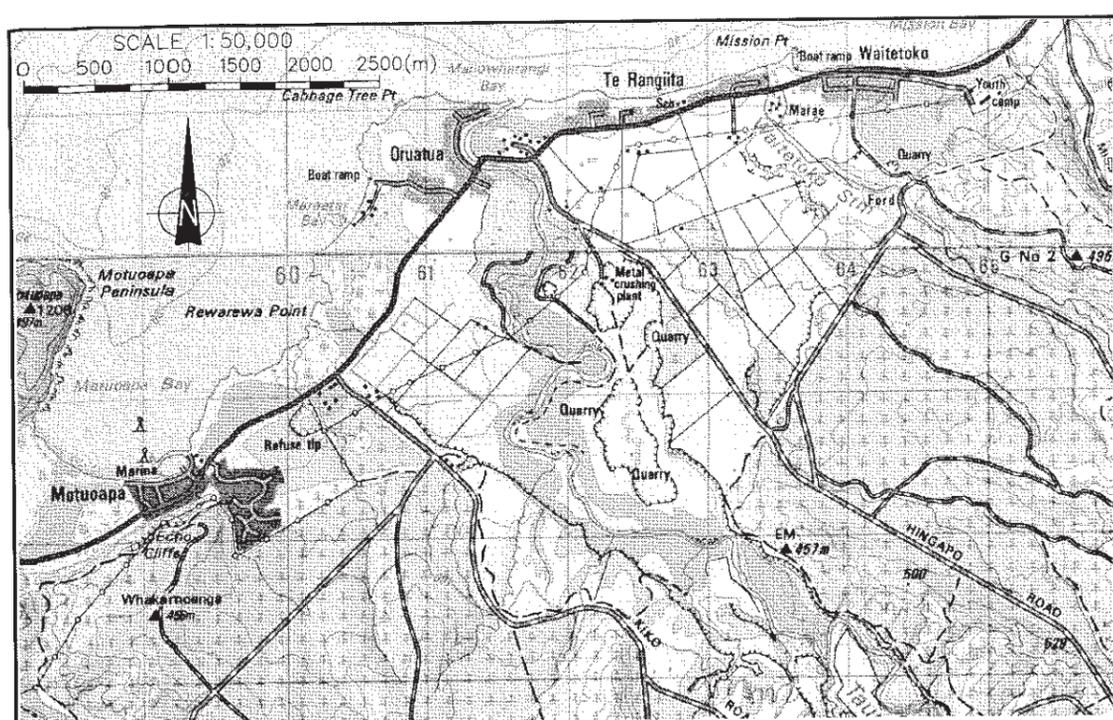


## **Appendix G: As Built Design Drawings**

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- **WRC supplied design drawings**

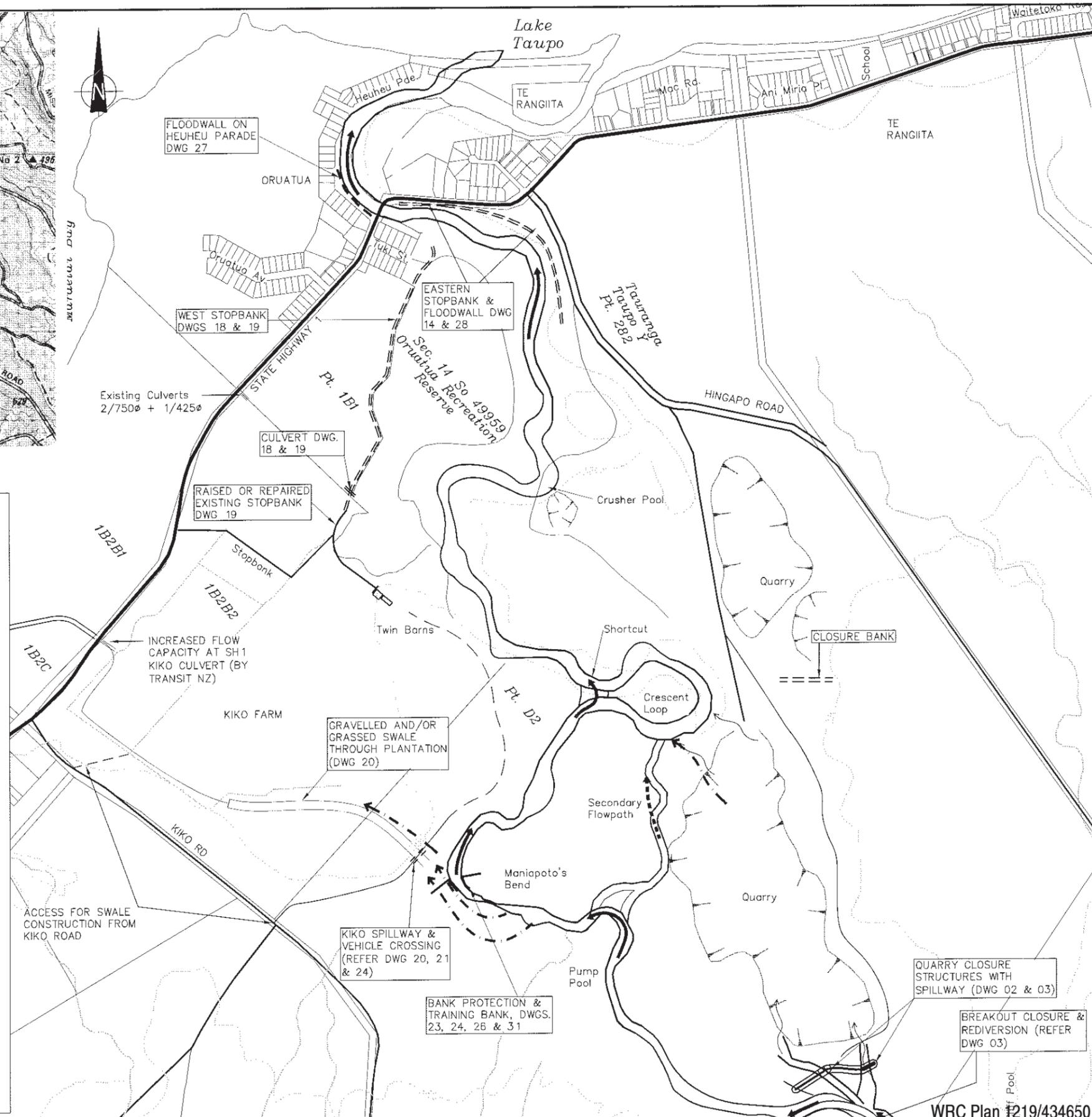


**LOCALITY PLAN**  
SCALE 1 : 50,000

**As Built Drawing List Tauranga Taupo River – Flood Control Works**

Drawing no.	Title
19883-01	Location of Flood Control Works and List of "As Built" Drainage
19883-02	Closure of Quarry Breakout: Site plan
19883-03	Closure of Quarry Breakout: Sections
19883-14	East Stopbank: Profile, Plan and Section
19883-18	West Stopbank: Location Plan
19883-19	West Stopbank: Long Section & Cross Sections
19883-20	Kiko Spillway Swale: Plan, Profile & Sections
19883-21	Kiko Spillway Swale Vehicle Access Ford—As Built
19883-23	Kiko Spillway & Maniapoto's Bend: Plan of Flood Control Works
19883-24	Kiko Spillway: Profile and Sections
19883-26	Left Bank Protection at Maniapoto's Bend: Typical Sections
19883-27	Stopbank/Floodwall on Heuheu Pde Plan and Sections
19883-28	East Stopbank to Bridge Combined Bank Protection and Flood Wall
19883-31	Kiko Spillway & Maniapoto's Bend Flood Control Works: Plan
19883-32	Training Bank & Grade Control at Maniapoto's Bend: Typical Sections

Note: Dwg. 04-13, 15, 16, 17, 22, 25, 29 & 30 not used for construction



ENVIRONMENTAL PROJECTS 19883 AS BUILT 19883-01.DWG, 01, 17/04/2008 9:40:24 AM, SIMO, 1:1

DESIGNED :	JND	08/02
DRAWN :	DNV	12/02
DESIGN CHECKED :	JND	04/05
DRAFTING CHECKED :	JND	04/05
CADFILE :	L:\19883\19883-01	
APPROVED :		
As Built	DNB	1/03
Construction Issue	JND	Mar.05
REVISION DESCRIPTION	BY	DATE

NOTES :

- Secondary/overland flowpath
- River channel from 9/99 aerial photography

0 100 200 300 400 500 600 700 800 (m)

REFERENCE : LINZ GIS Data Taranaki & Waikato Regions

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CLIENT PROJECT  
**ENVIRONMENT WAIKATO**  
PROJECT WATERSHED – TAURANGA–TAUPO RIVER

TITLE  
**LOCATION OF FLOOD CONTROL WORKS AND LIST OF "AS BUILT" DRAWING**

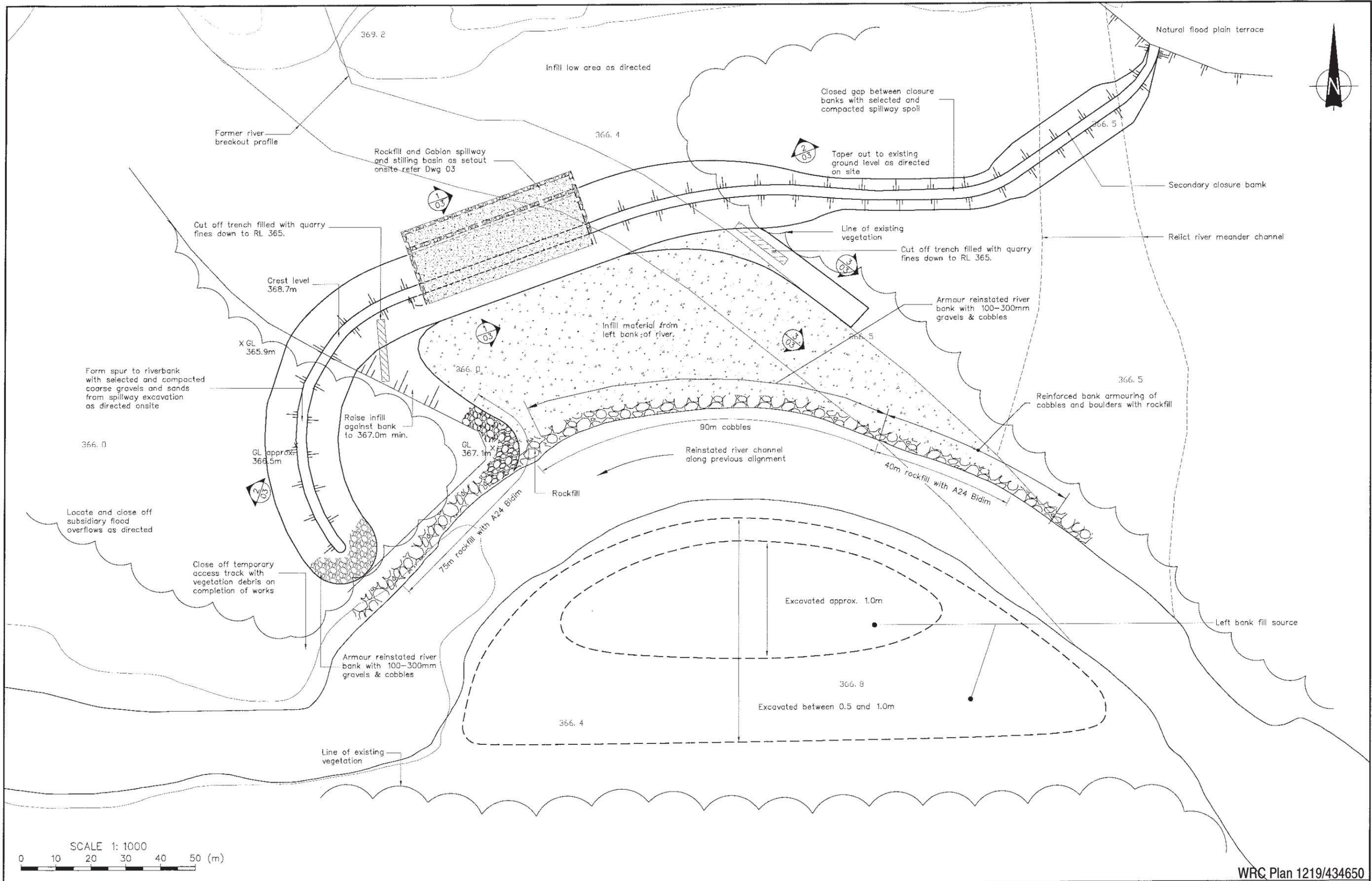
SCALES (AT A3 SIZE)  
1: 12,500

DWG. No.  
19883-01

REV.  
S

WRC Plan #219/434650

P:\19883\As Built\19883-02.dwg, 19883-02, 29/02/2008 4:43:57 p.m., jctg, 1:1



WRG Plan 1219/434650

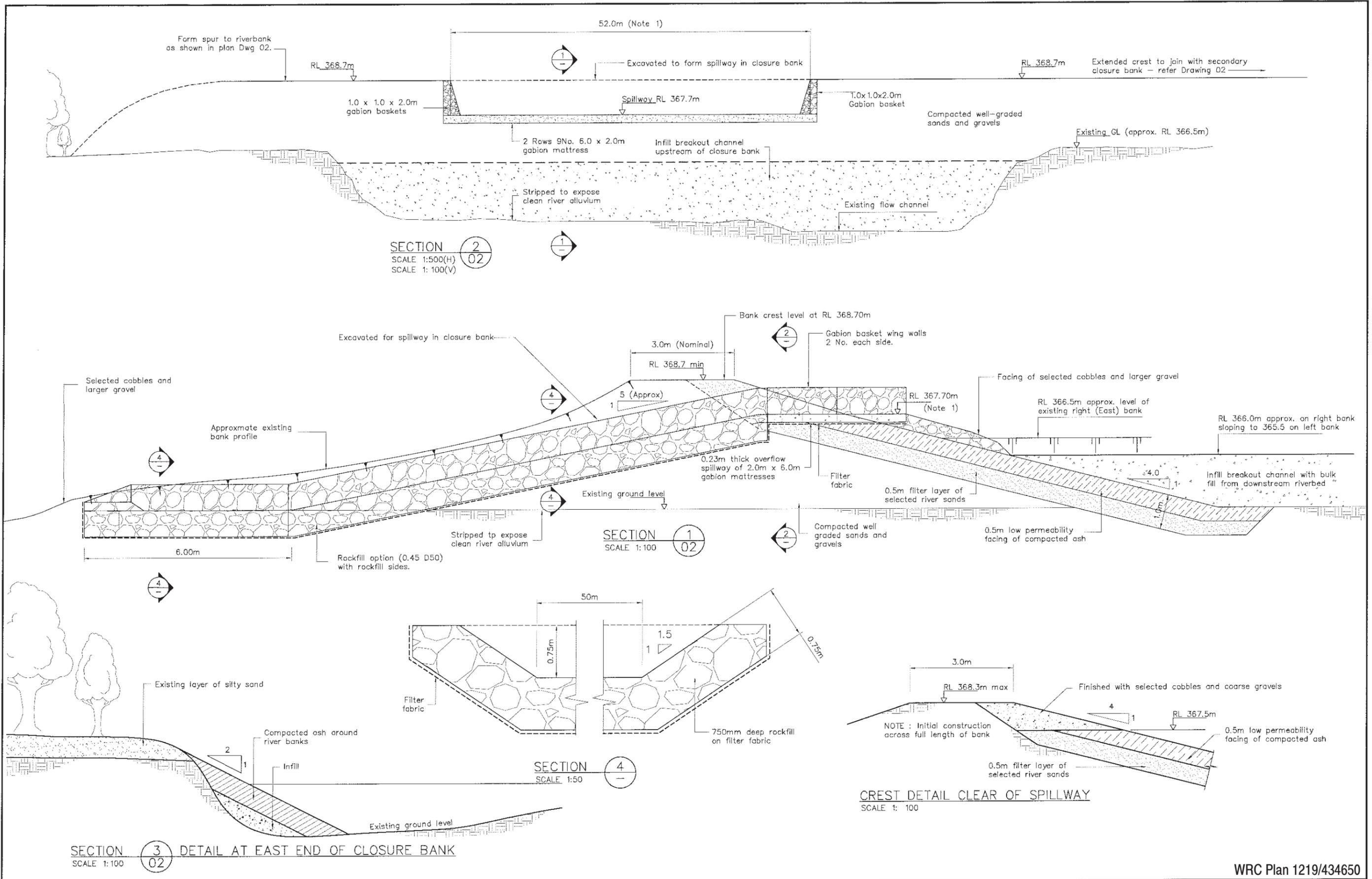
REVISION DESCRIPTION	BY	DATE
S As Built	JND	12/02
E General Revision	JND	Mar.05
D General Revision	JND	05/04
C Left abutment amended	JND	03/03
B Construction Issue	JND	02/03
A First Issue	JND	12/02

DESIGNED : JND 08/02  
 DRAWN : DNV 12/02  
 DESIGN CHECKED : JND 05/04  
 DRAFTING CHECKED : JND 05/04  
 CADFILE : L:\19883\19883-02  
 APPROVED :  
 NOTES :  
 1. Contours and spot heights from photogrammetry from Sept. 1999 photographs. e.g. 366.4  
 2. Data from 2002 surveys e.g. XGL 365.9 - refer Energy Surveys April 2002.  
 3. Closure bank alignment as set out by Engineer. Infill scour holes in quarry as directed.  
 4. ~~~~~ Approximate edge of bush  
 REFERENCE :

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 Wellington Christchurch Hamilton Nelson Whangarei

CLIENT, PROJECT	ENVIRONMENT WAIKATO	
TITLE	PROJECT WATERSHED - TAURANGA-TAUPO RIVER	
TITLE	CLOSURE OF QUARRY BREAKOUT	
TITLE	SITE PLAN	
SCALE (AT A3 SIZE)	DWG. No.	REV.
1: 1000	19883-02	S

P:\19883\As Built\19883-03.dwg, 19883-03, 29/02/2008 4:44:32 p.m., jbtg, 1:1



WRC Plan 1219/434650

DESIGNED :	JND	08/02
DRAWN :	DNV	12/02
DESIGN CHECKED :	JND	05/04
DRAFTING CHECKED :	JND	05/04
CADFILE :	L:\19883\19883-03	
APPROVED :		
REVISION DESCRIPTION	BY	DATE
S As Built	Tom 4/08	
E General Revision	JND	05/05
D Spillway and Crest revised	JND	05/04
C General revisions	JND	03/03
B Construction Issue	JND	02/03
A First Issue	JND	12/02

NOTES :

- Spillway crest details, length and location as set out on site.

REFERENCE :

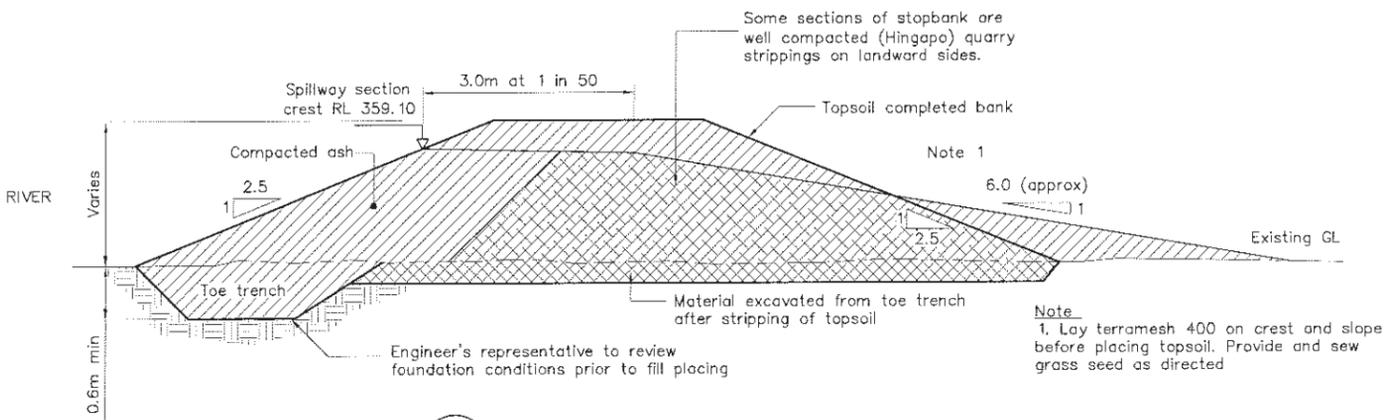
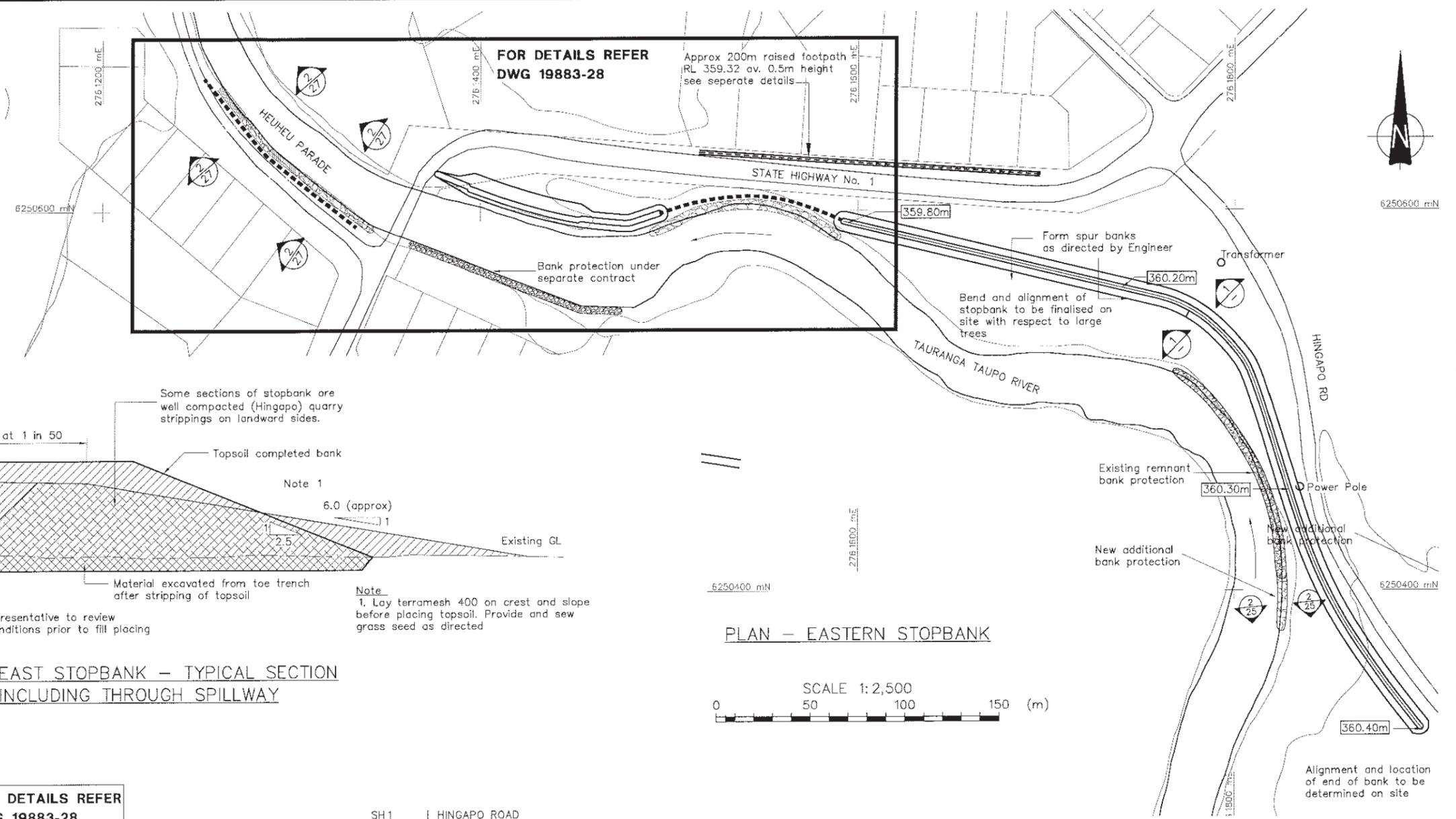
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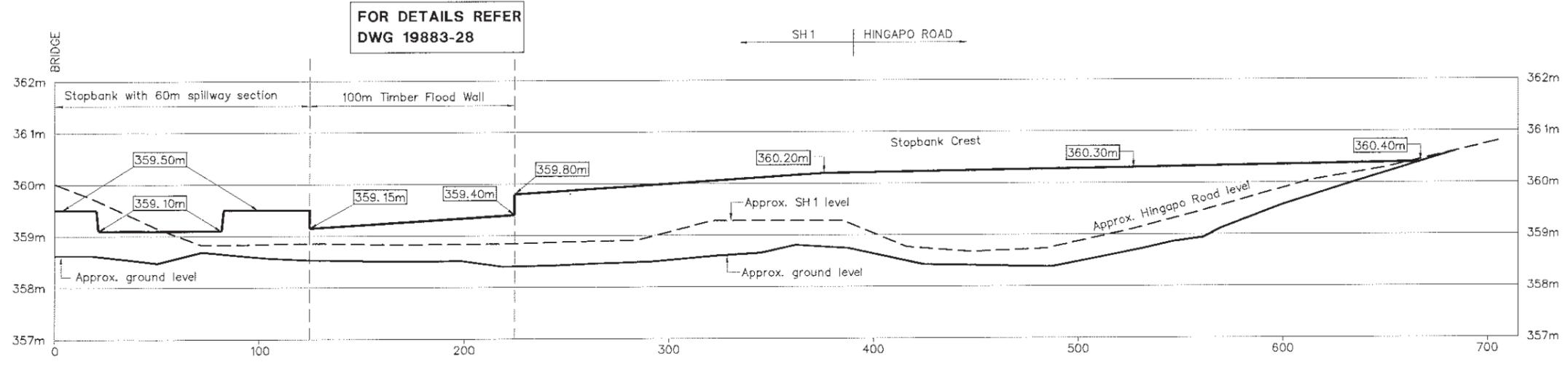
CLIENT, PROJECT	ENVIRONMENT WAIKATO	
	PROJECT WATERSHED – TAURANGA–TAUPO RIVER	
TITLE	CLOSURE OF QUARRY BREAKOUT SECTIONS	
SCALES (AT A3 SIZE)	DWG. No.	REV.
AS SHOWN	19883-03	S

P:\19883\As Built\19883-14.dwg, 19883-14, 29/02/2008 4:32:23 p.m., jctg, 1:1



SECTION 1 EAST STOPBANK - TYPICAL SECTION INCLUDING THROUGH SPILLWAY  
SCALE 1:100

PLAN - EASTERN STOPBANK



LONGITUDINAL PROFILE THROUGH STOPBANK  
SCALE 1:2500H 1:100V

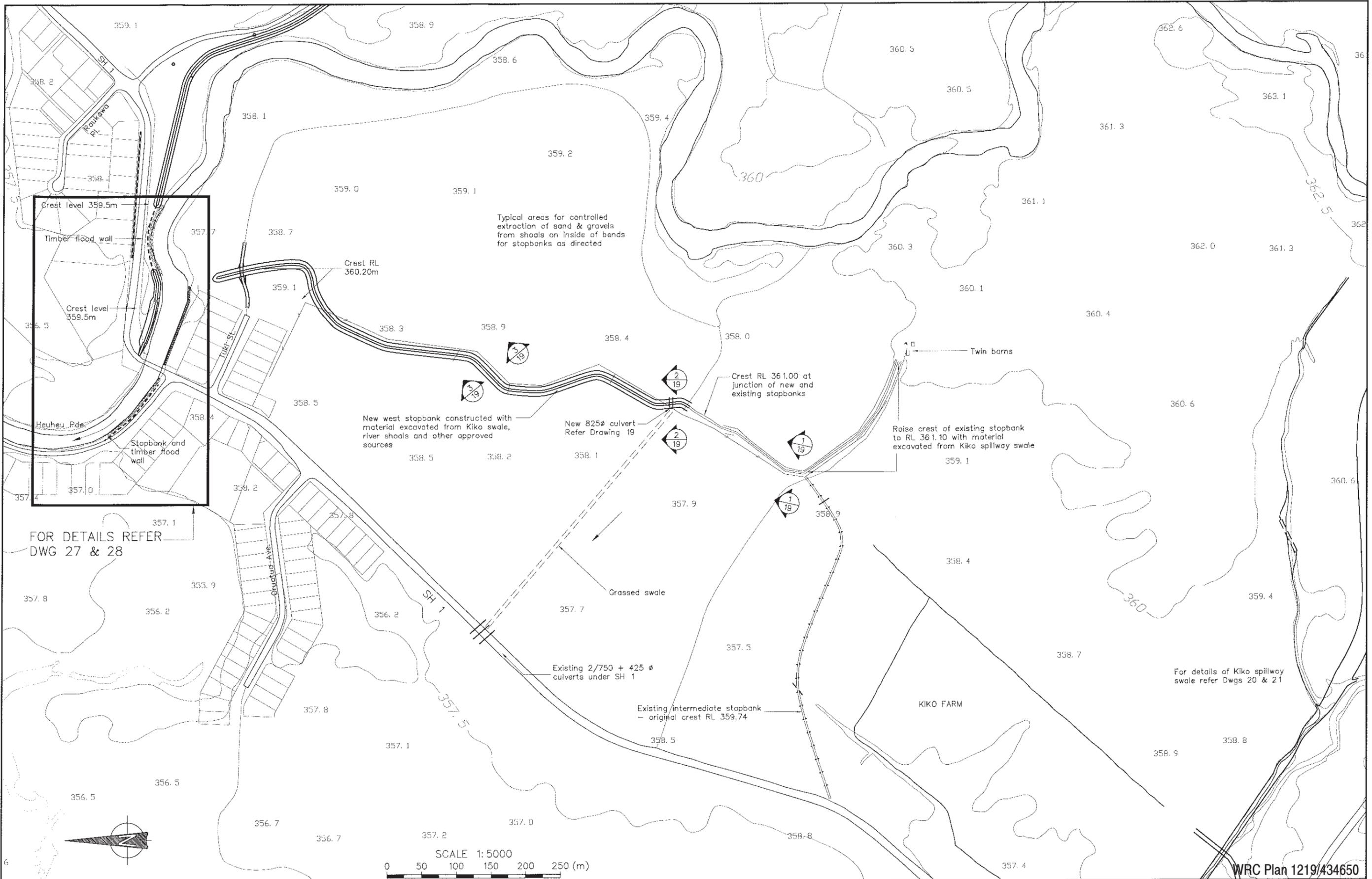
WRC Plan 1219/434650

S	As Built	JND	Jun.03
F	Add Stopbank Spillway	TB	05/04
E	CONSTRUCTION ISSUE	TB	04/04
D	Preliminary Issue	TB	03/04
C	Line and Levels revised	TB	03/04
B	Added profile and plan	TB	06/03
A	Construction Issue	JND	12/02
REVISION DESCRIPTION	BY	DATE	

DESIGNED : JND Jun.03  
 DRAWN : DNV Jun.03  
 DESIGN CHECKED : JND 05/04  
 DRAFTING CHECKED : JND 05/04  
 CADFILE : L:\19883\19883-14  
 APPROVED :  
 NOTES :  
 1. Survey data from Energy Surveys (16/08/02) and NZAM photogrammetry.  
 2. Stopbank alignment and setting out as confirmed on site by Engineer.  
 REFERENCE :

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 Wellington Christchurch Hamilton Nelson Whangarei

CLIENT, PROJECT  
**ENVIRONMENT WAIKATO**  
 PROJECT WATERSHED - TAURANGA-TAUPO RIVER  
 TITLE  
**EAST STOPBANK**  
 Profile, Plan and Section  
 SCALES (AT A3 SIZE)  
**AS SHOWN**  
 DWG. No.  
**19883-14**  
 REV.  
**S**



P:\19883\As Built\19883-18.dwg, 19883-18, 29/02/2008 4:31:27 p.m., jtg, 1:1

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DRAWN :	DNV	Mar 03
DESIGN CHECKED :	JND	03/03
DRAFTING CHECKED :	JND	03/03
CADFILE : L: \19883\19883-18		
APPROVED :		
This drawing is not to be used for construction purposes unless signed as approved		
REVISION DESCRIPTION	BY	DATE
S As Built	JND	04/05
C General Revisions	JND	Mar 03
B Construction Issue	JND	Mar 03
A Final Design	JND	Mar 03

NOTES :

- Contours and spot heights from photogrammetry off Sept. 1999 photographs.
- Data from Energy Surveys not shown - refer Energy Surveys April 2002.
- Stopbank crests to be graded uniformly between specified levels as shown in profile on Drawing 19883-19.

REFERENCE :

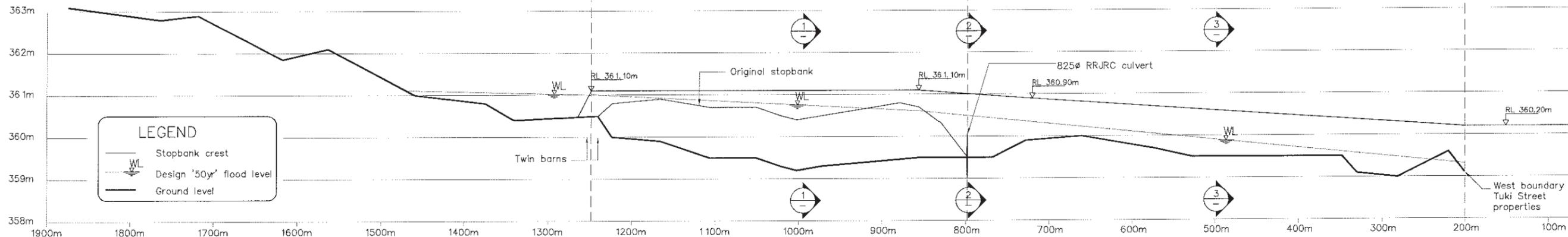


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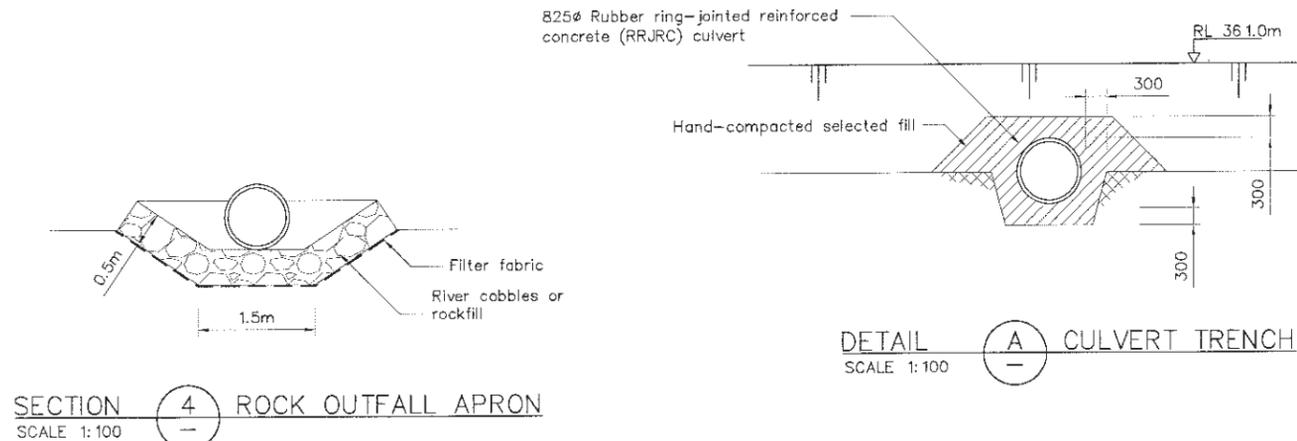
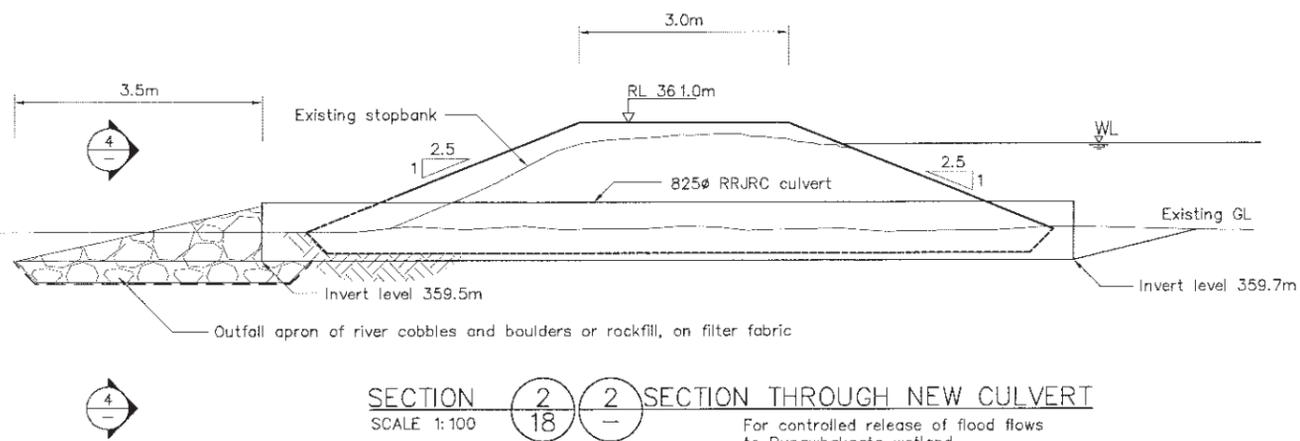
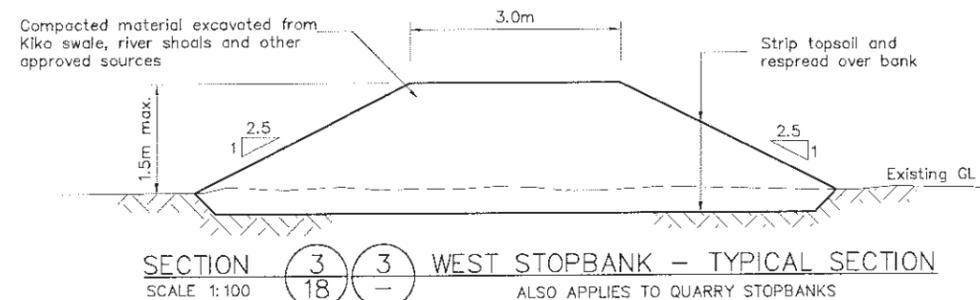
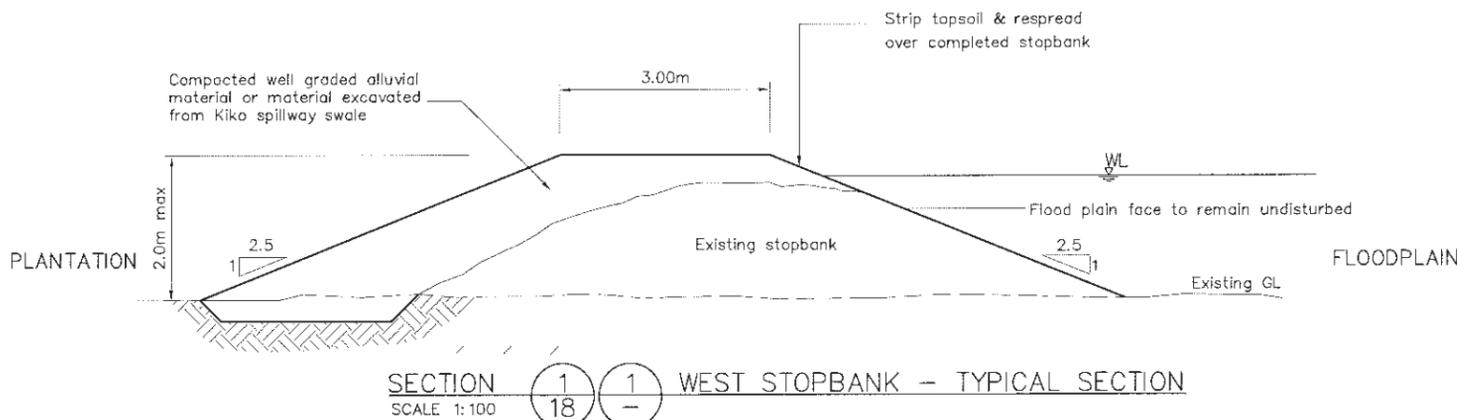
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CLIENT, PROJECT	ENVIRONMENT WAIKATO	
TITLE	PROJECT WATERSHED - TAURANGA-TAUPO RIVER	
TITLE	WEST STOPBANK LOCATION PLAN	
SCALE (AT A3 SIZE)	DWG. No.	REV.
1:5000	19883-18	S



LONG SECTION - WEST STOPBANK  
HORIZONTAL SCALE 1:5000, VERTICAL SCALE 1:100



WRC Plan 1219/434650

P:\19883\As Built\19883-19.dwg, 19883-19, 29/02/2008 4:45:09 p.m., jatg, 1:1

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DRAWN :	DNV	Mar. 03
DESIGN CHECKED :	JND	04/03
DRAFTING CHECKED :	JND	04/03
CADFILE :	I:\19883\19883-19	
APPROVED :		
REVISION DESCRIPTION	BY	DATE
S As Built	Tom	26/08
C General Revisions	JND	04/03
B Construction Issue	JND	Mar. 03
A First Issue	JND	Feb. 03

NOTES :  
1. For alignment of stopbanks refer Drawing 19883-18

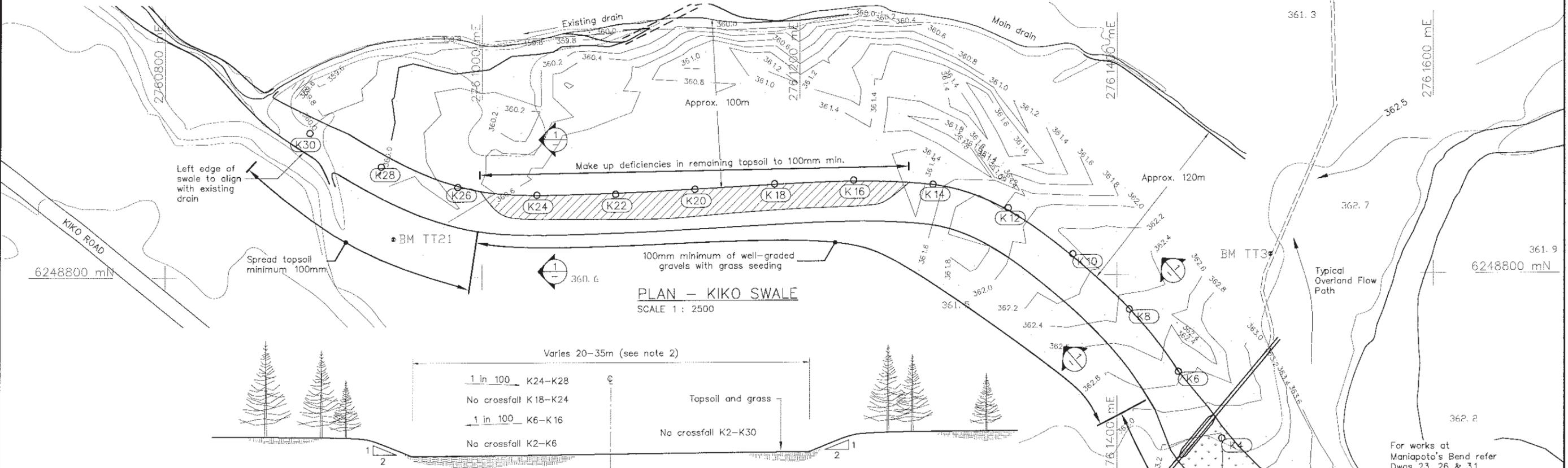
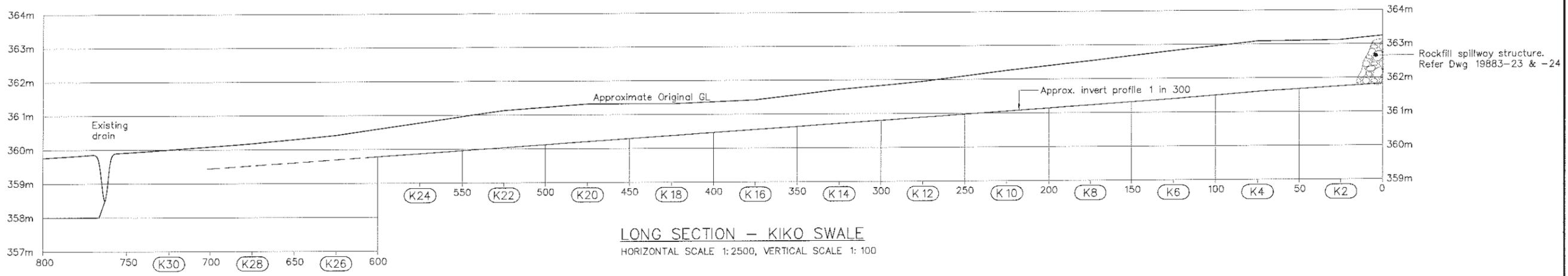
REFERENCE :

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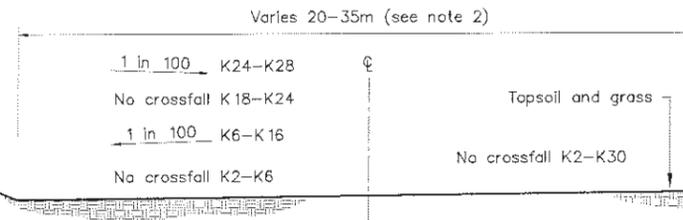
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Email : auck@tonkin.co.nz

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CLIENT, PROJECT	ENVIRONMENT WAIKATO
PROJECT WATERSHED - TAURANGA-TAUPO RIVER	
TITLE	WEST STOPBANK
	LONG SECTION AND CROSS SECTIONS
SCALES (AT A3 SIZE)	AS SHOWN
DWG. No.	19883-19
REV.	S



SECTION 1 TYPICAL SECTION OF SWALE WITH INDICATIVE REGRADING  
SCALE 1:200



SWALE SETOUT COORDINATES

POINT	NORTHING	EASTING	FINISHED RL (m)
K2	6248654.89 mN	276 1492.63 mE	36 1.75m
K4	6248697.60 mN	276 1466.64 mE	36 1.60m
K6	6248739.32 mN	276 1439.10 mE	36 1.40m
K8	6248778.44 mN	276 1408.01 mE	36 1.23m
K10	62488 13.17 mN	276 1372.08 mE	36 1.06m
K12	6248842.06 mN	276 1331.38 mE	360.89m
K14	6248857.13 mN	276 1283.99 mE	360.72m
K16	6248859.86 mN	276 1234.11 mE	360.55m
K18	6248857.86 mN	276 1184.16 mE	360.38m
K20	6248854.56 mN	276 1134.27 mE	360.21m
K22	624885 1.70 mN	276 1084.35 mE	360.04m
K24	624885 1.22 mN	276 1034.37 mE	359.87m
K26	6248856.24 mN	2760984.67 mE	359.70m
K28	6248869.20 mN	2760936.44 mE	
K30	6248890.35 mN	276089 1.28 mE	



WRC Plan 1219/434650

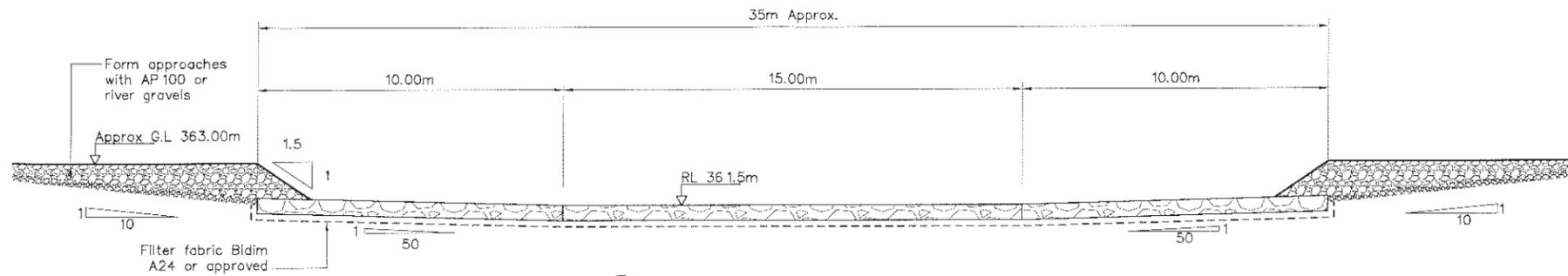
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REVISION DESCRIPTION	BY	DATE
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D Major Revision	1B	11/03
C Setout modified	JND	05/03
B Setout added	JND	18/03
A Construction Issue	JND	17/03

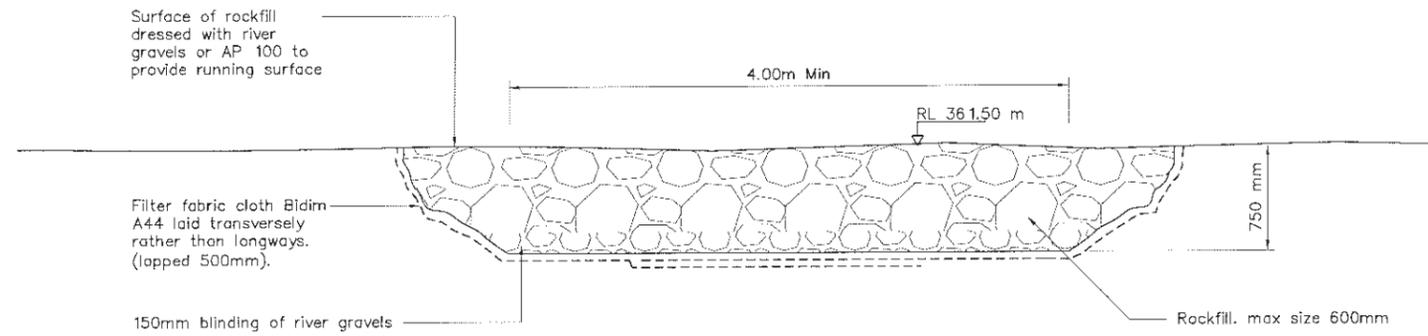
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 DRAWN : DNV Mar.03  
 DESIGN CHECKED : JND 05/03  
 DRAFTING CHECKED : JND 05/03  
 CADFILE : L:\19883\19883-20  
 APPROVED :  
 NOTES :  
 1. Contours from NZAM photogrammetry and Energy Surveys, March 2003.  
 2. Swale base width tapers from 20m at K26 to 15m at K30.  
 REFERENCE :

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 Tel. (09) 355 6000 Fax. (09) 307 0265  
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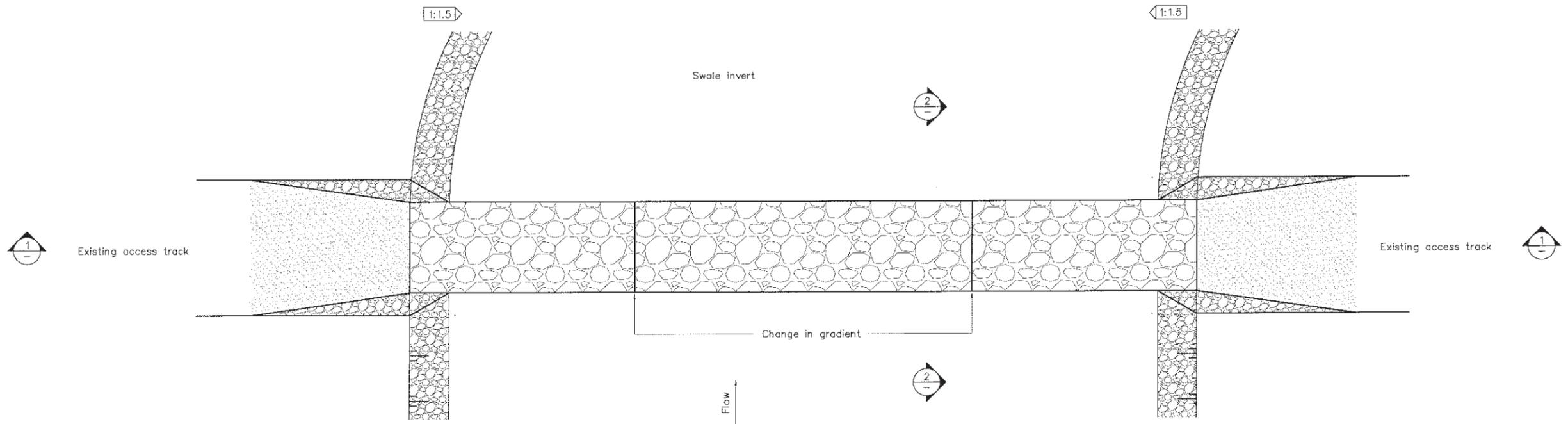
CLIENT, PROJECT  
**ENVIRONMENT WAIKATO**  
 PROJECT WATERSHED - TAURANGA-TAUPO RIVER  
 TITLE  
**KIKO SPILLWAY SWALE**  
 Plan, profile and sections  
 SCALES (AT A3 SIZE)  
 1:2500  
 DWG. No.  
 19883-20  
 REV.  
 S



SECTION 1 SECTION THROUGH FORD  
SCALE 1:200

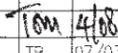


SECTION 2 SECTION THROUGH FORD  
SCALE 1:50



UPPER KIKO SWALE VEHICLE ACCESS FORD  
SCALE 1:200

WRC Plan 1219/434650

DESIGNED :	JND	Jul.03
DRAWN :	SXT	Jul.03
DESIGN CHECKED :	TB	07/03
DRAFTING CHECKED :	IB	07/03
CADFILE :	L:\19883\19883-21	
APPROVED :		
REVISION DESCRIPTION	BY	DATE
S As Built	Tom	4/08
B General Revision	TB	07/03
A Construction Issue		

NOTES :

- All dimensions are in metres unless noted otherwise.
- For location of access ford refer to drawings 19883- 20 & 23

REFERENCE :

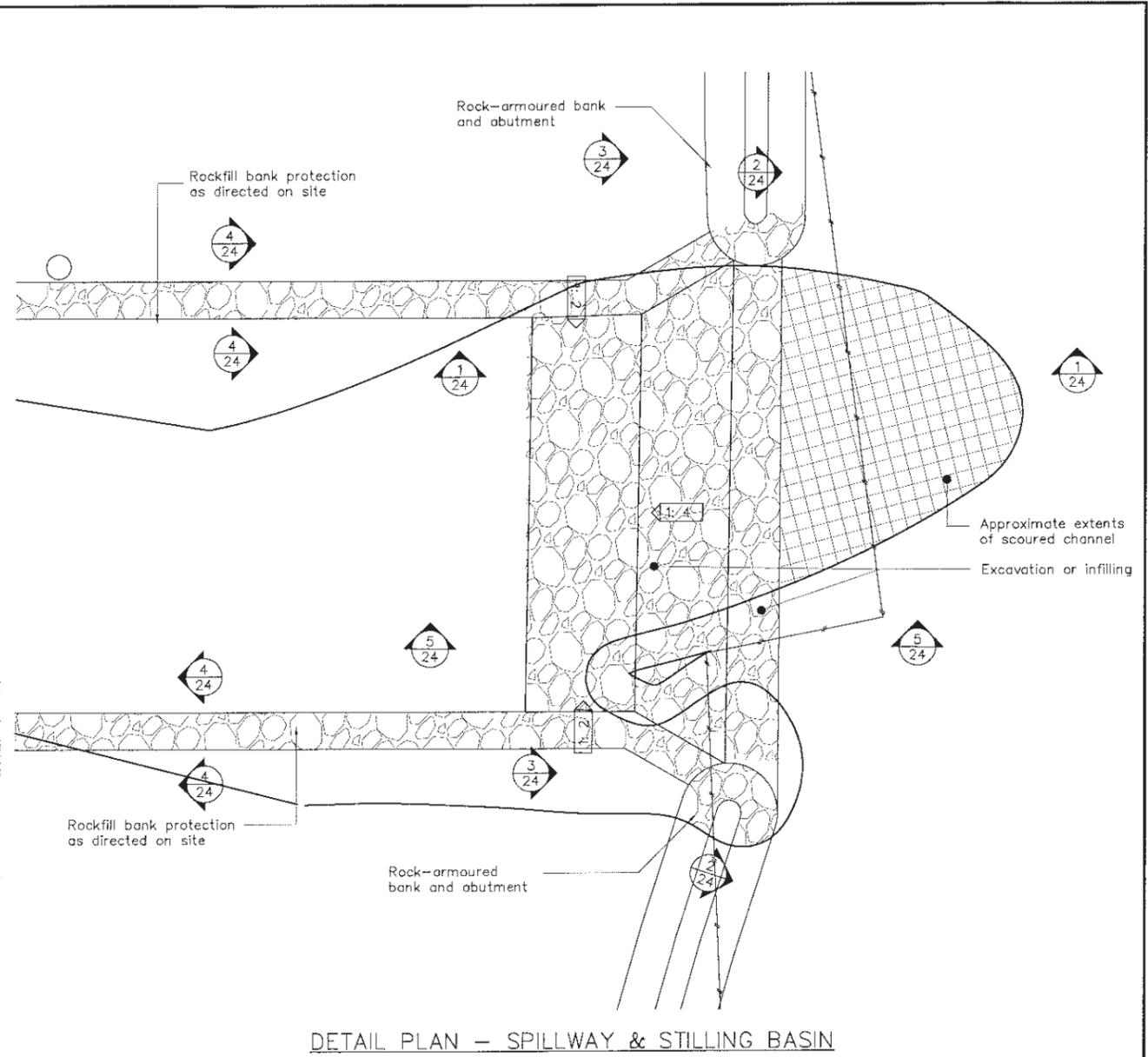
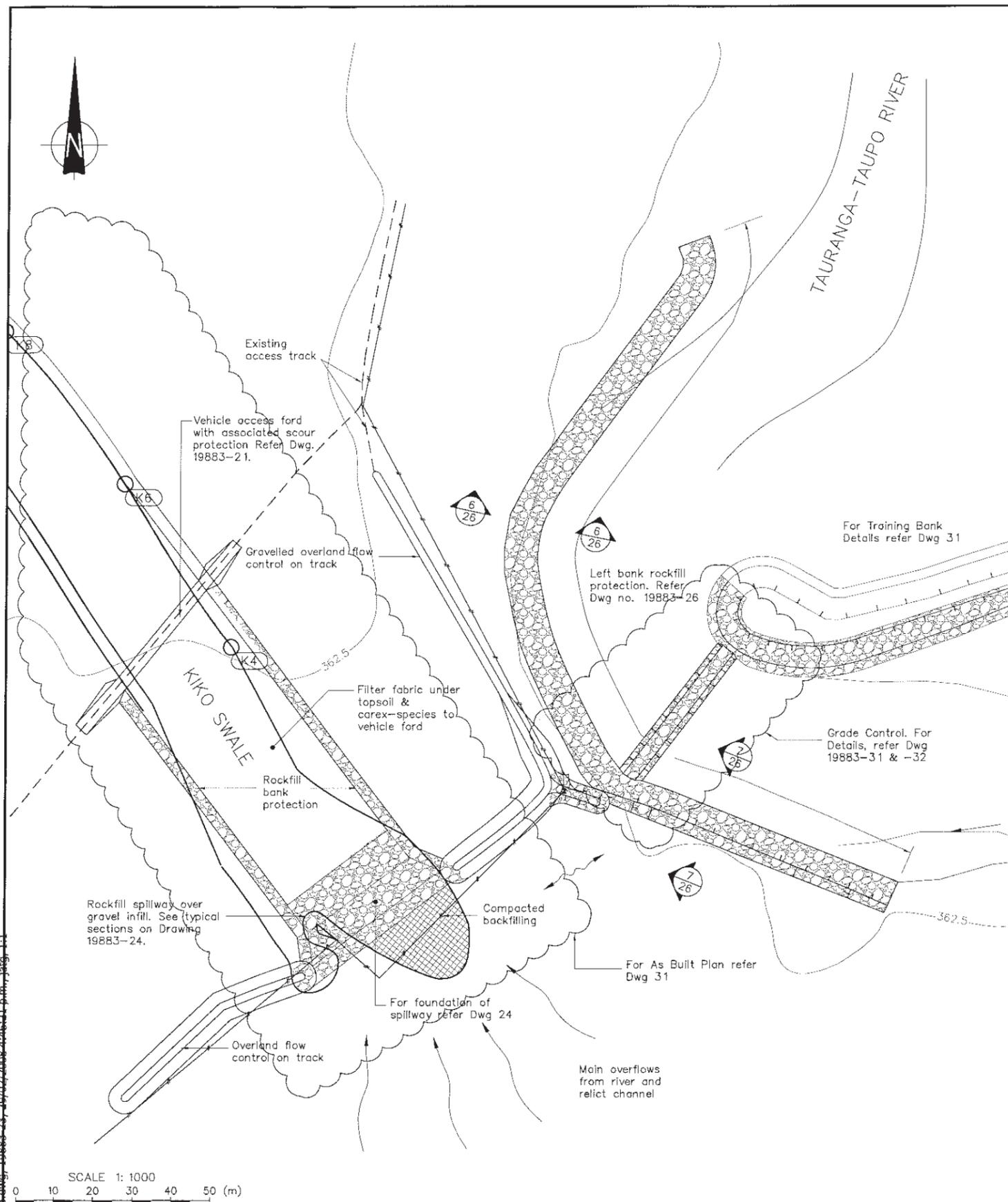


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CLIENT, PROJECT	ENVIRONMENT WAIKATO
PROJECT WATERSHED - TAURANGA-TAUPO RIVER	
TITLE	KIKO SPILLWAY SWALE
Vehicle Access Ford - As Built	
SCALES (AT A3 SIZE)	AS SHOWN
DWG. No.	19883-21
REV.	S



D:\19883 As Built\19883-23.dwg - 16083-23\_16/07/03 10:08:44:46:31 p.m. 1983-1-1

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DRAWN :	DNV	May.03
DESIGN CHECKED :	TB	07/03
DRAFTING CHECKED :	TB	07/03
CADFILE :	L:\19883\19883-23	
APPROVED :		
REVISION DESCRIPTION	BY	DATE
As Built	Tom A/bb	
General Revision	TB	07/03
Revised stilling basin	TB	06/03
Construction issue	JND	05/03

NOTES :

- Refer to issues Asbuilt of Drawings 19883-21, -24 and 26 for details of vehicle access, swale spillway and river bank protection.

REFERENCE :



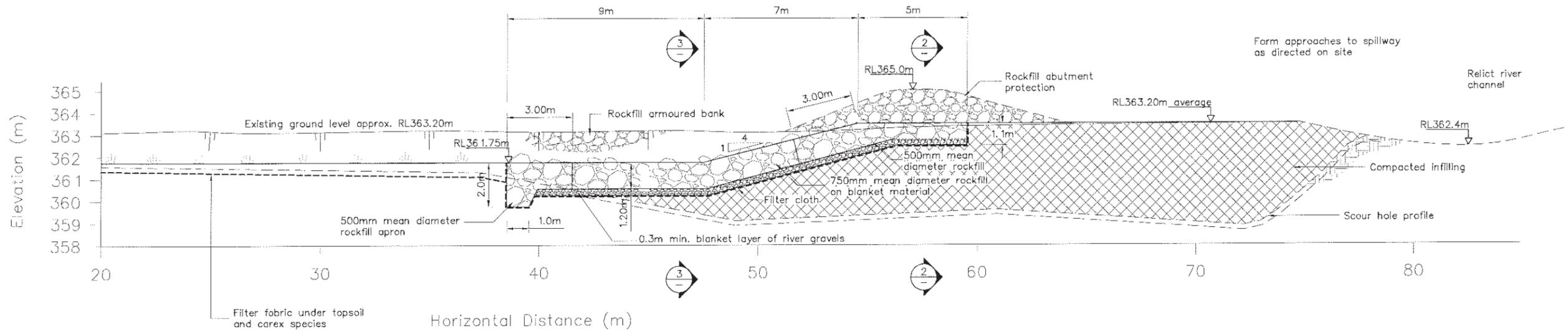
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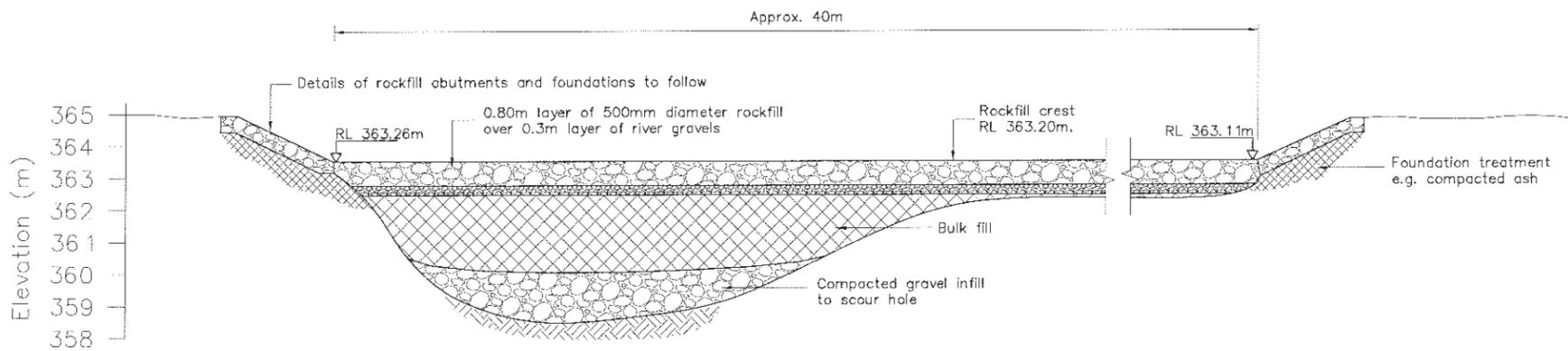
□ Wellington □ Christchurch □ Hamilton □ Nelson □ Whangarei

CLIENT, PROJECT		ENVIRONMENT WAIKATO	
PROJECT WATERSHED - TAURANGA-TAUPO RIVER		TITLE	
KIKO SPILLWAY & MANIAPOTO'S BEND		Plan of Flood Control Works	
SCALES (AT A3 SIZE)	DWG. No.	REV.	
AS SHOWN	19883-23	S	

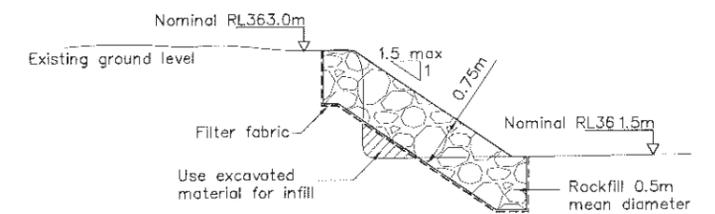
WRC Plan 1219/434650



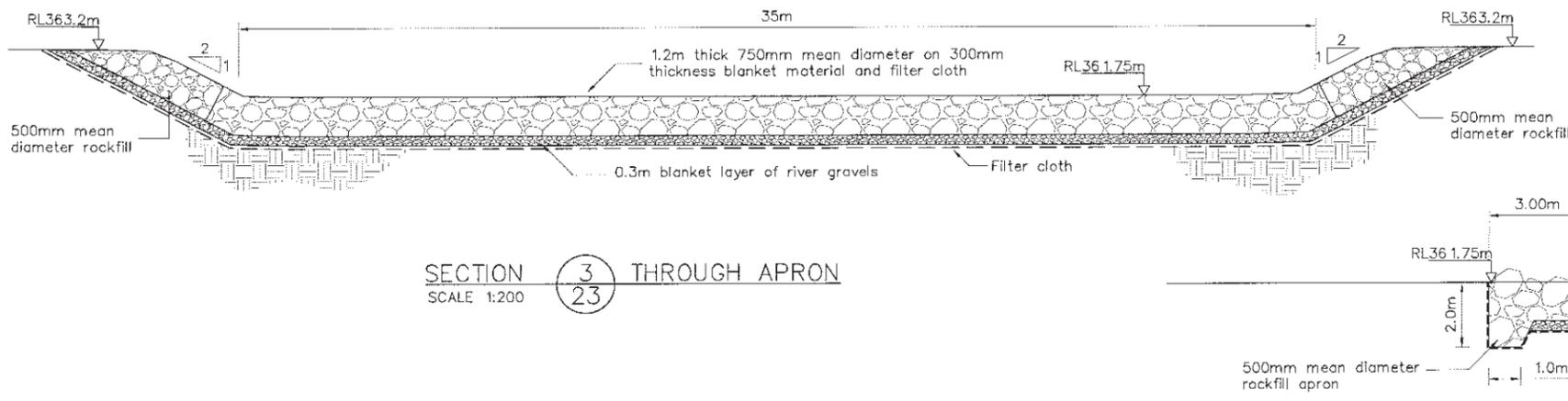
SECTION 1 LONG SECTION THROUGH ROCKFILL CONTROL/SPILLWAY  
SCALE 1:200



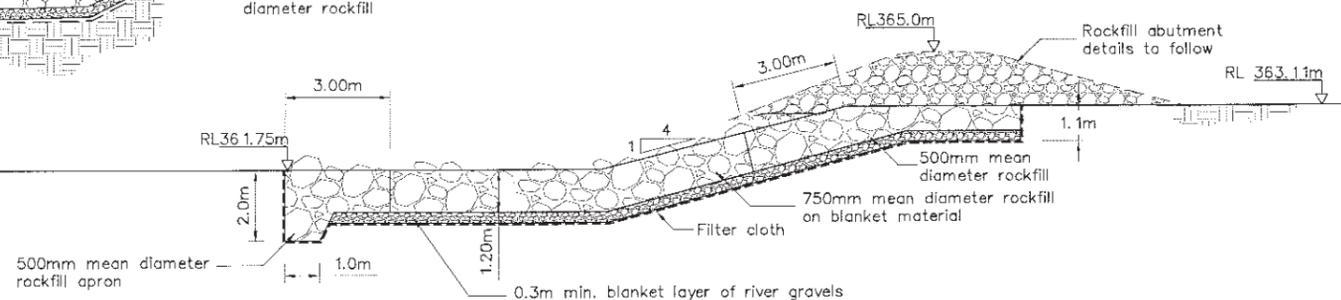
SECTION 2 INFILLING OF SCOUR HOLE  
SCALE 1:200



SECTION 4 TYPICAL ROCKFILL BANK PROTECTION  
SCALE 1:100



SECTION 3 THROUGH APRON  
SCALE 1:200



SECTION 5 THROUGH SPILLWAY (LFT SIDE)  
SCALE 1:200

WRC Plan 1219/434650

P:\19883\As Built\19883-24.dwg, 19883-24, 29/02/2008 4:24:15 p.m., jtg, 1:1

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DRAWN :	DNV	May.03
DESIGN CHECKED :	TB	07/03
DRAFTING CHECKED :	TB	07/03
CADFILE :	L:\19883\19883-24	
APPROVED :		
REVISION DESCRIPTION	BY	DATE
S As Built	Tom A/08	
C General revisions	TB	07/03
B Revised stilling basin	TB	06/03
A Construction Issue	JND	05/03

NOTES :  
Refer to Dwg 19883-23 for location of sections.

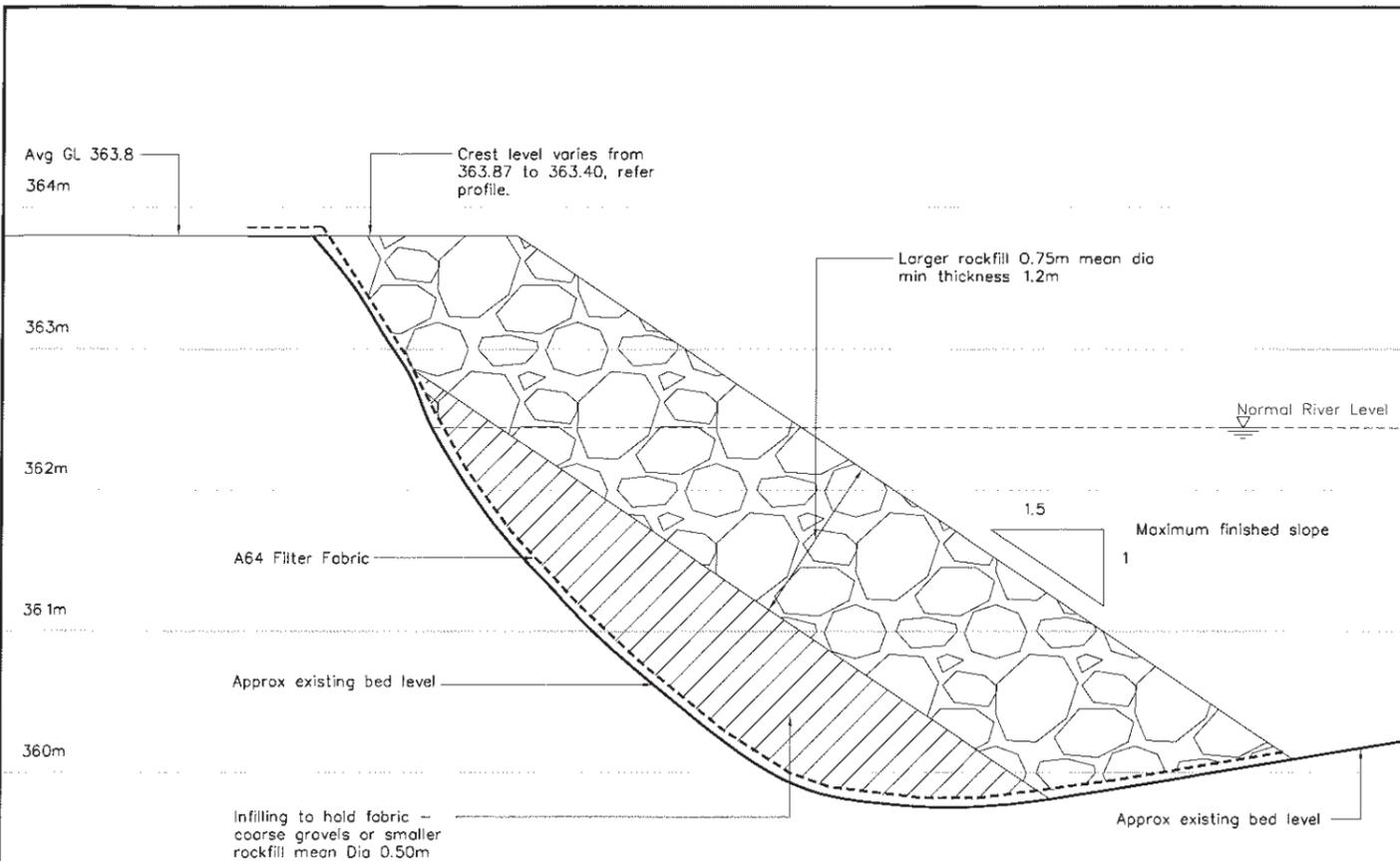
REFERENCE :

**Tonkin & Taylor**  
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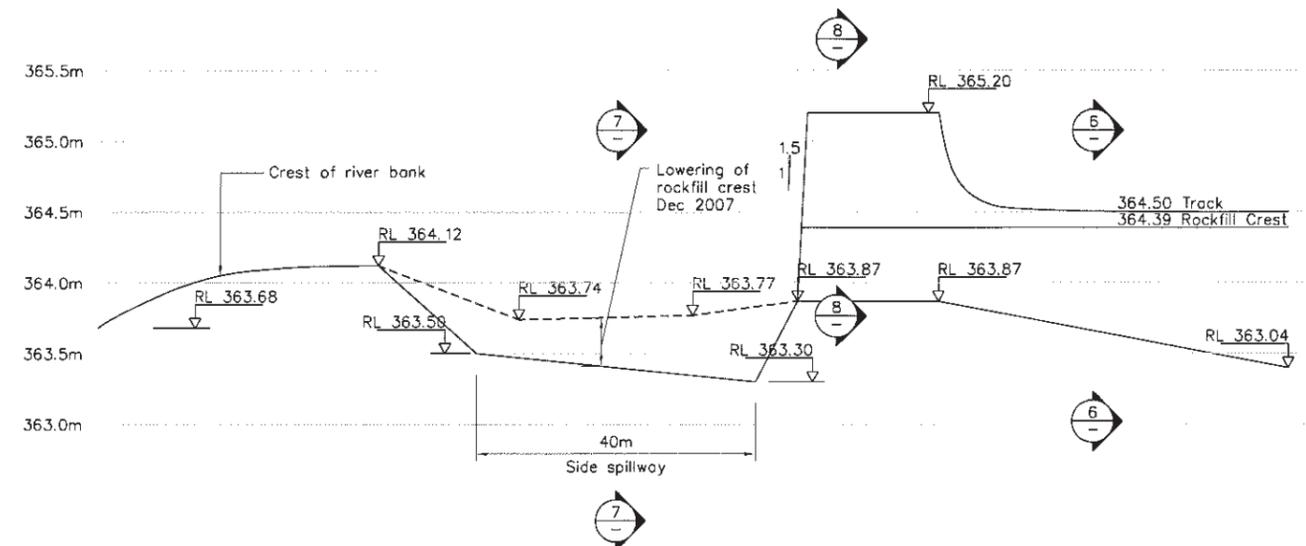
Auckland 19 Morgan St. Newmarket  
Tel. (09) 355 6000 Fax. (09) 307 0265  
Email : auck@tonkin.co.nz

Wellington Christchurch Hamilton Nelson Whangarei

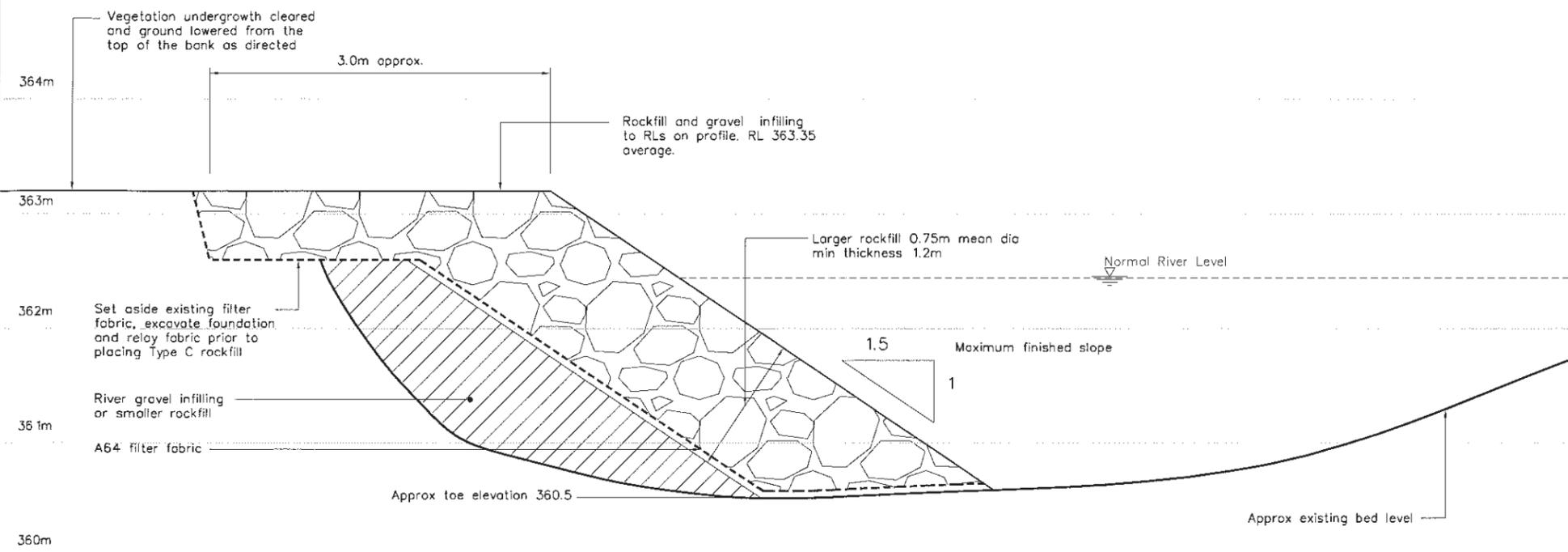
CLIENT, PROJECT	ENVIRONMENT WAIKATO	
	PROJECT WATERSHED - TAURANGA-TAUPO RIVER	
TITLE	KIKO SPILLWAY	
	Profile and Sections	
SCALES (AT A3 SIZE)	DWG. No.	REV.
AS SHOWN	19883-24	S



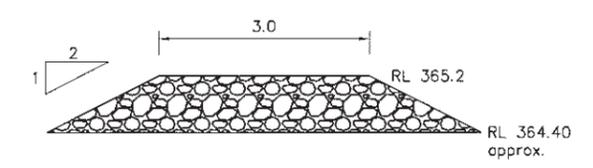
TYPICAL SECTION **6** DOWNSTREAM BANK PROTECTION  
SCALE 1:50



SKETCH PROFILE OF INTERIM & FINISHED LEFT BANK CREST LEVELS  
HORIZONTAL SCALE 1:1000  
VERTICAL SCALE 1:50



TYPICAL SECTION **7** UPSTREAM BANK PROTECTION  
SCALE 1:50



SECTION **8** COMPACTED GRAVEL BUND  
SCALE 1:100

P:\19883\As Built\19883-26.dwg - 26\_28/03/2008 9:47:47 a.m. .adi 1:1

DESIGNED :	JND	Jul_03
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DESIGN CHECKED :	TB	Jul_03
DRAFTING CHECKED :	TB	Jul_03
CADFILE :	L:\19883\19883-26	
APPROVED :		
REVISION DESCRIPTION	BY	DATE
S As Built	TBM	4/08
B Amendments	TB	
A Construction Issue	TB	Jul_03

NOTES:  
1. All dimensions are in metres unless noted otherwise.  
2. Survey data from Cheal Consultants, May 2005

REFERENCE :

**Tonkin & Taylor**  
Environmental & Engineering Consultants

Wellington Level 4, 265 Wakefield St  
Tel. (04) 381 8560 Fax. (04) 381 2908  
Email : well@tonkin.co.nz

Auckland Christchurch Hamilton Whangarei Nelson

CLIENT, PROJECT  
**ENVIRONMENT WAIKATO**  
PROJECT WATERSHED - TAURANGA-TAUPO RIVER

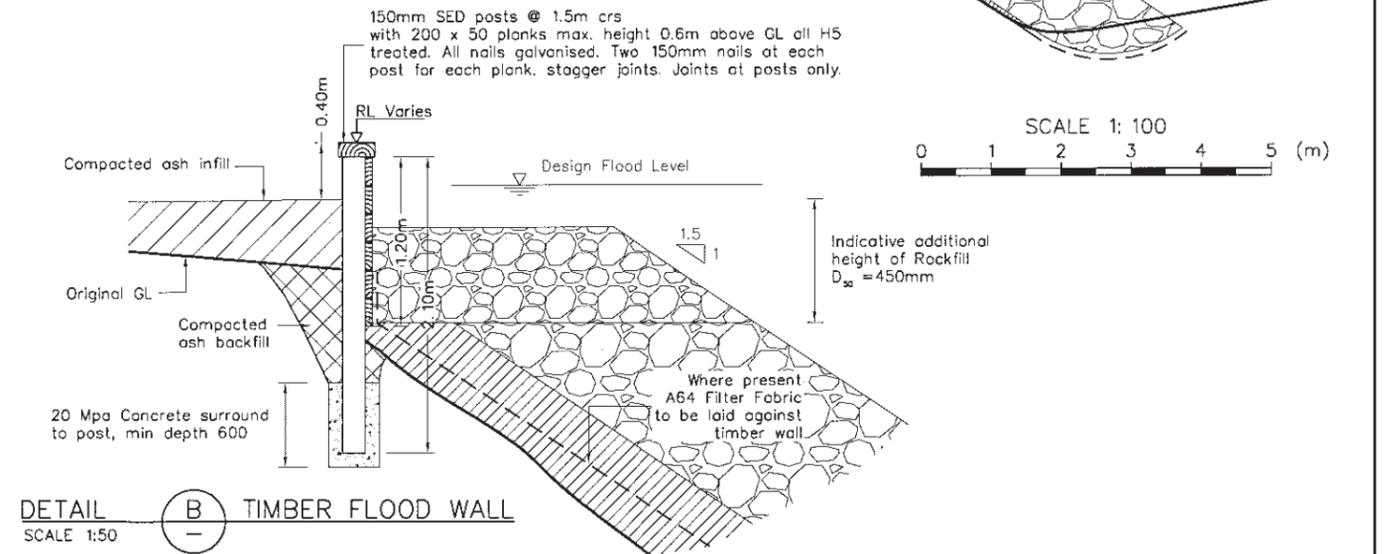
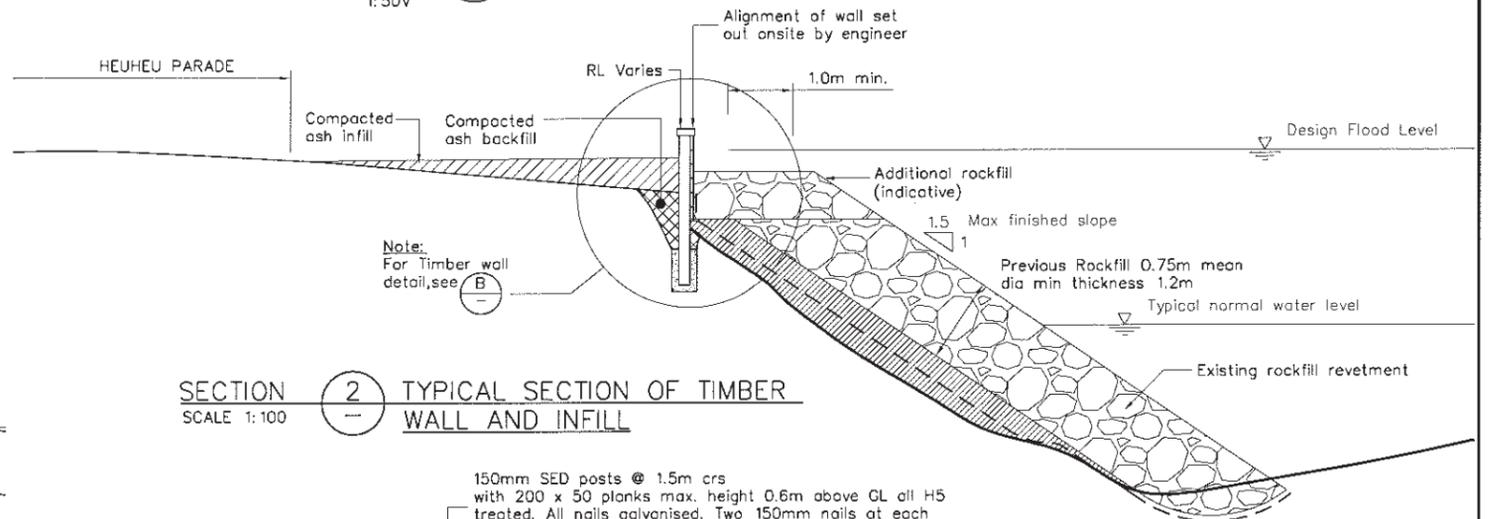
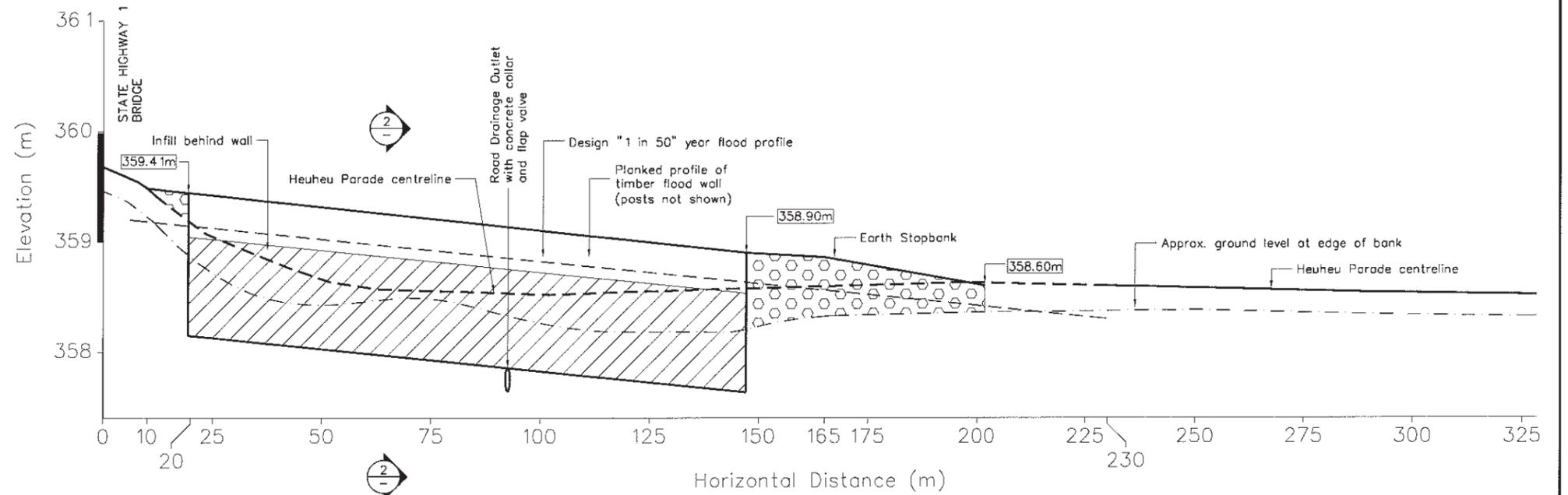
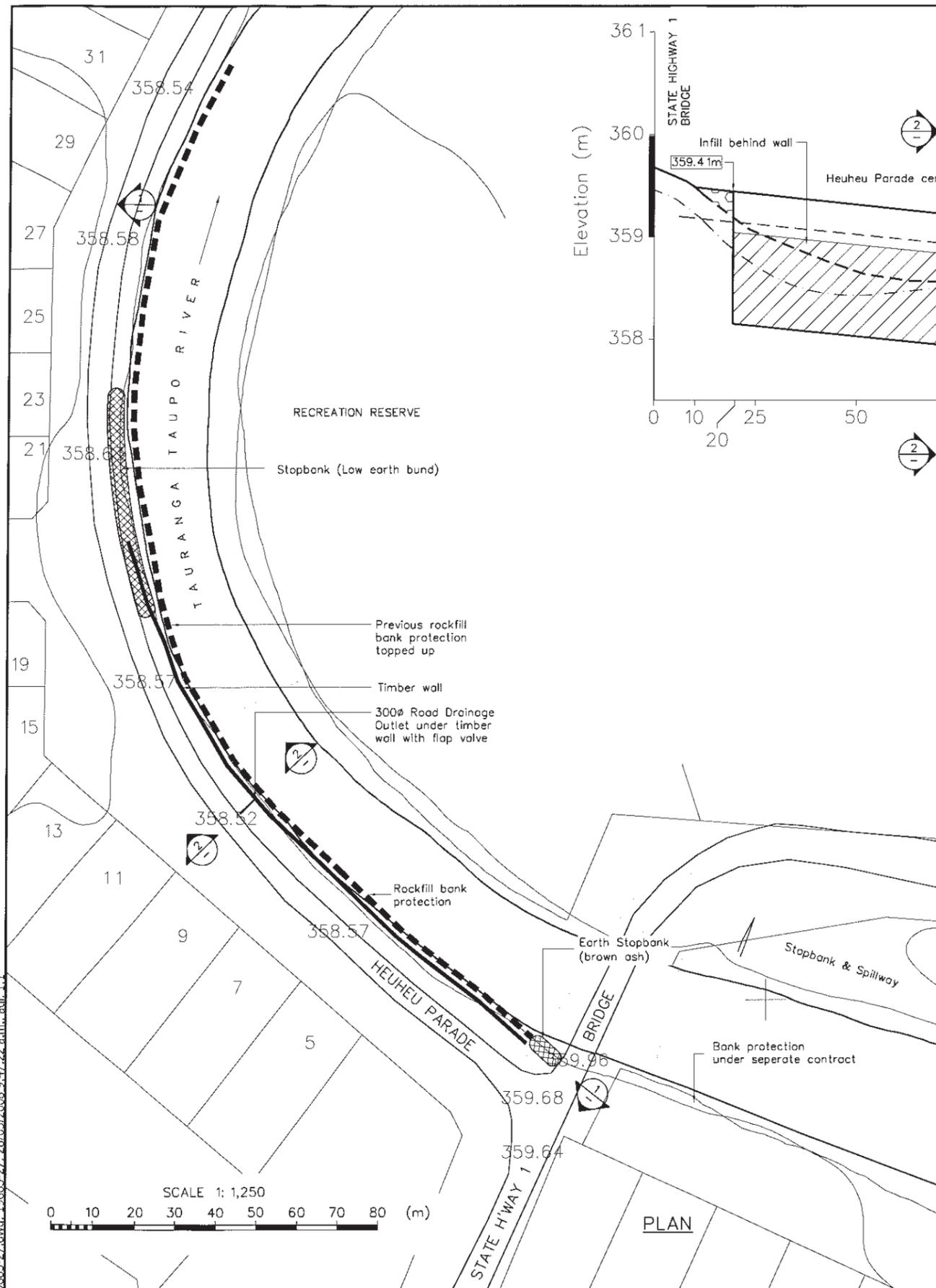
TITLE  
**LEFT BANK PROTECTION AT MANIAPOTO'S BEND**  
TYPICAL SECTIONS

SCALES (AT A3 SIZE)  
AS SHOWN

DWG. No.  
19883-26

REV.  
S

WRC Plan 1219/434650



pa119883-27.dwg, 19883-27, 28/03/2008 9:47:22 a.m., a01, 1:1

DESIGNED :	JND	Nov.03
DRAWN :	DNV	Nov.03
DESIGN CHECKED :	JND	Nov.03
DRAFTING CHECKED :	JND	Nov.03
CADFILE :	L:\19883\19883-27	
APPROVED :	<b>NOT FOR CONSTRUCTION</b>	
This drawing is not to be used for construction purposes unless signed as approved		
REVISION DESCRIPTION	BY	DATE
S As Built	LM	12/03
C For Consent Application	JND	11/03
B General Revisions	JND	12/03
A First Issue	JND	11/03

NOTES:

- Survey data from Energy Surveys (16/08/02)
- Stopbank and floodwall alignment as set out on site.
- For typical detail of timber wall abutments refer detail A on Dwg 28 (without 0.4m setback)

REFERENCE :

**Tonkin & Taylor**  
Environmental & Engineering Consultants

■ Auckland 19 Morgan St. Newmarket  
Tel. (09) 355 6000 Fax. (09) 307 0265  
Email : auck@tonkin.co.nz

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CLIENT, PROJECT  
**ENVIRONMENT WAIKATO**  
PROJECT WATERSHED - TAURANGA-TAUPO RIVER

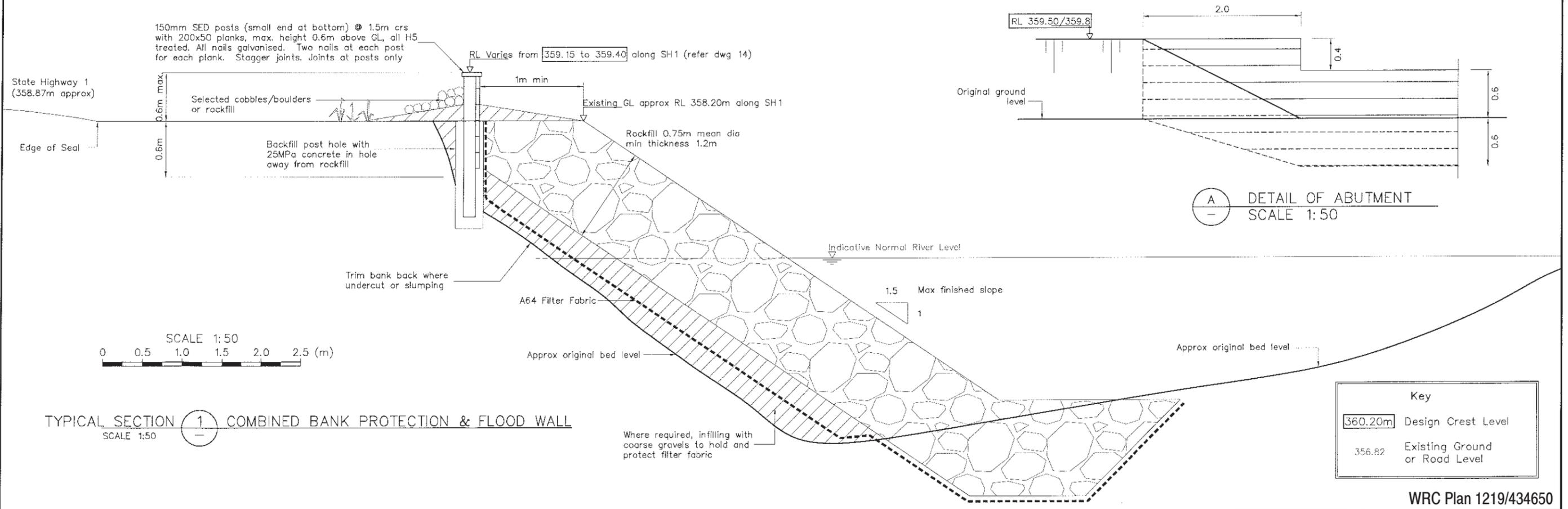
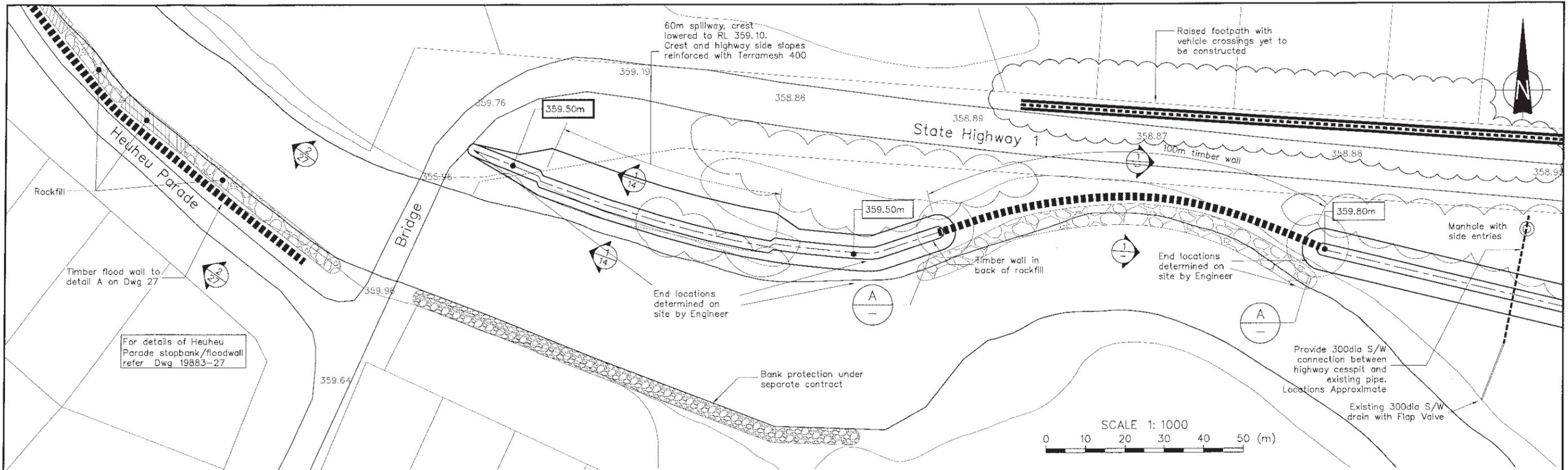
TITLE  
**STOPBANK/FLOODWALL ON HEUHEU PDE**  
Plan and Sections

SCALES (AT A3 SIZE)  
AS SHOWN

DWG. No.  
19883-27

REV.  
S

WRC Plan 1219/434650



TYPICAL SECTION (1) COMBINED BANK PROTECTION & FLOOD WALL  
SCALE 1:50

(A) DETAIL OF ABUTMENT  
SCALE 1:50

Key	
360.20m	Design Crest Level
356.82	Existing Ground or Road Level

WRC Plan 1219/434650

P:\19883\As Built\19883-28.dwg, 28, 29/02/2008 4:23:32 p.m., jctg, 1:1

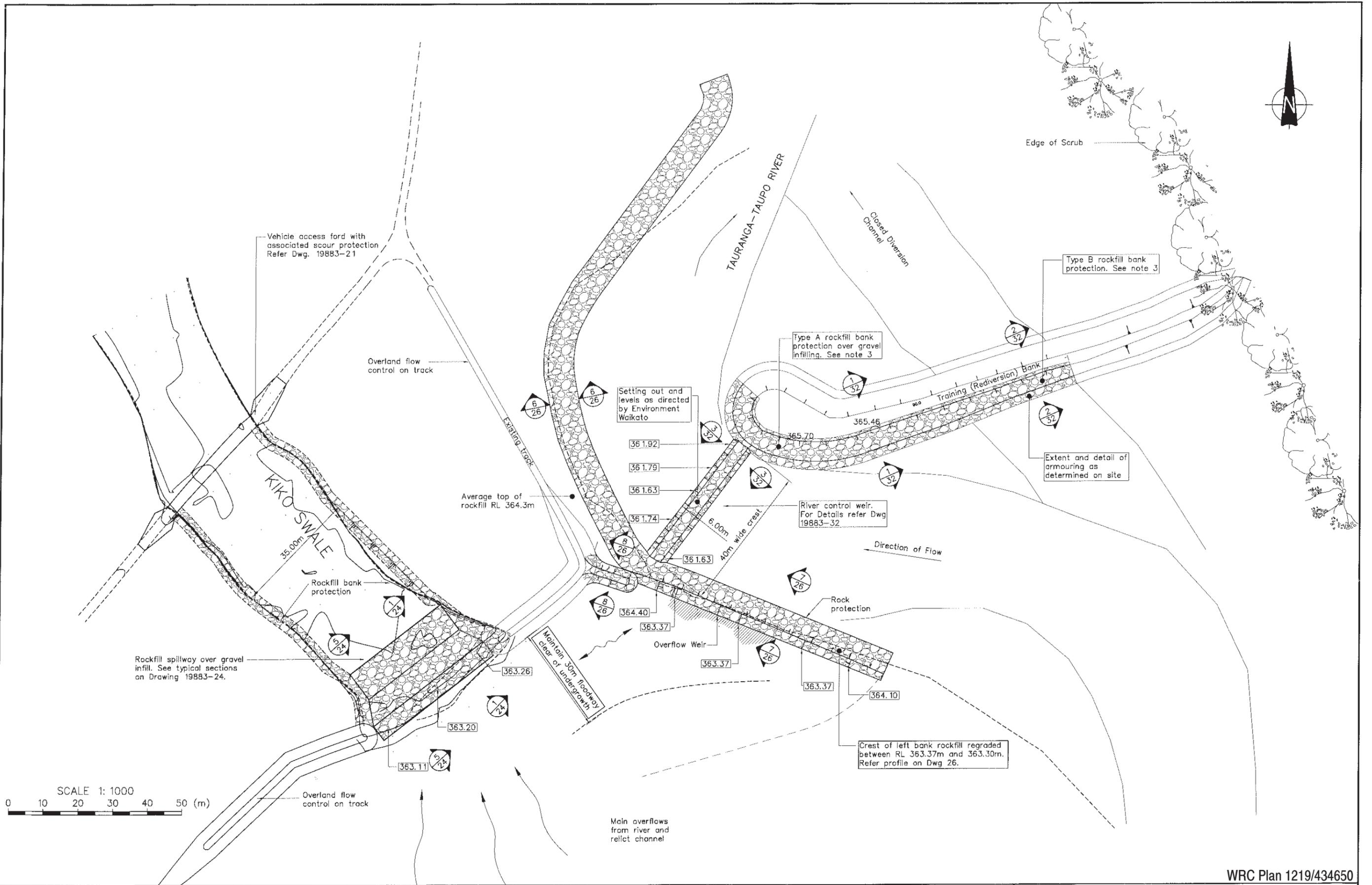
REVISION DESCRIPTION	BY	DATE
S As Built	JND	05/04
C Add stopbank spillway	TB	05/04
B Construction Issue	TB	04/04
A Preliminary Issue	TB	03/04

DESIGNED :	JND	Mar.04
DRAWN :	DNV	Mar.04
DESIGN CHECKED :	JND	05/04
DRAFTING CHECKED :	JND	05/04
CADFILE :	L:\19883\19883-28	
APPROVED :		
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Environmental & Engineering Consultants

Auckland 105 Carlton Gore Rd. Newmarket  
Tel. (09) 355 6000 Fax. (09) 307 0265  
Email : auck@tonkin.co.nz  
www.tonkin.co.nz

CLIENT, PROJECT	ENVIRONMENT WAIKATO	
	PROJECT WATERSHED – TAURANGA-TAUPO RIVER	
TITLE	EAST STOPBANK TO BRIDGE COMBINED BANK PROTECTION AND FLOOD WALL	
SCALES (AT A3 SIZE)	DWG. No.	REV.
AS SHOWN	19883-28	S



WRC Plan 1219/434650

DESIGNED :	JND	Oct.04
DRAWN :	SXT	Oct.04
DESIGN CHECKED :	JND	Oct.04
DRAFTING CHECKED :	JND	Oct.04
CADFILE :	L:\19883\19883-31	
APPROVED :	<b>NOT FOR CONSTRUCTION</b>	
This drawing is not to be used for construction purposes unless signed as approved		
REVISION DESCRIPTION	BY	DATE
S As Built	DNS	4/03
C Completion Works	TB	Mar.07
B Amendments	JND	Dec. 05
A First Issue	SFC	21 Jan 05

NOTES :

- Crest spot levels by G.M. Gay (Oct.12,2007) thus 363.11
- See Drawing 19883-32 for sections.
- Change from Type A to Type B rockfill as determined by Principal's Representative.

REFERENCE :

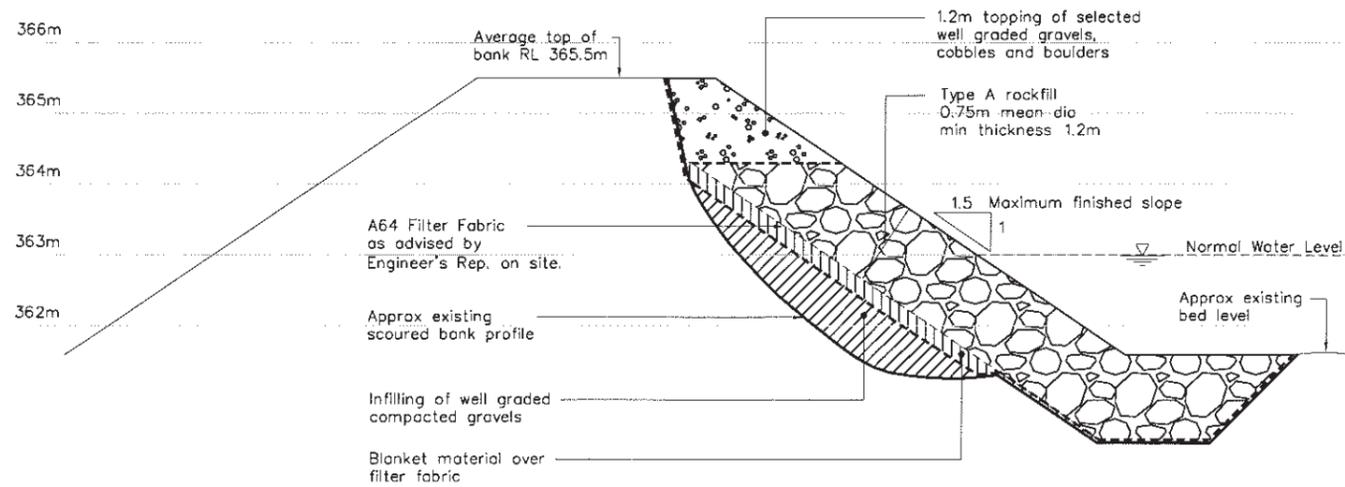


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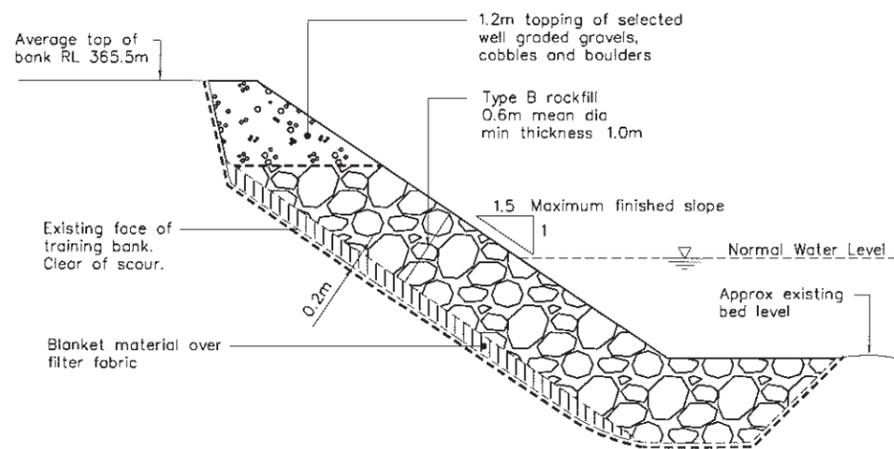
■ Auckland 19 Morgan St. Newmarket  
Tel. (09) 355 6000 Fax. (09) 307 0265  
Email : auck@tonkin.co.nz

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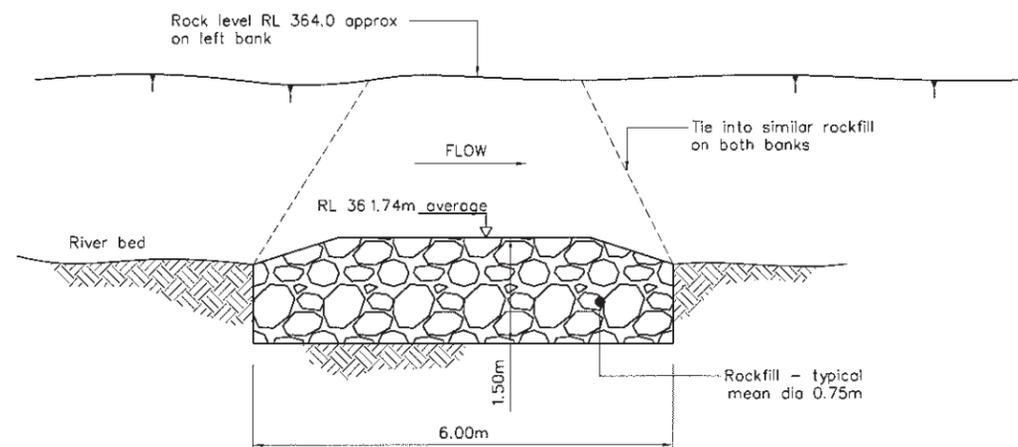
CLIENT, PROJECT	ENVIRONMENT WAIKATO
PROJECT WATERSHED - TAURANGA-TAUPO RIVER	
TITLE	KIKO SPILLWAY & MANIAPOTO'S BEND
	Flood Control Works - Plan
SCALES (AT A3 SIZE)	1: 1000
DWG. No.	19883-31
REV.	S



SECTION 1 TRAINING (REDIVERSION) BANK PROTECTION  
SCALE 1:100 (WITH SCOUR)



SECTION 2 TRAINING (REDIVERSION) BANK PROTECTION  
SCALE 1:100 (CLEAR OF SCOUR)



SECTION 3  
SCALE 1:100

WRC Plan 1219/434650

PA19883-32.dwg, 19883-32, 28/03/2008 9:56:48 a.m., a1:1

DESIGNED :	JND	Jul .03
DRAWN :	SXT	Jul .03
DESIGN CHECKED :	JND	Oct.04
DRAFTING CHECKED :	JND	Oct.04
CADFILE :	L:\19883\19883-32	
APPROVED :	<b>NOT FOR CONSTRUCTION</b>	
This drawing is not to be used for construction purposes unless signed as approved		
REVISION DESCRIPTION	BY	DATE
S As Built	DAB	4/08
C Construction	TB	3/07
B Issue for Tender	TB	3/00
A First Issue	SFC	21 Jan 05

NOTES :

- All dimensions are in metres unless noted otherwise.
- For locations of sections see plan on Dwg 19883-31
- River control weir crest RLs to be confirmed prior to completion of construction.

REFERENCE :



**Tonkin & Taylor**  
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Wellington Level 4, 265 Wakefield St  
Tel. (04) 381 8560 Fax. (04) 381 2908  
Email : well@tonkin.co.nz

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CLIENT, PROJECT	<b>ENVIRONMENT WAIKATO</b>	
TITLE	PROJECT WATERSHED - TAURANGA-TAUPO RIVER	
TITLE	TRAINING BANK PROTECTION & RIVER CONTROL	
TITLE	WEIR AT MANIAPOTO'S BEND - Typical Sections	
SCALES (AT A3 SIZE)	DWG. No.	REV.
AS SHOWN	19883-32	S