. x 5.0 m L						
5	650					/	Good	Concrete pipe 375 mm dia.	Under race				46	
6	675	/				-	Fair	Steel gate on concrete pipe 375 mm dia. x 1.3 m L						
7	770					/	Fair	500 mm M/B Steel frame on concrete pipe culvert 375 mm dia. x 2.8 m L Rock headwall downstream end only	Acts as stop					
8	900					/	Good	Steel pipe syphon 640 mm dia. x 6.25 m L Concrete pipe culvert 300 mm dia.	Services sod T/O			280		
9	930					/	Okay	Steel gate on 375 mm dia. concrete pipe x 1.3 m L	Earth dam over gully supports steel pipe Waterway through embankment					
10	1200	/					Okay	Concrete pipe culvert 375 mm dia. x 2.5 m L	Services sod T/O					
11	1280					/	Okay	Concrete pipe culvert 450 mm dia. x 15.6 m L	Under Chestermain Road					
12	1350	/				-	Fair	Concrete pipe culvert 300 mm dia. x 4.6 m L						
13	1370	/				-	Fair	Concrete pipe culvert 300 mm dia. x 6.3 m L						

REASSESSMENT OF SCHEME: OMAKAU RACE: NO. 3 DATE: 18.1.85 sheet 54 of 133

Struct.	Dist. (m)	I T E M			Cond.	Detail	Remarks	Dist. Gss.	Access	Photo no.	Drawing no.
		Acc-X	T/Obox	Pipeline							
14	1370				Poor	Steel gate on 375 mm dia. concrete pipe x 1.3 m L	Services sod T/O				46
15	1490	/	-	-	Okay	Concrete pipe culvert 375 mm dia. x 4.0 m	Services sod T/O				
16	1500	-	-	/	Okay	500 mm M/B	Race ends at fence				

REASSESSMENT OF SCHEME: OMAKAU										RACE: NO. 4			DATE: 17.1.84			sheet 55 of 132		
Struct.	Dist. (m)	I			T		E		M	Cond.	Detail	Remarks	Last Ass.	Access	Photo no.	Drawing no.		
		Acc-X	T/O	Box	Pipeline	Misc.												
1	0	-	/	-	-	-	-	-	Fair Okay	Steel pipe T/O 500 mm dia. Steel gate on 375 mm dia. pipe x 1.3					46			
2	60	/	-	-	-	-	-	-	Good	4.88 m x 375 mm dia. concrete pipe culvert access								
3	310	/	-	-	-	-	-	-	Good	3.2 m x 375 mm dia. concrete pipe culvert & 1.3 L wooden bridge	Combination of culvert and wooden bridge			281				
4	580	-	-	-	/	-	-	-	Good	11.0 m x 375 mm dia. concrete pipe culvert	Under Chestermain Road							
5	620	-	/	-	-	-	-	-	Good	Concrete headwalls 500 mm M/B Steel gate on 375 mm dia. concrete pipe	RHS In race ascontrol							
											Race ends							

REASSESSMENT OF SCHEME: OMAKAU RACE: SR VIII DATE: 17.1.85 sheet 36 of 133

Struct.	Dist. (m)	I T E M			Cond.	Detail	Remarks	Last Obs.	Access	Photo no.	Drawing no.
		Acc-X	T/Obox	Pipeline							
	220m					Capacity : 1½ cusecs Length : 220 m from 152 Main Race No structures					39

struct.	Dist. (m)	I T E M			Cond.	Detail	Remarks	Dist. ss.	Access	Photo no.	Drawing no.
		Acc-X	T/Obox	Pipeline							
1	105		/		Good	Race starts at Structure 156 on Main Race	(Capacity 5 cusecs) Length 1650 m				38
2	110			/	Good	500 mm Measuring box turnout					
3	160			/	Good	850 mm Concrete drop					
4	670	/			Fair	850 mm Concrete drop					
5	910	/			Fair	Steel gate on concrete pipe culvert 375 mm dia. x 5.0 m L	Services sod T/O				39
6	1160			/	Good	Steel gate on concrete pipe culvert 300 mm dia. x 2.8 m L Stone headwalls	Services sod T/O				
7	1570	/		-	Okay	750 mm M/B	Used as control in race				
8	1590	-		-	Okay	Concrete pipe culvert 300 mm dia. x 3.7 m	Under Hepburn Road				46
9	1680	/		/	Fair	Steel gate on concrete pipe 375 mm x 1.3 m L	Services sod T/O				
10	1650	/		/	Fair Good	Steel pipe 300 mm dia. x 2.6 Steel pipe 300 mm dia. x 3.4 "Concrete fence post" headwalls					

REASSESSMENT OF SCHEME: OMAKAU										RACE: S.R.X.		DATE: 17.1.85		sheet 59 of 133	
Struct.	Dist. (m)	I T E M			Cond.	Detail	Remarks	Last ass.	Access	Photo no.	Drawing no.				
		Acc-X	T/Obox	Pipeline								Misc.			
1	120	/	-	-	Good	Capacity - 2 cusecs Length - 442 m from 168 Main Race Concrete pipe 375 mm dia. x 3.7 Stone headwalls					45				
						Race ends									

REASSESSMENT OF SCHEME: OMAKAU

RACE: CLOUSTONS DIST.

DATE: 17.1.85

sheet 60 of 133

Struct. no.	Dist. (m)	I T E M			Cond.	Detail	Remarks	Dist. ass.	Access	Photo no.	Drawing no.
		Acc-X	T/Obox	Pipeline							
1	0			/	Poor	Turnouts Structure 176 Main Race Steel pipe 300 mm dia. x 120 m L Steel tank at base of pipeline 1.2 x 1.2	Length 350 m Takes water downhill				45
2	340	/		/	Good	Concrete pipe culvert 375 mm dia. x 3.7					
3	350			/	Good	Concrete pipe culvert 375 mm dia. x 9.0 m	Under Devonshire Road				

REASSESSMENT OF SCHEME: OMAKAU

RACE: PATTERSON'S RACE

DATE: 18.1.85

sheet 61 of 138

Struct.	Dist. (m)	I			M	Cond.	Detail	Remarks	Last Ass.	Access	Photo no.	Drawing no.
		Acc-X	T/Obox	E Pipeline								
1	0		/			Bad Okay	Capacity - 4 cusecs Length - 1812 m from 178 Main Race Steel gate on 375 mm dia. concrete pipe x 1.3 Steel gate on 375 mm dia. concrete pipe x 1.3	Used as race control				51
2	100	/				Fair	Steel pipe culvert 420 mm dia. x 4.4 m					
3	240	/				Okay	Concrete pipe culvert 375 mm dia. x 4.9					
4	520	/				Okay	Steel gate on 375 mm dia. concrete pipe	Pattersons Race Dist. No T/O In race as control				45
5	1180			/		Okay	Steel gate on 375 mm dia. concrete pipe x 2.0 m L	Race water turned Into grassed gully and picked up further on into another race Services sod T/O				
6	1440	/				Fair	Steel gate on 375 mm concrete pipe culvert 3.7 m L					
7	1670			/		Good	Concrete and steel stop 550 mm D x 1.15 m W	Services sod T/O				
8	1760	/				Fair	500 mm M/B	In race at boundary No gate Race ends				

REASSESSMENT OF SCHEME: OMAKAU

PATERSON RACE DISTRIBUTARIES
 RACE: NO. 1
 FROM NO. 4 STRUCTURE

17.1.85

sheet 62 of 133

struct.	Dist. (m)	I T E M			Cond.	Detail	Remarks	Last Ass.	Access	Photo no.	Drawing no.
		Acc-X	T/Obox	Pipeline							
1	0	/	-	-	Okay	Concrete pipe culvert 375 mm dia. x 4.9 m L					45
2	280			/	Fair	Steel gate on 375 mm dia. concrete pipe x 1.3 m L					51
3	350	-	/	-	Good Good	500 mm M/B Concrete pipe culvert 450 mm dia. x 5.0 m L					

Services sod T/O
 These 2 structures
 joined end to end

Struct. no.	Dist. (m)	I T E M			Cond.	Detail	Remarks	Last ass.	Access	Photo no.	Drawing no.
		Acc-X	T/Obox	Pipeline							
						Capacity : 2 cusecs Length : 309 m from 195 Main Race No structures					57

REASSESSMENT OF SCHEME: OMAKAU

RACE: GRASS FLUME

DATE: 18.1.85

sheet 64 of 133

struct. no.	Dist. (m)	I T E M			Cond.	Detail	Remarks	Dist. ass.	Access	Photo no.	Drawing no.
		Acc-X	T/Obox	Pipeline							
1	500	/			Fair	Turnouts from Structure 202 Main Race	Length 580 m				57
2	540	/			Good	Concrete pipe culvert 375 mm dia. x 3.7					
3	560			/	Fair	Concrete pipe culvert 375 mm dia. x 9.0 m L Earthenware pipe culvert 300 mm dia. x 14.0 m L					

Struct.	Dist. (m)	I			E		M	Cond.	Detail	Remarks	Access	Photo no.	Drawing no.
		Acc-X	T/Obox	Pipeline	Misc.								
1	0	-	-	-	Screens	Okay	Capacity : 5 cusecs Length : 175m from 209 Main Race						
2	20	/	-	-	-	Bad	3 x 1.22 m screens at intake						
3	50	-	-	-	Pump	Bad	Wood bridge 1.00 m wide						57
4	55	-	-	*	-	Bad	Pump - centrifugal driven by 25 h.p. electric motor. Automatic cut-offs. Capable of lifting 5 cusecs through 7.4 m static head. Rising main concrete pipe	Condition of pump, motor, switchgear & pumphouse assessed bad. Needs renewing			282		
5	130	-	/	-	-	Good Good Good	84 m x 375 mm dia. concrete pipe	Constant leakage problems in the lower end			283-285		
6	175	-	-	-	/	Pair	Steel gate on 300 mm concrete pipe 500 mm M/B 500 mm M/B 750 mm M/B	RHS LHS In race as control			286		
									On race line No headgate				
									Race ends				

REASSESSMENT OF SCHEME: OMAKAU

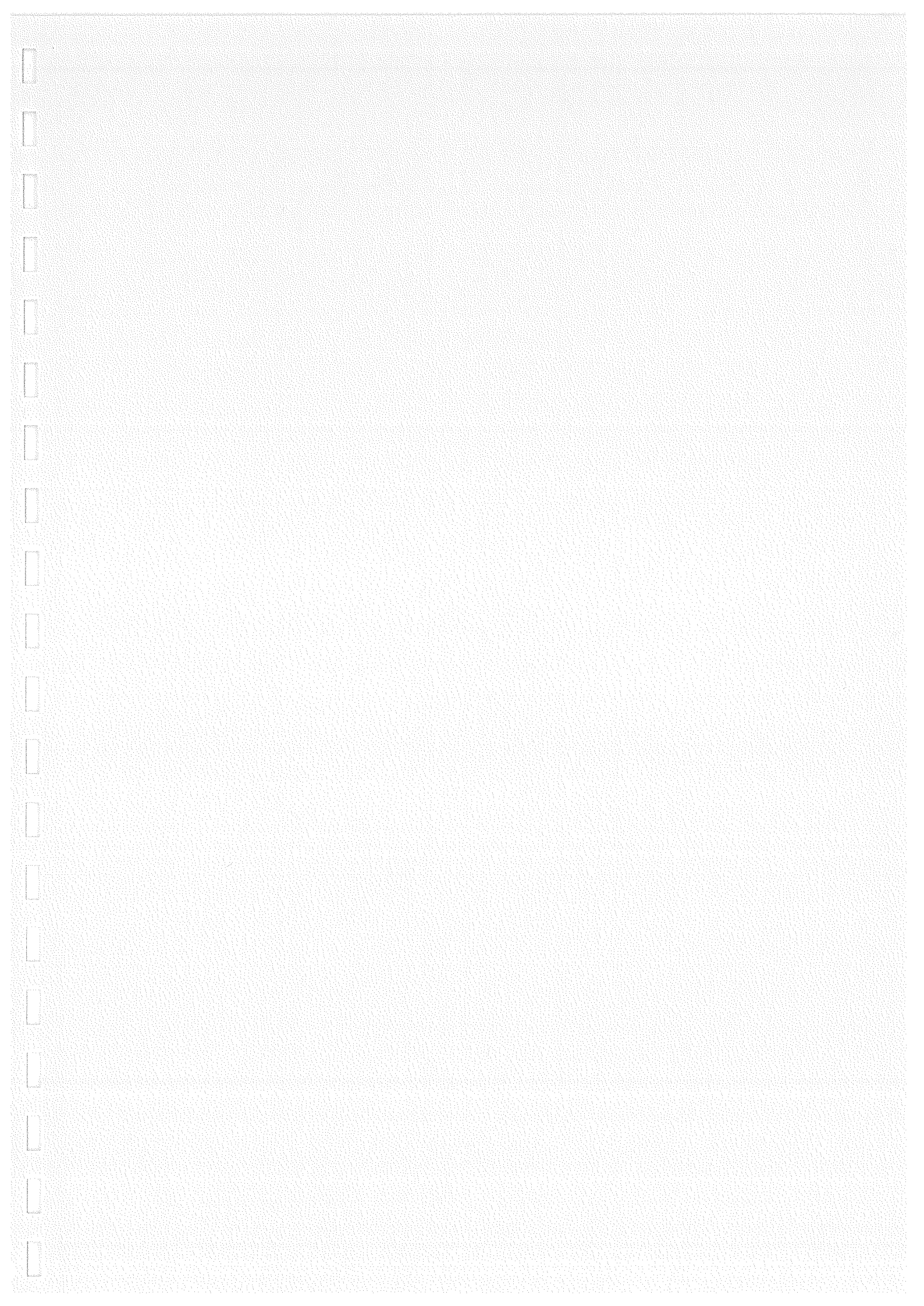
RACE: DISTRIB. FROM TIGER HILL PUMP

DATE: 18.1.85

sheet 66 of 133

Struct.	Dist. (m)	I		E		M	Cond.	Detail	Remarks	last Gss.	Access	Photo no.	Drawing no.
		Acc-X	T/Obox	Pipeline	Misc.								
1	0	-	-	/	-	-	Good	Starts 500 mm M/B LHS in No. 4 300 mm dia. concrete pipe syphon 49 m long Concrete headwalls	Under railway			287,288	57
2	60		/		/		Good	Steel gate on 375 mm concrete pipe x 2.0 m L Concrete and wood stop 400 mm D x 675 mm W					
3	70	-	-	/	-	-	Good	Concrete pipe culvert 450 mm dia. x 17.1 Concrete headwalls	Under SH 85			289,290	
4	110		/	/	/		Fair Okay	Concrete and wood T/O 350 mm D x 570 mm W Steel gate on 375 mm dia. concrete pipe x 1.3 m L					

Struct. No.	Dist. (m)	I T E M			Cond.	Detail	Remarks	Last Ass.	Access	Photo no.	Drawing no.
		Acc-X	T/Obox	Pipeline							
1	0	-	-	/	Good	Capacity : 3 cusecs Length : 30 m from 240 Main Race - no race, pipe only Concrete pipe syphon 450 mm dia x 32.3 m long	Main Race M/B discharges into headwall of syphon under S.H. Supplies water to spur				58



No.	Dist. (m)	I			E		M	Cond.	Detail	Remarks	Dist. Ass.	Access	Photo no.	Drawing no.
		Acc-X	T/Obox	Pipeline	Misc.									
1	0	-	-	-	-	/	Good	Cap. - 8 cusecs (& distributaries) length - 7420 m Steel sheet piling and concrete weir with 900 mm square sluice gate Concrete culvert 800 mm W x 500 mm D x 1.6 m L	Intake Leads into race.			300-302	46	
2	10	/	-	-	-	-	Good	Concrete pipe x 600 mm dia. x 5.2 m L						
3	160	-	-	/	-	-	Good Okay	Concrete pipe 300 mm dia. Rock headwalls	Under race					
4	290	-	-	-	-	-	Good	Feed in point (no structure)	Drainage from spring					
5	430	/	-	-	-	-	Good	5.0 m x 600 mm dia. Concrete pipe culvert No headwalls						
6	620	/	-	-	-	-	Good	5.0 m x 600 mm dia. concrete pipe culvert Rock headwall upstream only						
7	950	/	-	-	-	-	Good	5.0 m x 600 mm dia. concrete pipe culvert No headwalls						
8	1100	-	-	/	-	-	Good	12.2 m x 600 mm dia. concrete pipe No headwalls	Under Lauder- Matakanui Road					
9	1130	-	/	-	-	-	Okay	480 mm M/B RHS	To bywash					
10	1340	/	-	-	-	-	Good	5.0 m x 600 mm dia. concrete pipe culvert No headwalls						
11	1530	-	/	-	-	/	Poor Poor	Concrete and wood stop 500 mm D x 900 mm W Concrete and wood T/O 350 mm D x 600 mm W Feed in point				303		
12	1620	/	-	-	-	-	Good	5.00 m x 600 mm dia. Concrete pipe culvert						
13	1750	/	-	-	-	-	Good	5.0 m x 600 mm dia. Concrete pipe culvert						
14	2040	-	/	-	-	-	Poor	300 mm dia. concrete pipe x 1.9 m L	To distributary Clearwater 1					
		/	-	-	-	-	Poor	2.50 m x 600 mm dia. access	No cover over pipe					

REASSESSMENT OF SCHEME: OMAKAU										RACE: CLEARWATER			DATE: 15.1.85		sheet 69 of 123	
Dist. (m)	I	T	E	M	Cond.	Detail	Remarks	Dist. Access	Photo no.	Drawing no.						
											Acc-X	T/Obox	Pipeline	Misc.		
15 2460	/			/	Poor	560 mm steel pipe flume	Rust holes in top Crossing for Race D			52						
16 2840	/	-	-	-	Good	Wooden bridge 900 mm wide	Fence across centre									
17 3240	-	/	-	-	Good	600 mm x 7.5 m										
18 3260	-	/	-	-	Good	Concrete pipe culvert										
	-	/	-	-	Good	12.2 m x 600 mm dia. road crossing										
	-	/	-	-	Good	500 mm M/B LHS										
	-	/	-	-	Good	500 mm M/B LHS										
	-	/	-	-	Good	750 mm M/B										
	-	/	-	-	Good	Steel gate on 375 mm dia. concrete pipe										
19 3470	/	/		/	Fair	Concrete and wood T/O 350 mm D x 1.0 m										
	/	/		/	Fair	Concrete and wood stop 550 mm D x 750 mm W										
20 3510	-	/	-	-	Poor	Concrete and wood T/O 250 mm D x 600 m W										
	-	-	-	-	Okay	450 mm dia. concrete pipe x 1.2 m										
21 3560					Okay	Concrete pipe culvert 450 mm dia. x 2.8										
22 3760	/	/		-	Poor	Concrete and wood T/O 300 mm D x 600 mm W										
	/	-	-	-	Okay	4.9 m x 375 mm dia. concrete pipe culvert										
23 3890				/	V.Bad	Steel pipe in race 460 mm dia. x 1.4										
24 4070	/	-	-	-	Bad	2.5 m x 375 mm concrete pipe culvert										
25 4460		/		Stop	V.Bad	Concrete and wood T/O 350 mm x 900 mm W										
		/		Stop	V.Bad	Steel cap over 375 mm dia. pipe x 1.2 m L										
26 4420		/		Stop	Poor	Concrete and wood T/O 450 mm D x 650 mm W										
				Stop	Bad	Concrete pipe 450 mm dia. x 1.0 m L										
27 4760	/				Okay	Concrete pipe culvert 375 mm dia. x 4.9 m L										
28 4900	/				Okay	Concrete and wood T/O 350 mm D x 650 mm W										
					Good	500 mm measuring box in race										

Dist. (m)	I		E		M	Cond.	Detail	Remarks	Last Gs.	Access	Photo no.	Drawing no.
	Acc-X	T/Obox	Pipeline	Misc.								
29 4910	-	-	/	-	-		375 mm dia. concrete pipe culvert x 7.3 m	Under Terrace Road				52
30 4920	-	-	-	-	-		500 mm measuring box in race	M/B used as control Services sod T/O				
31 5240	/	-	-	-	-	Okay	4.88 x 375 mm dia Concrete pipe culvert	To distributary Clearwater 4				58
32 5320	-	T/O	-	-	-		Sod T/O RHS	Used as control for T/O				
		Farm	-	-	-		Concrete pipe culvert 300 mm x 4.7	Crossing White Road				
33 5700	-	-	/	-	-	Good	Concrete pipe culvert 375 mm dia. x 12.3 m					
34 5750	/	-	-	-	-	Poor	Steel pipe 375 mm dia. x 900 mm L	Used as control Services sod T/O RHS				
35 5770	/	-	-	-	-	Good	Wooden bridge 1.2 m W					
36 5780	-	-	-	-	Channel	Good	1.05 mm wide x 500 mm deep x 8.4 m long concrete channel					
37 5810	/	-	-	-	-	Okay	Concrete pipe culvert 3.7 m x 305 mm dia.	Under railway		308		
38 5850	-	-	-	-	-	Okay	3 x 305 mm concrete planks					
39 5860	-	-	-	-	-	Okay	Concrete pipe culvert 375 mm dia. x 4.3					
40 5870	-	-	-	-	-	Okay	Concrete pipe culvert 375 mm dia. x 4.8					
41 5940	-	/	-	-	-		Concrete pipe T/O 300 mm dia. x 40 m L	To distributary			309,310	
42 6110	-	-	-	-	Outlet		375 mm dia. concrete pipe with steel gate	For gravity sprinkling the Omakau Domain. Has concrete surround				311
		-	-	-	-		100 mm pipe outlet LHS					

Station	Dist. (m)	I T E M			Cond.	Detail	Remarks	Access	Photo no.	Drawing no.
		Acc-X	T/Obox	Pipeline						
42	(Contd)	-	-	-	Bad	Concrete and wood stop 600 mm D x 800 mm W	One side broken			58
43	6140	/	-	-	Okay	3 x 305 mm concrete planks	Fenced off			
44	6450	/	-	-	V.Bad	2.0 m x 420 mm dia. steel pipe access	Starting to collapse			
45	6550	/	-	-	Okay	Concrete pipe culvert 375 mm dia. x 5.0 m	No cover on pipe			
46	7100	-	/	-	Good	375 mm M/B LHS	Turning water into headwall of farmer's pipeline		312	
47	7230	/	-	-	Okay	Concrete pipe culvert 375 mm dia. x 2.5 m L	Race turns into Gully end			

Struc. No.	Dist. (m)	I T E M			Cond.	Detail	Remarks	Last Dss.	Access	Photo no.	Drawing no.
		Acc-X	T/Obox	Pipeline							
						Starts at Structure 14 Clearwater Race Length 160 m No structures Ends at fence					46 52

REASSESSMENT OF SCHEME: OMAKAU

RACE: CLEARWATER
DISTRIB. 2

DATE: 15.1.85

sheet 73 of 133

Dist. (m)	I T E M			Cond.	Detail	Remarks	Dist. (m)	Access	Photo no.	Drawing no.
	Acc-X	T/Obox	Pipeline							
1 0	/			Fair	Starts at Structure 18 on Clearwater Race					
2 160	/		/	Bad	Steel culvert 450 mm dia. x 2.3 m L M/B 500 in race	Used as stop for sod T/O				52
3 280	/			Poor	Concrete pipe culvert 375 mm dia. x 4.8 m L	Lot of shingle in bottom of pipe				
4 430	/			Poor	Concrete pipe culvert 375 mm dia. x 1.55	Used as stop for Sod T/O				
5 480	/			Okay	Steel culvert 425 mm dia. x 1.2 m L Rock headwalls					
6 510	/			Okay	Concrete pipe culvert 375 mm dia. x 2.5 m L Rock headwalls	Not enough cover				
7 570	/		/	Good	Concrete and wood stop 550 mm D x 750 mm W					
8 1020	/			Bad	Wooden bridge 2.5 m W					
9 1030	/	/	/	Poor	Concrete and wood T/O 470 mm D x 800 mm W	RHS				
				Poor	Concrete and wood T/O 470 mm D x 470 mm W	LHS				
			/	Bad	Concrete and wood stop 470 mm D x 800 mm W	Sides broken				
10 1110			/	Bad	Concrete and wood stop 470 mm D x 800 mm W	Sides collapsing				

REASSESSMENT OF SCHEME: OMAKAU

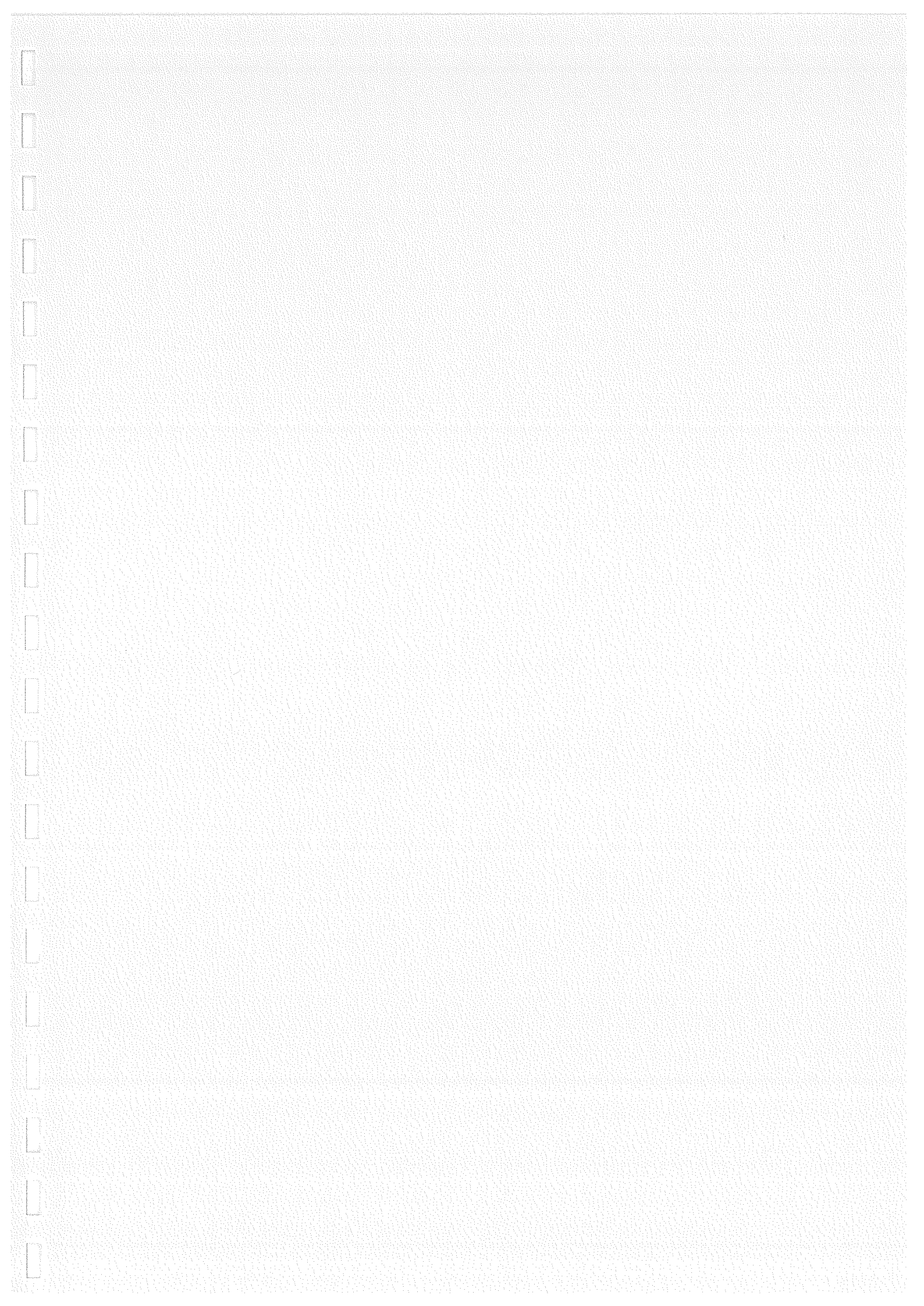
RACE: CLEARWATER
DISTRIB. 3

DATE: 15.1.85

sheet 74 of 133

Struct. no.	Dist. (m)	I T E M			Cond.	Remarks	last ass.	Access	Photo no.	Drawing no.
		Acc-X	T/Obox	Pipeline						
						Starts at Structure 38 on Clearwater 375 mm dia. concrete pipe culvert x 7.3 m L (Structure 29 on Clearwater inventory)				52

REASSESSMENT (SCHEME: OMAKAU			RACE: CLEARWATER DISTRIB. 4		DATE: 16.1.85		sheet 75 of 133	
Struct. no.	Dist. (m)	I		E		Cond.	Detail	Remarks	Dist. ass.	Access	Photo no.	Drawing no.						
		Acc-X	T/Obx	Pipeline	Misc.													
1	150					Poor	Starts at Structure 32 on Clearwater Steel pipe 300 mm dia.	Over race Holes in pipes				58						
2	240	/				Poor	Concrete pipe culvert 300 mm dia. x 1.5 m L	Just lying in race										
3	290	/				V.Bad	Steel pipe culvert 300 mm dia. x 3.5 m L Falls into bywash along side Whites Road	Rusted at top										



REASSESSMENT OF SCHEME: OMAKAU

RACE: DUNSTAN MAIN

DATE: 21.1.85

sheet 76 of 133

Structure	Dist. (m)	I			E		M	Cond.	Detail	Remarks	Last Obs.	Access	Photo no.	Drawing no.
		Acc-X	T/Obox	Pipeline	Misc.									
1	0	-	-	-	Weir	Good	Sheet piling weir	Large bulge in sheet piling caused by metal build up installed 1974	320-323	16				
2	50	-	-	-	/	Good	Slide gate in concrete Intake Structure	Discharge pipes have broken off at the start. Were concreted in and then settlement occurred						
3	250	-	-	-	/	Poor	Scour valves Concrete pipes 375 mm dia.							
4	400	-	-	-	Wooden bridge	Okay	Concrete intake race 1.2 m wide x 600 mm deep x 213 m	Badly cracked Needs cleaning out between first bend and silt trap. Sizeable leak 10 m from silt trap MAJOR	324					
5	1440	-	-	-	4 stage silt trap	Good	Concrete weir Scour gates Weir and drop Bywash channel of 1/2 round steel pipes	To gauge 15 cusecs						
6	1475	-	-	-	Steel gate on 450 mm dia. concrete pipe x 5 m L	Good	Concrete pipe culvert 600 mm dia. x 5.0 m L	LHS T/O to Shaw's Race						
7	1750	-	-	-	Concrete pipe culvert 600 mm dia. x 12.0 m L Concrete headwalls	Okay	Concrete pipe culvert 600 mm dia. x 3.7 m	Pipe undersized Under Becks - St. Bathans Road Race overflowing banks just before culvert						
8	1870	-	-	-	Concrete pipe culvert 750 mm dia. x 3.7 m	Good	Concrete pipe culvert 600 mm dia. x 9.8 m L	Race overtopping banks along this stretch						
9	2300	-	-	-	Concrete pipe culvert 600 mm dia. x 9.8 m L	Good								

REASSESSMENT OF SCHEME: OMAKAU RACE: DUNSTAN MAIN DATE: 21.1.85 sheet 77 of 133

Stn. No.	Dist. (m)	I			E		M	Cond.	Detail	Remarks	Access	Photo no.	Drawing no.
		Acc-X	T/Obox	Pipeline	Misc.								
10	2410	-	/	-	-	-	Good	500 mm M/B	Race overtopping bank			16	
11	2660	-	/	-	-	-	Good	Steel gate on 600 mm dia. pipe					
12	2665	-	-	/	-	-	Good	600 mm dia. pipe under race					
13	2760	/	-	-	-	-	Good Okay	Concrete pipe culvert 600 mm dia. x 4.9 m Stone headwalls	Race overflowing at inlet end				
14	3100	/	-	-	-	-	Fair	Concrete pipe culvert 600 mm dia. x 3.7 m	Flooded inlet		327	20	
15	3300	/	-	-	-	-	Fair	Concrete pipe culvert 600 mm dia. x 5.0 m				19	
16	3450	-	-	/	-	-	Good	600 mm dia. pipe under race					
17	3460	-	/	-	-	-	Okay	500 mm M/B					
18	3820	-	-	-	-	Syphon	Fair	194.5 m x 600 mm dia. concrete pipe	LHS T/O to Mees Race				
19	4270	-	-	-	-	P/L	Good Okay	Concrete headwalls 15.0 m x 600 mm dia. concrete pipe culvert over drain No headwalls	Across unstable gully. Leaks at joints along pipe line MAJOR Under Launder Station Road		328,329	20	
20	4445	-	-	-	-	P/L	V.Bad	375 mm dia. steel pipe across race	Creek enters race				
21	4450	/	-	-	-	-	Good	Concrete pipe culvert 600 mm dia. x 5.0 m L Stone headwalls	Not used. Badly corroded				
22	4540	-	-	/	-	-	Good	Steel gate on 450 mm concrete pipe x 2.4 m L	Bywash into Creek leaks				
23	4570	-	-	/	-	-	Good	21.9 m x 600 mm dia. concrete pipe syphon Concrete headwalls	Under "Woolshed" creek				
24	4620	-	-	/	-	-	Bad	375 mm dia. steel pipe	Across race. Rust holes				

Station	Dist. (m)	I			E		M	Cond.	Detail	Remarks	Assessment	Access	Photo no.	Drawing no.
		Acc-X	T/Obox	Pipeline	Misc.									
25	4700	/					Good	Wooden Bridge 1.2 m W	Leaks				19	
26	5100	-	/	-	-	-	Good	500 mm M/B						
27	5110	/					Good	Wooden Bridge 1.2 m W						
28	5600	/	-	-	-	-	Good	Concrete pipe culvert 600 mm dia. x 5.0 m L						
							Fair	Stone headwalls						
29	5600	/					Good	Wooden Bridge 1.2 m W						
30	6150	/					Okay	3 x 300 mm wide concrete planks	(Old sill boards)					
31	6250	/					Good	Concrete pipe 600 mm dia. x 9.1 m L						
32	6260	-	/	-	-	-	Good	500 mm M/B		LHS T/O to RI				
33	6600	/					Good	Concrete pipe culvert 600 mm dia. x 4.8 m L						
34	6660	-		/	-	-	Good	300 mm dia. concrete pipe		Under race				
35	6700	-	/	-	-	-	Good	500 mm M/B		LHS leaks				
36	6750	/					Good	Concrete pipe culvert 600 mm dia. x 4.8 m L						
37	7220	-		/	-	-	Bad	Concrete pipe syphon 600 mm dia. x 36.6 m L	Some leakage. Some pipes exposed Repaired 1971					
							Good	Anchor block						
							Good	Concrete Headwalls						
38	7440		/				Good	500 mm measuring box		Overflow from dam enters race				
39	7620	-		/	-	-	Good	300 mm dia. pipe under race						
40	7630	-	/	-	-	-	Good	500 mm M/B		Kane's Race T/O				
41	7650	/					Good	Concrete pipe culvert 600 mm dia. x 4.9 m 4 x 305 mm concrete planks stone headwalls upstream only	Bank on downstream end eroding back along side of pipe					

REASSESSMENT OF SCHEME: OMAKAU										RACE: DUNSTAN MAIN			DATE: 22.1.85		sheet 79 of 133	
Structure	Dist. (m)	I		E		M	Cond.	Detail	Remarks	Access	Photo no.	Drawing no.				
		Acc-X	T/Obox	Pipeline	Misc.											
42	7660	-	/	-	-	-	Good	500 mm M/B	Need lifting and abutments. Causing restriction to flow			19				
43	7950	/	-	-	-	-	Bad	4 x 305 mm concrete planks across race								
44	7960		/				Okay	500 mm M/B								
45	8080	/					Good	Wooden bridge 1.2 m W								
46	8300	/	-	-	-	-	Good Okay	Concrete pipe culvert 600 mm dia. x 4.9 m Stone headwalls								
47	8675	/	-	-	-	-	Okay	Concrete pipe culvert 600 mm dia. x 4.9 m								
48	8910	-	-	/	-	-	Poor	525 mm dia. concrete pipe syphon x 683 m L. Steel section across creek with 75 mm drain bung end expansion	Leaking around headwalls and apron causing fill to collapse and erode along RHS. Leakage at most joints on the flat ground before creek crossing		330-338					
							Good	Steel pipe 525 mm dia. x 24.0 m L approx.	Externally (across creek) appears sound. 700-900 mm free-board between pipe and creek bed							
							Poor	Concrete pipe	Seepage from pipe joints up to 300 mm gate valve. No visual seepage between valve and outlet							
49	9600	-	-	-	-	-	Good	Concrete headwalls	URGENT							
50	10040	/	/	-	-	-	Good Okay	500 mm M/B Concrete pipe culvert 600 mm dia. x 5.0 m L Stone headwalls				24				

Inspection Overseer

Omakar
13-8-85

The following structure and should read as follows
wrong order and should read as follows

- 52 300 mm Dia pipe under race
- 53 500 mm M/B
- 54 Steel pipe 600 mm dia x 6.0 m L
- 60 500 mm M/B
- 61 750 mm M/B

Scotts Creek
Bywash at intake not mentioned
Concrete step and weed 600 mm dia x 1 m L

M/B Bars

TABLE

OMAKAR

De

Cond.

Misc.

E

T

Pipeline

Acc-X

Dist. (m)

Dist. (m)	Acc-X	T	E	Misc.	Cond.	Description
51 10,100	-	-	-	-	Okay	Concrete pipe No headwalls 500 mm M/B
52 10,230	-	-	-	-	Okay	Steel pipe 600 mm dia. x 6.0 m L
53 10,425	-	-	-	-	Fair	300 mm dia. concrete pipe
54 10,450	-	-	-	-	Okay	300 mm dia. concrete pipe
55 10,600	-	-	-	-	Good	375 mm M/B concrete pipe
56 10,825	-	-	-	-	Good	Concrete pipe 225 mm dia. x 5.0 m L
					Good	Concrete pipe 640 mm dia. x 3.6 m L
					Okay	Concrete pipe 600 mm dia. x 55 m L
					Fair	Steel pipe 600 mm dia. x 55 m L
					Fair	750 mm M/B

DATE: 23.1.85

RACE: DUNSTAN MAIN

REASSESSMENT OF SCHEME: OMAKAU

Structure no.	Dist. (m)	I T E M			Cond.	Detail	Remarks	Last Ass.	Access	Photo no.	Drawing no.
		Acc-X	T/Obox	Pipeline							
71	12,820	/	-	-	Okay	Concrete pipe culvert 600 mm dia. x 5.0 m L	Under Launder Flat Road				24
72	13,050	-	-	/	Okay	Concrete pipe culvert 450 mm dia. x 14.6 m L No headwalls	R II T/O LHS				
73	13,310	-	/	-	Good	375 mm M/B Concrete pipe culvert 600 mm dia. x 4.9 m L	LHS Drain enters race from RHS				
74	13,350	Farm	-	-	Good	Stone headwalls					
75	13,400	-	/	-	Good	500 mm M/B					
76	13,550	/	-	-	Okay	Concrete pipe culvert 375 mm dia. x 4.9 m					
77	13,725	/	-	-	Okay	Concrete pipe culvert 375 mm dia. x 4.9 m					
78	14,000	/	-	-	Fair	4 x 300 mm W Concrete planks	Ex sill boards				
79	14,010	-	-	/	Good	Concrete pipe 450 mm dia.	Under race				
80	14,450	/	-	-	Okay	Concrete pipe culvert 7.3 m x 375 mm dia. x 4.9 m L					
81	14,460	-	/	-	Good	750 mm M/B	In race Services sod T/O				
82	14,750	/	-	-	Good	Concrete pipe culvert 375 mm dia. x 4.9 m L Stone headwalls					
83	15,070	-	/	-	Good	500 mm M/B Steel gate on 450 mm dia. concrete pipe x 1.5 m L					
84	15,150	/	-	-	Okay	Concrete pipe culvert 375 mm dia. x 5.0 m L					
85	15,200	/	-	-	Okay	Concrete pipe culvert 375 mm dia. x 5.0 m L	Eroding back under the pipe (outlet end)				

Stitch	Dist. (m)	I T E M			Cond.	Detail	Remarks	Access	Photo no.	Drawing no.
		Acc-X	T/Obox	Pipeline						
86	2250	/	-	-	Good	Concrete pipe culvert 450 mm dia. x 5.0 m L				23
87	2380			Bywash	Good	Steel gate on 540 mm steel pipe	Under creek			
88	2340	-	-	-	Good	14.6 m x 450 mm RC pipe syphon				
				Concrete headwalls	Good					
89	2420	/	-	-	Okay	Concrete pipe culvert 300 mm dia. x 12.8 m L				
90	2490	/	-	-	Okay	Concrete pipe culvert 450 mm dia. x 5.0 m L				
91	2580			/	Good	Steel gate on 375 mm dia. concrete pipe x 1.3 m L	Services sod T/O			
92	2650	/			Okay	Concrete pipe culvert 450 mm dia. x 5.0 m L				
93	2600	-	/	-	Good	500 mm M/B				
					Good	Steel gate on 450 mm dia. concrete pipe x 1.2 m L				
94	2825			/	Okay	Steel gate on 375 mm dia. concrete pipe x 1.2 m L				
95	3145	/			Good	Concrete pipe culvert 375 mm dia. x 5.0 m L				
					Good	Stone headwalls				
96	3500	-	/	-	Good	500 mm M/B's	Race divides in two directions			
					Good	500 mm M/B				

REASSESSMENT OF SCHEME: OMAKAU										DUNSTAN CREEK DISTRIBUTARIES			sheet 53 of 133	
RACE: SHAW'S RACE										DATE: 24.1.85				
Structure	Dist. (m)	I T E M			Cond.	Detail	Remarks	last ass.	Access	Photo no.	Drawing no.			
		Acc-X	T/Obox	Pipeline								Misc.		
	225					From structure 5 Dunstan Main Capacity - 3 cusecs Length - 225 m No structures					16			

Structure	Dist. (m)	I T E M			Cond.	Remarks	Access	Photo no.	Drawing no.
		Acc-X	T/Obox	Pipeline					
1	250	/	-	-	Fair	From structure 17 Dunstan Main Capacity - 1 cusec Length - 760 m Steel pipe culvert 380 mm dia. x 6.2 m L		19	
2	300	/			Good Good	Concrete pipe culvert 300 mm dia. x 5 m L Stone headwalls		20	
3	750	-	-	/	Okay Fair	Concrete pipe culvert 375 mm dia. x 12.4 m L Stone headwalls			

Under Becks-St
 Bathans Road

REASSESSMENT OF SCHEME: OMAKAU										DUNSTAN MAIN DISTRIBUTARIES			sheet 85 of 138		
RACE: R I										DATE: 24.1.85					
Struct.	Dist. (m)	I			E			M	Cond.	Detail	Remarks	List	Access	Photo no.	Drawing no.
		Acc-X	T/Obox	Pipeline	Misc.										
	25.									From structure 32 Dunstan Main Capacity - 1 cusecs Length - 25 m	No structures : carries water to fence				19

REASSESSMENT OF SCHEME: OMAKAU										DUNSTAN MAIN DISTRIBUTUARIES				RACE - KANE'S RACE			DATE: 24.1.85			sheet 86 of 133		
Structure	Dist. (m)	I		T		E		M	Cond.	Detail	Remarks	Last Obs.	Access	Photo no.	Drawing no.							
		Acc-X	T/Obox	Pipeline	Misc.																	
1	80	/	-	-	-	-	-	Okay	From structure 40 Dunstan Main Capacity - 4 cusecs Length - 2355 m Concrete pipe culvert 375 mm dia. x 4.9 m L	Over race Leaks severely down-stream end					19							
2	350	-	-	-	-	/	-	Fair	Concrete flume 280 mm D x 380 mm W													
3	460	/	-	-	-	-	-	Okay	Concrete pipe culvert 375 mm dia. x 4.9 m L													
4	485	-	/	-	-	-	-	Fair	375 mm M/B													
5	730	/	-	-	-	-	-	Okay	Concrete pipe culvert 375 mm dia. x 4.9 m L													
6	750	-	-	-	-	/	-	Okay	Steel gates on 375 mm dia. concrete pipe x 1.6 m L	Steel gate not attached to the box but in position and operable												
7	800	-	-	-	-	/	-	Okay	Steel gate on 450 mm dia. concrete pipe x 1.5 m L	Services Sod T/O												
8	1150	-	-	/	-	-	-	Fair	Concrete pipe culvert 375 mm dia. x 9.8	Services Sod T/O					24							
9	1160	-	/	-	-	-	-	Okay	500 mm M/B	Across Mee Road												
10	1180	-	-	-	-	-	-	Fair	Steel gate on 375 mm dia. concrete pipe x 3.6 m L	RHS Steel gate bent Pipe broken down-stream end												
11	1350	-	-	-	-	/	-	Okay	500 mm M/B	Services 3 sod T/Os (2 LHS & 1 RHS)												
12	1360	/	-	-	-	-	-	Okay	Concrete pipe culvert 300 mm dia. x 4.5 m L													
13	1520	-	-	/	-	-	-	Good	Concrete pipe syphon 225 mm dia. x 259 m L	Across deep gully												
		-	-	-	-	-	-	Good	Concrete headwalls													

REASSESSMENT OF SCHEME: OMAKAU										RACE: KANE'S RACE			DATE: 24.1.85			sheet 87 of 133		
Struct. no.	Dist. (m)	I			E			Cond.	Detail	Remarks	Access	Photo no.	Drawing no.					
		Acc-X	T/Obox	Pipeline	Misc.	Misc.	Misc.											
14	1610	/	/	/			Good	Steel gate on 225 mm dia. concrete pipe	T/O and stop butt into syphon down-stream headwall			24						
15	1680	-	/	-	-	/	Okay	Steel gate on 300 mm dia. concrete pipe	LHS T/O to Kanes Dist. 1 In race as control									
16	1710	/	/	/			Good	500 mm M/B										
17	1750	/	/	/			Okay	Concrete pipe culvert 300 mm dia. x 3.6 m L										
18	1870	/	-	-	-	-	Okay	Steel gate on 300 mm dia. concrete pipe	LHS T/O to Kane's Distrib. 2		339,340							
19	1880	/	/	/			Good	Concrete pipe culvert 300 mm dia. x 3.8 m L	Services sod T/O									
20	2250	/	/	/			Okay	375 mm M/B										
21	2300	-	-	/	-	-	Good	Steel pipe culvert 380 mm dia. joined to 300 mm concrete pipe Total length 5.1 Concrete pipe culvert 300 mm dia. x 5.1 m L	Beneath front yard of house Leaks about mid way along pipeline Race ends									

REASSESSMENT OF SCHEME: OMAKAU
 KANE'S RACE DISTRIBUTORIES
 RACE: NO. 2 DATE: 25.1.85
 FROM NO. 17 sheet 89 of 133

Stn. No.	Dist. (m)	I T E M			Cond.	Remarks	Access	Photo no.	Drawing no.
		Acc-X	T/Obox	Pipeline					
1	425	-	-	/	Fair	Crossing Becks - St. Bathans Road			24
2	575	-	-	/		To carry polythene domestic supply line Not found			
3	700	/	-	-	Okay	Concrete pipe culvert 300 mm dia. x 3.6 m L			
						Race ends			


REASSESSMENT OF SCHEME: OMAKAU

DUNSTAN MAIN DISTRIBUTARIES
RACE SPUR RACE
FROM 68 DUNSTAN

sheet 90 of 133

DATE :

Site	Dist. (m)	I T E M			Cond.	Detail	Remarks	Access	Photo no.	Drawing no.
		Acc-X	T/Obox	Pipeline						
1	80	/	-	-	Okay	Capacity - 4 cusecs Length - 2030 m Concrete pipe culvert 375 mm dia. x 4.9 m L	Overgrown As control is lying askance in the race it is no use in present state. Should be reinstated		24	
2	375	-	/	/	Bad V.Bad	Concrete and wood T/O 500 mm M/B				
3	760	/	-	-	Okay	Concrete pipe culvert 375 mm dia. x 10.0 m L				
4	770	-	-	/	Bad	Concrete flume 250 mm D x 380 mm W	Across race but empties into race			
5	1090	-	-	/	Okay	500 mm M/B	In race as control Services 3 sod T/Os		30	
6	1200	-	-	-	Fair	Concrete pipe culvert 375 mm dia. x 900 mm L	Under fence			
		/	-	-	Okay	Concrete pipe culvert 375 mm dia. x 5.0 m				
7	1500	/	-	-	Fair	Concrete pipe culvert 375 mm dia. x 5.7 m L	Needs cover			
8	1570	-	-	/	Fair	Concrete flume 300 mm D x 450 mm W	Across race			
9	1950	-	/	-	Okay	500 mm M/B	RHS. T/O to Spur Race Distrib. 1			
		-	-	/	Fair	Concrete and wood stop 250 mm D x 350 mm W	Top of Stop too low			
10	2000	-	-	/	Okay Good	14.6 m x 305 mm dia. syphon Concrete headwalls	Across School Road Leakage from syphon at road edges			
11	2010	-	/	-	Okay	500 mm M/B	LHS			
12	2015	-	-	-	Okay	Steel gate on 375 mm concrete pipe x 1.3 m L	Services Sod T/O			

REASSESSMENT OF SCHEME: OMAKAU										SPUR RACE DISTRIBUTARIES			25.1.85		sheet 91 of 133		
RACE No. 1										DATE:			FROM NO. 9 Spur				
Stitch.	Dist. (m)	I		T		E		M		Cond.	Detail	Remarks	Last Oss.	Access	Photo no.	Drawing no.	
		Acc-X	T/Obox	Pipeline	Misc.												
1	20	-	-	/	-	-	-	-	V.Bad	Length - 365 m Steel pipe 225 mm dia. x 156 m	 Holes in pipes lots of water escaping Drops approx. 18.2 m Under Launder Flat Road Under School Road					30	
2	225	-	-	/	-	-	-	Fair	Steel pipe 686 mm dia. x 6 m Concrete pipe culvert 375 mm dia. x 9.5 m L								
3	365	-	-	/	-	-	-	Fair	Concrete pipe culvert 375 mm dia. x 7.3								

REASSESSMENT OF SCHEME: OMAKAU

RACE: DUNSTAN MAIN R II
DISPRIB.

DATE: 25.1.85

sheet 92 of 133

Stct.	Dist. (m)	I			E	M	Cond.	Detail	Remarks	Last Ass.	Access	Photo no.	Drawing no.
		Acc-X	T/Obox	Pipeline									
1	120	/				V.Bad	From No. 73 Dunstan Main Capacity - 1 cusec Length - 1090 m Concrete pipe culvert 300 mm dia. x 3.7 m L	Water flows under- neath the pipe rather than through it					24
2	250			/		Good	Concrete pipe culvert 450 mm dia. x 19.8 m L	Across slip face					
3	300			/		Okay	Steel pipe culvert 370 mm dia. x 6.4 m L	Across slip face					
4	250		/			Good	Steel gate on 300 mm dia. concrete pipe						
5	370	/				Okay	4 x 300 mm W concrete planks	(ex sill boards)					
6	500	/				Okay	Steel pipe culvert 370 mm dia. x 4.9 m L						
7	840	/		/		Good	Steel pipe culvert 370 mm dia. x 4.6 m L 500 mm M/B	Empties into syphon					
8	1090	/				Fair	Concrete pipe culvert 300 mm dia. x 4.5 m L	Crosses access to "Brookdale" farm house					

REASSESSMENT OF SCHEME: OMAKAU

DUNSTAN MAIN DISTRIBUTARIES
 RACE R III
 NO. 93 DUNSTAN MAIN

DATE: 25.1.85

sheet 93 of 133

Struct.	Dist. (m)	I T E M			Cond.	Detail	Remarks	Last Oss.	Access	Photo no.	Drawing no.
		Acc-X	T/O box	Pipeline							
	125~					Capacity - 1 cusecs Length - 125 m No structures	Short race, has no structures and carries water to the boundary fence.				23

Stn. No.	Dist. (m)	I T E M			Cond.	Remarks	Access	Photo no.	Drawing no.
		Acc-X	T/Obox	Pipeline					
1	500	-	-	/	Poor	Under Hamilton Road inlet and outlet half blocked by rubbish			23
2	600	/	-	-	Good	Concrete pipe culvert 300 mm dia. x 3.7			

REASSESSMENT OF SCHEME: OMAKAU

RACE: JACK'S RACE
FROM 96 RHS DUNSTAN MAIN

DATE:

sheet 95 of 133

Stn. no.	Dist. (m)	I T E M			Cond.	Detail	Remarks	Dist. Ass.	Access	Photo no.	Drawing no.
		Acc-X	T/Obox	Pipeline							
1	50				Good	Concrete and wood stop 560 mm D x 760 mm L	RHS				23
2	60				Good	Concrete and wood stop 560 mm D x 760 mm W	T/O to Doug's Race				
3	120	-	/	-	Fair	500 mm M/B	LHS				
4	180	/	-	-	Fair	Concrete pipe culvert 375 mm dia. x 2.5 m L					
5	475	-	/	-	Fair	500 mm M/B Length - 700 m	LHS				

Struct. No.	Dist. (m)	I T E M			Cond.	Detail	Remarks	Last Obs.	Access	Photo no.	Drawing no.
		Acc-X	T/Obox	Pipeline							
1	115	-	/	-	Good	500 mm M/B	RHS				23
2	230	/	-	-	Okay Fair	Concrete pipe culvert 375 mm dia. x 2.4 Stone headwalls Grass drop					
3	550	-	-	-	Fair	Concrete pipe culvert 375 mm dia. x 5.0 m L	Under Hamilton Road				
4	730	/	-	-	Fair	Concrete pipe culvert 300 mm dia. x 1.9	End broken under Farm Road. Leads water into No. 5				
5	740	-	-	-	Okay	Concrete channel 260 mm D x 370 mm W x 4.9 m L					
6	750	/	-	-	Poor	Concrete pipe culvert 300 mm dia. x 6.9 m L					
7	760	-	-	-	Bad	500 mm M/B	Water passes underneath the box.				
						Length - 760 m					