Requirements by Transit New Zealand for Designation of State Highway 2 (Tauranga Eastern Arterial)

and

Tauranga District Council for Bell Road Interchange

December 2000

Requirements by Transit New Zealand for Designation of State Highway 2 (Tauranga Eastern Arterial)

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Tauranga District Council for Bell Road Interchange

By

Beca Carter Hollings & Ferner Ltd

In association with:

Marshall Day Acoustics
Bioresearches
LA4
Ken Phillips

December 2000

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Notices of Requirement and Plans

NOTICE OF REQUIREMENT FOR AN ALTERATION TO A DESIGNATION UNDER SECTION 181 AND DESIGNATIONS UNDER SECTION 168 OF THE RESOURCE MANAGEMENT ACT 1991

To: Tauranga District Council
Private Bag
Tauranga

Western Bay of Plenty District Council
Private Bag 12803
Tauranga

From: Transit New Zealand
PO Box 973
Hamilton

- **Notice is given of a requirement for an Alteration to the existing designation for a road of the part of State highway 2 between Domain Road in Papamoa and the existing State highway 2/State highway 33 intersection at Paengaroa. Transit proposes to construct, maintain and operate the road as a State highway in the manner described in the attached assessment of environmental effects. Pursuant to section 184(1)(c) RMA the period for which this designation is sought is 20 years. The area to be designated by the alteration should be noted in the District Plan as *"Road for the purposes of operating a State highway including the planning, design, supervision, construction, maintenance and control of access in accordance with the Transit New Zealand Act 1989."***
- **Notice is given of a requirement for the following designations as mitigation measures:**
  - ***"Road for the purpose of access from Bell Road to the Kaituna River boat ramp."***
  - ***"Road for the purpose of access being the formation of Kaituna Road from Te Tumu Road in a south westerly direction."***
  - ***"Road for the purpose of access from Pah Road to Kaituna Road."***

1. (a) The reason why the Designation is needed is:

Transit's principal objectives are stated in Section 4.

There has long been conflicts between through and local traffic on the existing State highway section to be bypassed, particularly at Te Puke. Over the years, a permanent solution has proved elusive. With the growth in industry and communities, there is a significant demand for a safe and efficient arterial link here. In addition, individual mobility is highly valued as adding considerably to the quality of life of people in New Zealand. Transit's objectives in pursuing these works is to satisfy the needs identified above.

Transit is a requiring authority which entitles it to use the provisions of the Resource Management Act for designations. The designation process is most

appropriate for meeting Transit's objectives and satisfying the identified needs because it enables the requiring authority to do anything required to provide and operate the road as provided by the designation. It also gives a clear indication to the public of the future location and scale of significant infrastructure. The public will be better able to make decisions that concern capital investment and lifestyle with the knowledge that this designation brings. If the resource consent process was adopted, the application would have to be made 2 to 3 years prior to the construction occurring as a resource consent is only valid for 2 years and consequently would surprise the community. In addition, with the passage of time before construction there would be significant development in the path of the alignment which would significantly increase the costs to Transit and to perhaps even make the attainment of the alignment impossible.

1. (b) **The physical and legal descriptions (noting any distinguishing characteristics) of the site to which the Requirement applies are:**

(i) The physical description of the sites:

Subject to the "Relevant Documentation" statement in section 4 (iv) below these are set out in detail in the Tauranga Eastern Arterial Assessment of Environmental Effects (AEE) August 1999 Section 4 and the Addendum dated October 2000.

The Requirement applies to a band of land between Domain Road, Papamoa and the intersection of the current State highway 2 and State highway 33 that has the following zones under the District Councils' Plans.

Tauranga District

Transitional District Plan

Rural G, Future Urban.

Proposed District Plan

Rural, Future Urban.

Western Bay of Plenty

Proposed District Plan,

Rural G, Government Purposes Reserve.

Physical details noting any other distinguishing characteristics are shown on the set of Designation drawings attached to this Requirement (P006 Rev C, P007 Rev A, P008 Rev A, P009 Rev C, P010 Rev D, P011 Rev B, P012 Rev C, P013 Rev B, P014 Rev B, P015 Rev D, P016 Rev D, P017 Rev E, P018 Rev F, P031 Rev B). This set of drawings shows, from the preliminary design, the position, configuration, associated cut and fill batters, relative to existing property

boundaries, existing topography (including streams, rivers, estuaries) and vegetation features.

(ii) The legal descriptions of the sites and a schedule of owners of the land physically affected are as follows.

Owner's Name	Legal Title	Land Area Affected m²
BP & LJ Riddell	Lot 1 DPS 36935	13058m²
AR & HM Riddell	Pt Lot 2 DPS 36935	9201m²
JR & MEA Wilson	Lot 2 DPS 45418	21683m²
JR & MEA Wilson	Lot 1 DPS 54583	2354m²
IJ Riddell	Lot 1 DPS 45418	9595m²
TrustPower Ltd	Sec 44 SO 47398	614m²
TrustPower Ltd	Sec 65M SO 47399	547m²
BRF & SE Wallis	Lot 1 DPS 54529	888m²
PAH & FE Johnson	Lot 4 DPS 54529	2860M²
AEK & LJ Foster	Pt Lot 1 DP 11789	2035m²
Education Farms Ltd	Lot 2 DPS 60939	46143m²
Education Farms Ltd	Lot 3 DPS 60939	40217m²
Education Farms Ltd	Lot 3 DP 31359	31550m²
Education Farms Ltd	Lot 4 DP 31359	13554m2
Glen Ora Park Farms Ltd	Lot 1 DPS 60939	2224m²
DP & NE Hurst	Pt Sec 2 SO 6995	2537m²
NF & M Bruning	Lot 5 DP 31359	10625m²
KD & EF Chubb	Pt Lot 6 DP 31359	50904m²
PN & PM Tye	Lot 1 DPS 14276	1765m²
TNZ	R.O.W. Lots 1 & 2 DPS 79064	252m²
TNZ	Lot 2 DPS 79064	54114m²
RS & SR Steiner	Pt Lot 8 DP 22489	41659m²
RL & DM Taylor	Lot 2 DPS 79360	75555m²
DB Gordon, IM Young, MA Banks	Lot 1 DPS 8483	388m²
DG & J Thompson	Lot 2 DPS 8483	19380m²
DG & J Thompson	Lot 3 DPS 8483	9868m²
SR Taylor	Lot 3 DPS 54113	54438m²
Puketata (Tirau) Ltd	Pt Lot 1 DPS 10417	22399m²
J & JM by de Ley	Pt Lot 1 DPS 6491	40929m²
J & JM by de Ley	Lot 3 DPS 65215	73410m²
J & JM by de Ley	Pt 1 LTS 10096	32926m²
IL & WS Marshall Trust	Pt Lot 7 DP 29530	19657m²
IL & WS Marshall Trust	Pt Sec 7 SO 57483	62m²
IL & WS Marshall Trust	IC SO 57483	7430m²
RM Niccol & KL Faulkner	Pt Lot 1 DPS 61810	25225m²
DR & PA Pamment	Pt Lot 2 DP 10176	61966m²
Department of Conservation	Pt Lot 2 DP 10176	1912m²
KN East	Pt Lot 1 DP 10176	25705m²
DR & PA Pamment	Sec 9 Block V Te Tumu SD	37719m²
WJ & MJ Potter	Lot 1 DP 13918	28936m²
WJ & MJ Potter	Lot 2 DP 13918	33928m²

Owner's Name	Legal Title	Land Area Affected m²
DR & PA Pamment	Lot 4 DP 31972	29906m²
DR & PA Pamment	Lot 2 DPS 12413	15662m²
Black & White Ltd	Lot 3 DPS 12413	16239m²
Black & White Ltd	Lot 1 DP 9297	33476m²
Black & White Ltd	Lot 2 DP 9297	27773m²
Black & White Ltd	Lot 2 DPS 55860	10258m²
KP Candy	Lot 5 DP 9297	3491m²
KP Candy	Lot 1 DPS 75077	76778m²
Whakawhiti Trust	Lot 2 DPS 30179	14664m²
WB & NE Attwood	Lot 1 DPS 30179	13141m²
ND & RE Espin	Pukaingataru Pt B10 Sec 5B ML 11756, CT 22D/1294	11808m²
Reynolds	Pukaingataru Pt B10 Sec 5B ML 11756, CT 23A/262	16112m²
CA Trott, Pukaingataru	B10 Sec 5A	1742m²
DC & CA Cotterill	Lot 1 DPS 38633	3125m²
RL & FP Parton	Lot 2 DPS 36594	10449m²
TNZ	Lot 1 DPS 36594	11859m²
MG & A Saunders	B26 ML 7467	20822m²
R & C Stevenson	Lot 1 DPS 10164	8413m²
R & C Stevenson	Pt Lot 2 DPS 10164	22714m²
TNZ	Pt Lot 3 DPS 10164	31697m²
TNZ	Lot 1 DPS 34975	36700m²
TNZ	Pt Lot 1 DPS 29059	40300m²
TNZ	Lot 2 DPS 7919	51837m²
TNZ	Pt Lot 1 DPS 7919	19687m²
DH & ER Davies	Lot 6 DPS 13623	5026m²
PH Rotherham	Lot 7 DPS 13623	8626m²
TNZ	Lot 1 DPS 66792	2001m²
KJB Prior	Lot 2 DPS 66792	1436m²
MC & AF Maltby	Lot 1 DPS 43828	1705m²
TNZ	Lot 1 DPS 53345	6627m²
Te Puke Golf Club Inc	Pt Sec 1 Block III Maketu SD SO 5367	13262m²
JA van Eekelen	Lot 1 DPS 44836	6293m²
RJ & LP Rea	Lot 2 DPS 44836	1727m²

Note: *The alignment crosses the TranzRail East Coast Main Trunk line on overbridges at Domain Road and Paengaroa Junction.*

1. (c) The nature of the work and any proposed restrictions are: the construction, operation and maintenance of State highway 2 from its interchange with Domain Road, Papamoa eastwards to Paengaroa where the alignment rejoins the existing State highway at its intersection with State highway 33 as is described in the AEE, Section 3, its Addendum and the Options Report - Tauranga Eastern Arterial Roading Study 1998 subject to the "Relevant Documentation" statement below. The design and construction of the proposal will be generally in accordance with

the description of the proposal in the AEE which is in sufficient detail as to identify the nature of the work, the significant effects and the required mitigation.

The exact extent of works, construction methodology, possible staging and costs will be finalised as the design details are finalised. To date the design is at a preliminary stage.

1. (d) The effect that the proposed work will have on the environment and the proposed mitigation measures are:

(i) Effects

The effects that the proposed work will have on the environment can be summarised as follows:

- No significant effects on ecology, hydrology and water quality assuming mitigation measures set out below are actioned
- No significant noise and visual effects subject to mitigation measures set out below
- Positive traffic effects resulting from travel time and vehicle cost savings and an improved level of travel safety
- No significant archaeological effects.
- The effect of land-take on adjacent areas

These effects are described subject to the "Relevant Documentation" statement above in Section 5 of the AEE and the Addendum dated October 2000.

(ii) Mitigation Measures

The following mitigation measures are general principles developed for the existing situation and will be carried through in principle to the final design stage. At the final design stage these principles will be refined to enable construction.

- Negotiated fair and reasonable agreements with property owners in relation to the:
  (a) Acquisition of land required, and
  (b) Relevant stakeholders in relation to a lump sum contribution to the Kaituna Drainage Scheme.
- Careful planning and management of all construction works with particular emphasis on and use of mitigation techniques in regard to sediment control, construction noise and dust
- Use of appropriate and practical mitigation techniques in circumstances where protection of amenity in adjacent areas is warranted. These include the provision of noise bunds in particular localities, and the provision of landscaping to reduce the visual effect of the highway.

- The Kaituna River crossing to be constructed from stopbank to stopbank to maintain the existing waterway and to avoid disruption to River edge habitats.
- If practicable the control gate below the proposed Kaituna oxbow crossing to remain closed throughout the construction period of that crossing if instream works are required.
- The by de Ley property stream channel and the Waimarae Stream to be isolated (i.e. blocked off) from the Kaituna River oxbow and mainstem respectively throughout the construction period for works in this area to reduce sedimentation.
- Wetland treatment areas to be developed in the swales or similar to the west of Kaituna River from meterage 7200 to 8400 to receive roadway-derived stormwater runoff. Those areas should reflect the former vegetation of Te Parapara Swamp as far as practicable.
- Wetland treatment areas to be developed in sections from meterage 8,400 to 11,000 to receive stormwater runoff from the roadway.
- Landscape mitigation and wetland development to involve locally-sourced plant material where practicable. A dominant vegetation type in the Kawa and Te Parapara Swamps is clearly flax; local iwi should also be consulted regarding the appropriate types of flax. Areas could be developed with a view to harvesting for cultural purposes.
- Preparation of a Stormwater Management Plan as part of the resource consent applications for earthworks, bridging etc.

These mitigation measures are described in Section 6 of the AEE.

1. (e) The following alternative sites, routes, and methods have been considered:

Works Consultancy evaluated five options plus the State highway upgrade in February 1992. In 1993 two further options were also considered by Works Consultancy. In 1995 a sixth option was considered by Bloxam Burnett & Olliver Ltd.

Following these initial studies, six alternative options were considered by BCHF and these are discussed briefly in Section 3 of the AEE and in full in the *Options Report - Tauranga Eastern Arterial Roading Study 1998*. The *Options Report* has been provided as part of this documentation.

An AEE was prepared on the alignment which incorporated a crossing of the pastural part of the Kaituna Reserve. This was lodged in August 1999 and following a Pre-Hearing meeting with environmental groups an alternative alignment that crossed an oxbow to avoid the reserve was investigated. It is this later alignment which is the subject of this Notice of Requirement.

1. **(f) The following resource consents will be required in relation to the activity to which the application relates:**

   - Discharge permits (stormwater/contaminants) - Regional Council
   - Land use consents (earthworks) - Regional Council
   - Structures in rivers (bridge piles) - Regional Council
   - Landuse consents (cleanfill, stormwater detention ponds and earthworks) - from Tauranga District Council

   These consents will be sought when final design is complete and funding for construction is available. This may be eight to 15 years away.

1. **(g) The following resource consents have been applied for:** Nil.

2. **The consultation undertaken with parties likely to be affected by the Designation, public work, project, or work is detailed in Section 4.6 of the AEE and its Addendum.**

3. **Additional information *(if any)* as required by Tauranga and Western Bay of Plenty District Plans is set out as follows:**

   (i) Relevant Provisions of National Policy Statements, Regional Plan, District Plans:

   The proposed work and mitigation measures have been assessed and found consistent in terms of the provision of the following plans and policy statements:

   - Bay of Plenty Proposed Regional Land Management Plan
   - Bay of Plenty Regional Land Transport Strategy
   - Bay of Plenty Proposed Regional Policy Statement
   - Tauranga District Council Proposed District Plan
   - Tauranga District Council Transitional District Plan (County Section)
   - Western Bay of Plenty Proposed District Plan

   (ii) Proposed Sequence and Implementation of the Work

   Construction details are given in Section 3.3 of the attached AEE.

4. Miscellaneous Information

(i) Transit's Objectives

Transit's principal objective under the Transit New Zealand Act 1989 is:

> "to operate a safe and efficient State highway system" (*Section 5 Transit Act 1989*).

One of the principal ways Transit pursues this objective is through its responsibility to

> "control the State highway system including planning, design, supervision, construction and maintenance in accordance with this (the Transit New Zealand) Act" (*Section 6(c)*).

Transit considers that State highway 2 is of primary importance as the major strategic road link between Tauranga and destinations east and south. Accordingly, the maintenance and improvement of this road is a matter of national regional and local importance and will sustain : "the potential of natural and physical resources to meet the reasonably foreseeable needs of future generations." (*Section 5(a) (RMA)*.)

(ii) Orders in Council

A copy of the Orders in Council appointing Transit as a Requiring Authority for the purposes of the Resource Management Act 1991 (RMA) and empowering it to carry out the work the subject of this Requirement Notice are attached as Appendix 1.

(iii) Relevant Documentation

This Notice of Requirement is to be considered alongside:

- The Assessment of Environmental Effects Volumes 1, 2 and 3 dated August 1999, exclusive of:
  - The proposed mitigation measures as they relate to the Kaituna Reserve in Section 6.
- Further information provided to the Councils on 15 November 1999, 13 December 1999 and 17 March 2000.
- The Addendum dated December 2000.

For and on behalf of
Transit New Zealand

.....

Colin Knaggs, Regional Manager,

pursuant to an authority by Transit New Zealand

Dated this 5th day of December 2000

Address for service:

c/- Beca Carter Hollings & Ferner Ltd
PO Box 903
TAURANGA

Telephone: (07) 578 0896

Fax: (07) 578 2968

Contact Person: Christine Ralph

Transit New Zealand
PO Box 973
HAMILTON

Telephone: (07) 957 1612

Fax: (07) 957 1437

Contact Person: Colin Knaggs

No.	Revision	Appd	Date
C	MAKETU RD INTERSECTION AMENDED		
B	ALIGNMENT AMENDED AT RESERVE & SH 2/33 INTERSECTION	DRY	28.9.00
A	FOR DESIGNATION	JJH	4.5.99

Beca Carter Hollings & Ferner Ltd.
Auckland, Wellington, Christchurch, New Plymouth, Tauranga, Melbourne, Sydney, Port Moresby, Jakarta, Singapore, Brunei.
Consulting Engineers

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Traced	CAD	Sign	Reduced Drawing 1:50000
Dsg Check			
Drg Check	SJF	Date	

TRANSIT NEW ZEALAND
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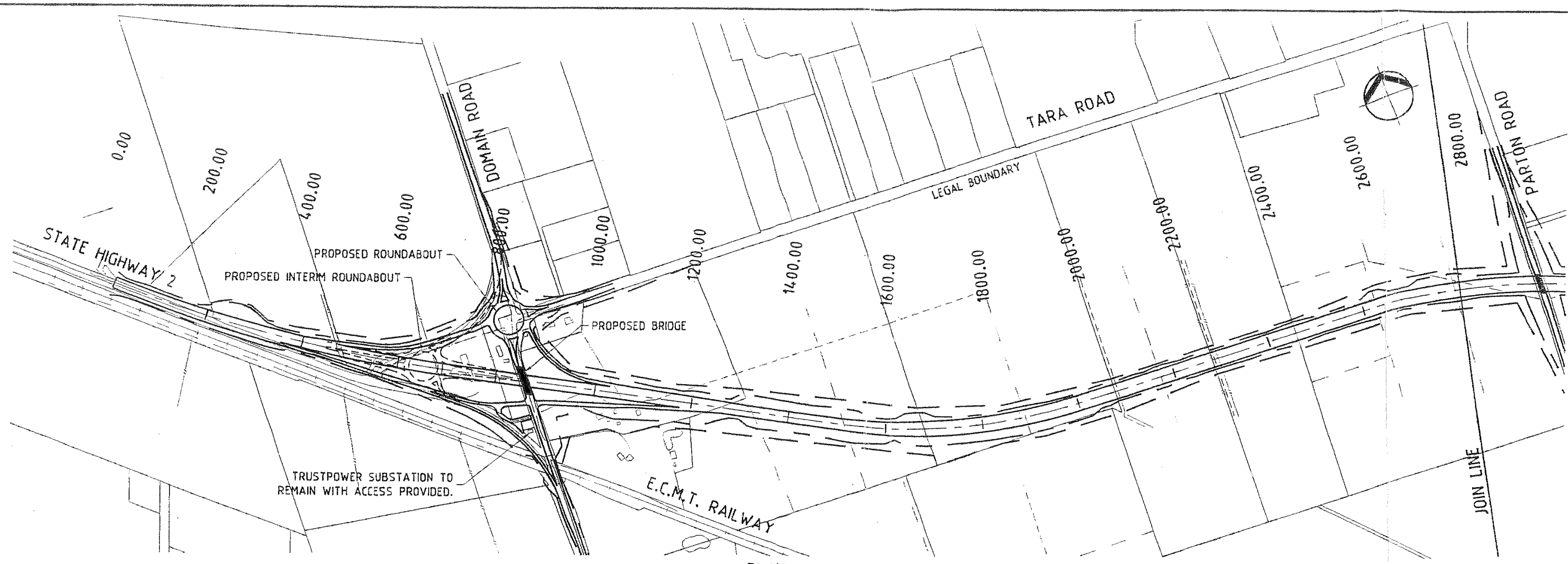
TAURANGA EASTERN ARTERIAL
CIVIL

LAND & DESIGNATION REQUIREMENT PLAN INDEX SHEET

Job No. 9301240
Drg No. P006
Rev. C

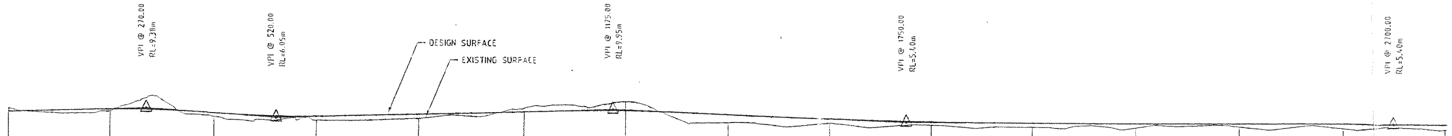
Beca Carter Hollings & Ferner



PLAN
SCALE 1:5000

LEGEND

- EDGE OF SEAL
- EXTENT OF BATTERS
- DESIGNATION REQUIREMENT
- CENTRELINE OF ALIGNMENT
- EXISTING FENCE
- EXISTING RAILWAY TRACK
- EXISTING DRAIN
- EXISTING TRACK



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HORIZONTAL ALIGNMENT					
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LONG SECTION
HORIZONTAL SCALE 1:5000
VERTICAL SCALE 1:1000

NOTES -

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No.	Revision	Appd	Date
A	FOR DESIGNATION		

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BECA
Auckland, Wellington, Christchurch, New Plymouth, Tauranga, Melbourne, Sydney, Port Moresby, Jakarta, Singapore, Brunei.
Consulting Engineers

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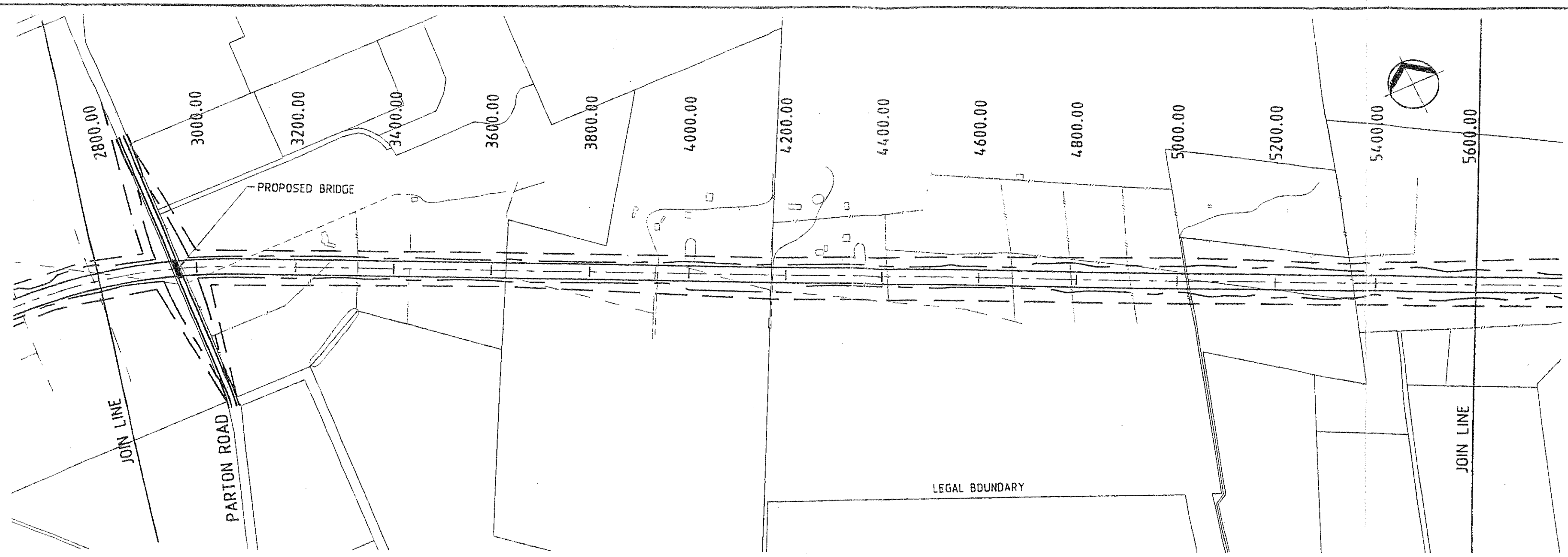
DESIGNATION
REQUIREMENT PLAN
SHEET 1 OF 6

Job No	9301240
Drg No	P007
Rev	A



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DISTANCE	2800.00	3000.00	3200.00	3400.00	3600.00	3800.00	4000.00	4200.00	4400.00	4600.00	4800.00	5000.00	5200.00	5400.00
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HORIZONTAL ALIGNMENT	CURVE L=504.26m R=1200.00m	TANGENT 3728.63m @ 33°38'26"												

LONG SECTION
HORIZONTAL SCALE 1:5000
VERTICAL SCALE 1:1000

LEGEND

- EDGE OF SEAL
- EXTENT OF BATTERS
- DESIGNATION REQUIREMENT
- CENTRELINE OF ALIGNMENT
- EXISTING FENCE
- EXISTING RAILWAY TRACK
- EXISTING DRAIN
- EXISTING TRACK

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A	FOR DESIGNATION			
No.	Revision		Appd	Date

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Consulting Engineers
Auckland, Wellington, Christchurch, New Plymouth, Tauranga, Melbourne, Sydney, Port Moresby, Jakarta, Singapore, Brunei.

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DESIGNATION
REQUIREMENT PLAN
SHEET 2 OF 6

Job No. 9301240
Drg No. P008
Rev. A

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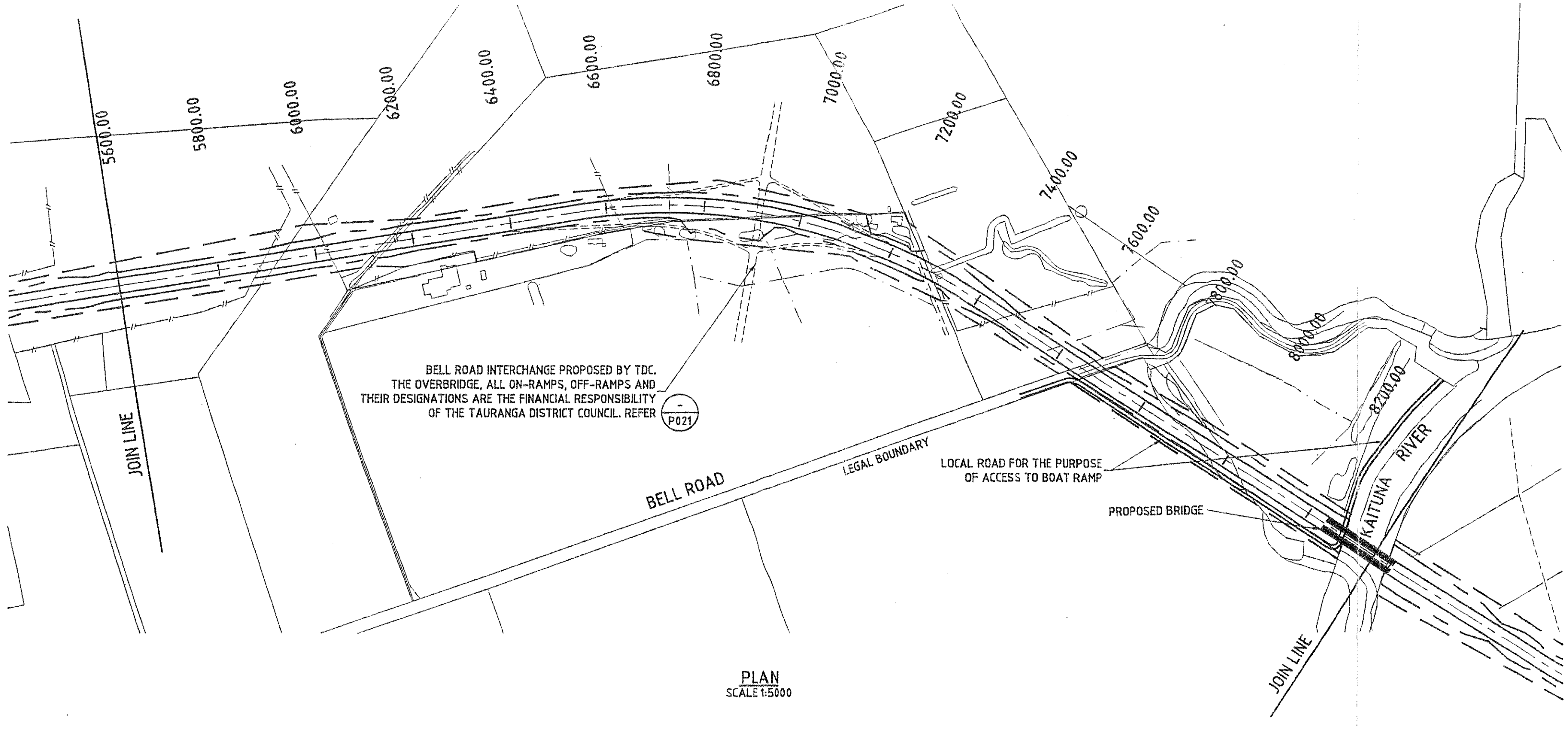
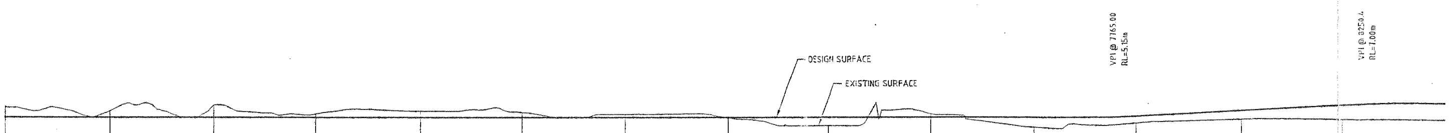


PLAN
SCALE 1:5000

LEGEND

- EDGE OF SEAL
- EXTENT OF BATTERS
- DESIGNATION REQUIREMENT
- CENTRELINE OF ALIGNMENT
- EXISTING FENCE
- EXISTING RAILWAY TRACK
- EXISTING DRAIN
- EXISTING TRACK



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VERTICAL CURVE L=94m K=??? A=???

LONG SECTION
HORIZONTAL SCALE 1:5000
VERTICAL SCALE 1:1000

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4. FLOOD LEVEL DATA SUPPLIED BY ENVIRONMENT B.O.P.

No.	Revision	Appd	Date
C	MINOR CHANGES TO ACCESS ROAD DESCRIPTION		
B	ALIGNMENT AMENDED TO AVOID RESERVE	DRY	5.5.00
A	FOR DESIGNATION	JJH	4.5.99

Beca Carter Hollings & Ferner Ltd.
Consulting Engineers
Auckland, Wellington, Christchurch, New Plymouth, Tauranga. Melbourne, Sydney, Port Moresby, Jakarta, Singapore, Brunei.
BECA

Designed SJF | Drawn BIL | Traced CAD | Dsg Check | Drg Check SJF | Approved for Construction | Sign | Date
Scale as drawn 1:5000/1000 | Reduced Drawing 1:10000/2000

TRANSIT NEW ZEALAND

TAURANGA EASTERN ARTERIAL
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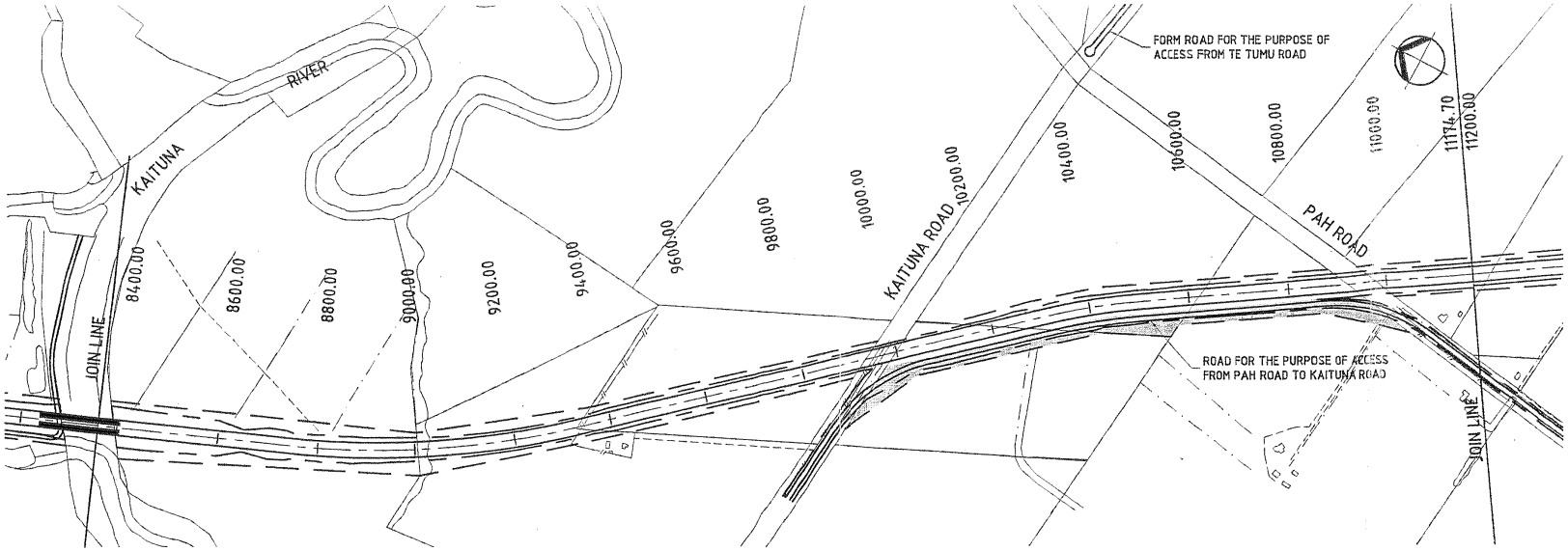
DESIGNATION REQUIREMENT PLAN
SHEET 3 OF 6

Job No. 9301240
Drg. No. P009 Rev. C

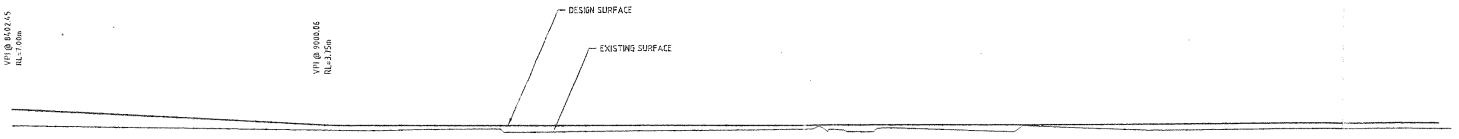
CAD DRG. No. P:\93\3601240\CAD\1240P009



PLAN
SCALE 1:5000

LEGEND

- EDGE OF SEAL
- EXTENT OF BATTERS
- DESIGNATION REQUIREMENT
- CENTRELINE OF ALIGNMENT
- EXISTING FENCE
- EXISTING RAILWAY TRACK
- EXISTING DRAIN
- EXISTING TRACK
- LEGAL BOUNDARY
- AREA OF LOCAL ROAD TO BE DESIGNATED FOR THE PURPOSE OF ACCESS



DATUM RL= -5.00m

DESIGN SURFACE	7.00	6.20	3.90	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
EXISTING SURFACE	0.66	1.76	1.47	1.46	1.45	1.45	1.20	2.31	2.84	1.99	3.70	1.49	1.49	1.15
DISTANCE	8400.00	8600.00	8800.00	9000.00	9200.00	9400.00	9600.00	9800.00	10000.00	10200.00	10400.00	10600.00	10800.00	11000.00
VERTICAL ALIGNMENT	VERTICAL CURVE L=56m K=??? A=???	VERTICAL CURVE L=57m K=??? A=1900%	VERTICAL CURVE L=1m K=??? A=???	TANGENT 3561.7m @ 0.00%										
HORIZONTAL ALIGNMENT	TANGENT 134.956m @ 77d27'7"	CURVE L=587.81m R=1150.00m	TANGENT 919.51m @ 77d27'7"	CURVE L=172.15m R=1150.00m	TANGENT 3710.59m @ 39d02'38"									

LONG SECTION
HORIZONTAL SCALE 1:5000
VERTICAL SCALE 1:1000

NOTES:-

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3. DTM DATA AND AERIAL PHOTOGRAPHY SUPPLIED BY NEW ZEALAND AERIAL MAPPING LTD.
4. FLOOD LEVEL DATA SUPPLIED BY ENVIRONMENT B.O.P.

No.	Revision	Appd	Date
D	MINOR CHANGES TO ACCESS ROAD DESCRIPTIONS	DRY	5.4.99
C	ALIGNMENT AMENDED TO AVOID RESERVE	DRY	12.8.98
B	LEGAL BOUNDARY ADDED TO LEGEND. KAITUNA RD EXTENSION ADDED	DRY	12.8.98
A	FOR DESIGNATION	JJR	4.5.98

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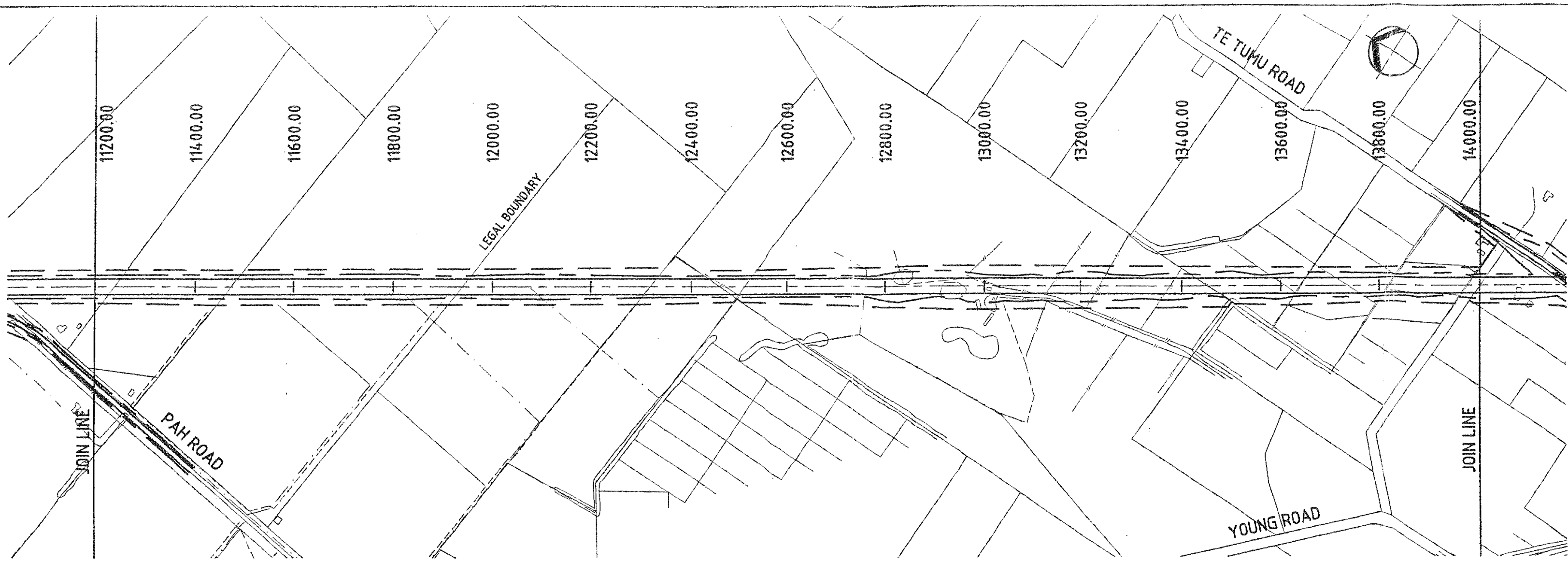
Designed	SJF	Approved for Construction	Scale as drawn 1:5000/1000
Drawn	JJR		
Traced	CAD	Sign	Reduced Drawing 1:10000/2000
Org. Check			
Eng. Check	SJF	Date	

TRANSIT NEW ZEALAND
TARANAKI AUCKLAND

TAURANGA EASTERN ARTERIAL
CIVIL

DESIGNATION REQUIREMENT PLAN
SHEET 4 OF 6

Job No. 9301240
Drg No. P010
Rev. D



PLAN
SCALE 1:5000

LEGEND

- EDGE OF SEAL
- EXTENT OF BATTERS
- DESIGNATION REQUIREMENT
- CENTRELINE OF ALIGNMENT
- EXISTING FENCE
- EXISTING RAILWAY TRACK
- EXISTING DRAIN
- EXISTING TRACK

DATUM RL= -5.00m

DESIGN SURFACE	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	4.11	5.16	6.27	7.38	8.49	[illegible]
EXISTING SURFACE	1.54	1.34	1.10	0.80	1.44	1.49	2.16	2.13	4.93	8.48	8.74	8.24	7.67	10.45
DISTANCE	11200.00	11400.00	11600.00	11800.00	12000.00	12200.00	12400.00	12600.00	12800.00	13000.00	13200.00	13400.00	13600.00	13800.00
VERTICAL ALIGNMENT	TANGENT 3760m @ 0.00%							VERTICAL CURVE L=250m K=450.53 A=0.55%		TANGENT 1360m @ 0.55%				
HORIZONTAL ALIGNMENT	TANGENT 4207.03m @ 302d2'38"													

LONG SECTION
HORIZONTAL SCALE 1:5000
VERTICAL SCALE 1:1000

NOTES:-

1. CROWN COPYRIGHT RESERVED. LEGAL BOUNDARY INFORMATION REPRINTED WITH PERMISSION OF TAURANGA DISTRICT COUNCIL LICENCE No. HN/033523 & WESTERN BAY OF PLENTY DISTRICT COUNCIL LICENCE No. HN35220003.
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3. DTM DATA AND AERIAL PHOTOGRAPHY SUPPLIED BY NEW ZEALAND AERIAL MAPPING LTD.
4. FLOOD LEVEL DATA SUPPLIED BY ENVIRONMENT B.O.P.

No.	Revision	Appd	Date
B	TE TUMU ROAD CROSSING AMENDED		
A	FOR DESIGNATION	JJH	4.5.99

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BECA

Designed EJF | Drawn BJL | Traced CAD | Dsg Check | Drg Check SJF | Approved for Construction | Sign | Date | Scale as drawn 1:5000/1000 | Reduced Drawing 1:10000/2000

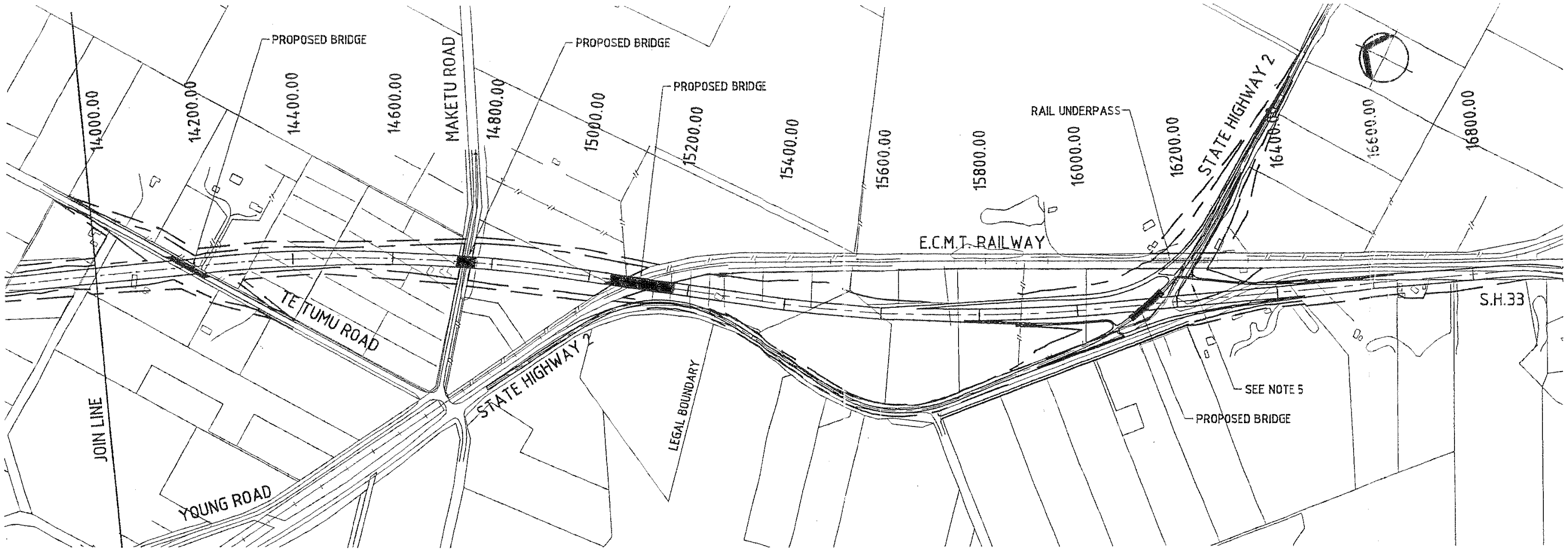
TRANSIT NEW ZEALAND ARATAU AOTEAROA

TAURANGA EASTERN ARTERIAL
CIVIL

DESIGNATION REQUIREMENT PLAN
SHEET 5 OF 6

Job No. 9301240
Drg No. P011 Rev. B

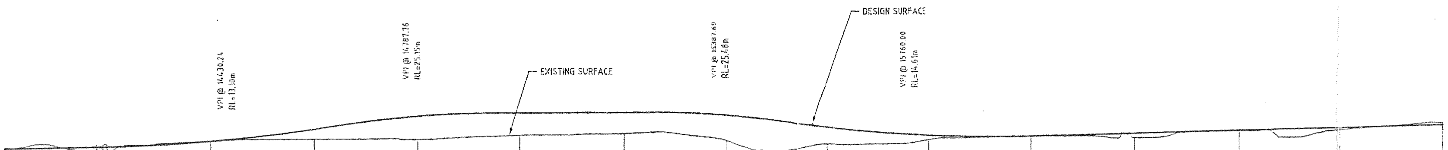
Beca Carter Hollings & Ferner



PLAN
SCALE 1:5000

LEGEND

- EDGE OF SEAL
- EXTENT OF BATTERS
- DESIGNATION REQUIREMENT
- CENTRELINE OF ALIGNMENT
- EXISTING FENCE
- EXISTING RAILWAY TRACK
- EXISTING DRAIN
- EXISTING TRACK



DATUM RL= -5.00m

DESIGN SURFACE	10.74	11.82	13.95	18.85	24.04	25.27	25.38	24.24	19.46	16.15	15.81	16.81	17.81	18.81
EXISTING SURFACE	11.01	10.02	14.04	14.92	14.97	16.55	17.18	14.38	12.89	14.43	15.81	15.03	17.53	17.99
DISTANCE	14000.00	14200.00	14400.00	14600.00	14800.00	15000.00	15200.00	15400.00	15600.00	15800.00	16000.00	16200.00	16400.00	16600.00

VERTICAL ALIGNMENT	TANGENT 1360.24m @ 0.55%
	VERTICAL CURVE L=400m K=142.09 A=2.82%
	VERTICAL CURVE L=320.39m K=? A=?
	TANGENT 299.95m @ 0.06%
	VERTICAL CURVE L=279.42m K=? A=?
	VERTICAL CURVE L=460m K=134.50 A=3.42%
	TANGENT 1145m @ 0.50%
HORIZONTAL ALIGNMENT	TANGENT 4207.03m @ 302d2'38"
	CURVE L=739.36m R=3000.00m
	TANGENT 362.61m @ 287d55'23"
	CURVE L=710.29m R=3000.00m
	TANGENT 793.45m @ 301d29'19"

LONG SECTION
HORIZONTAL SCALE 1:5000
VERTICAL SCALE 1:1000

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4. FLOOD LEVEL DATA SUPPLIED BY ENVIRONMENT B.O.P.
5. POSSIBLE INTERIM AT GRADE INTERSECTION TO BE PROVIDED.

No.	Revision	Appd	Date
C	MAKETU & TE TUMU ROAD CROSSINGS AMENDED		
B	SH 2 REALIGNED, RAIL UNDERPASS ADDED	DRY	
A	FOR DESIGNATION	JJH	

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Designed SJF | Drawn EL | Traced CAD | Dsg Check | Drg Check SJF | Approved for Construction | Sign | Date | Scale as drawn 1:5000/1:1000 | Reduced Drawing 1:10000/2000

TRANSIT NEW ZEALAND

TAURANGA EASTERN ARTERIAL — CIVIL

DESIGNATION REQUIREMENT PLAN SHEET 6 OF 6

Job No. 9301240 | Drg No. P012 | Rev. C

CAD DRG No. P:\93\9301240\CAD\1240P012

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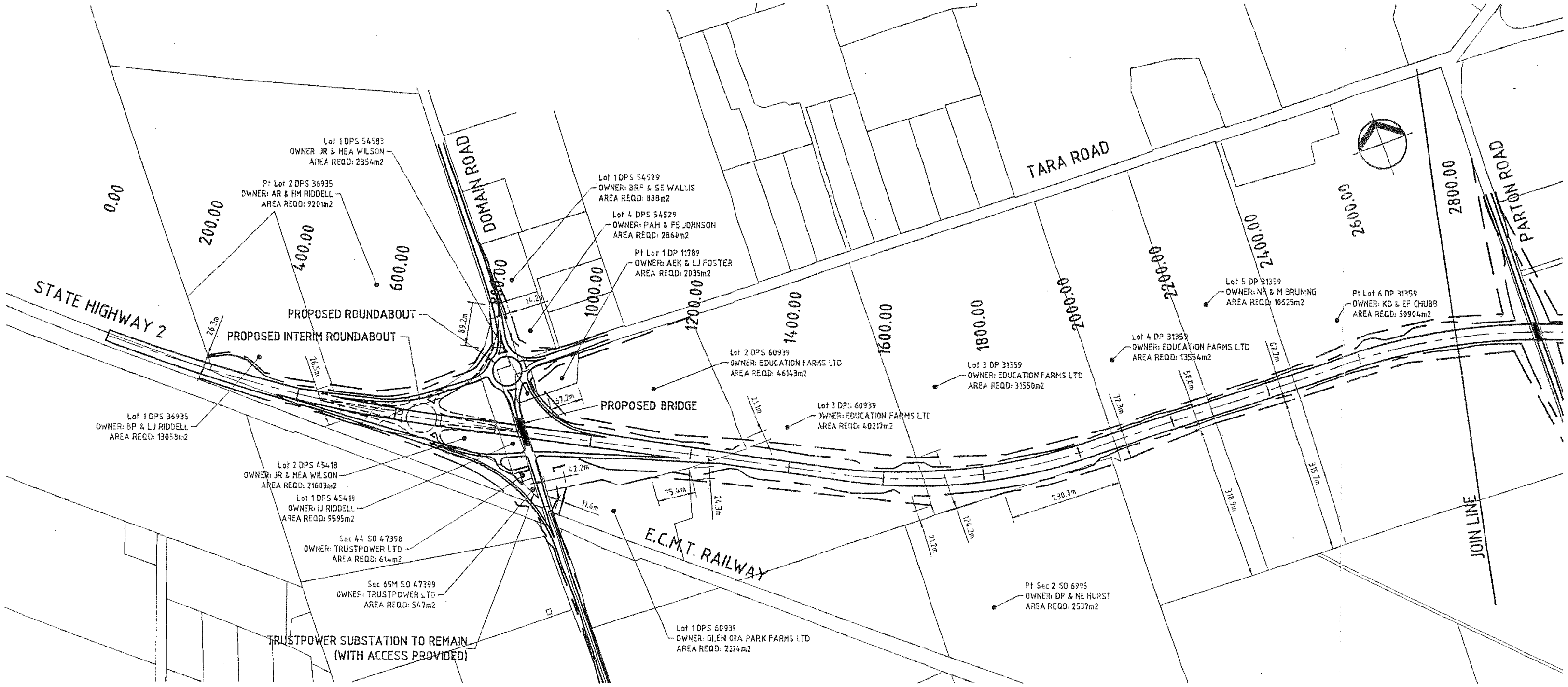

PLAN
SCALE 1:5000

LEGEND

- EDGE OF SEAL
- EXTENT OF BATTERS
- DESIGNATION REQUIREMENT
- CENTRELINE OF ALIGNMENT
- LEGAL BOUNDARY

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3. FLOOD LEVEL DATA SUPPLIED BY ENVIRONMENT B.O.P.

No.	Revision	Appd	Date
B	MINOR ADJUSTMENTS TO EXTENT OF BATTERS	DRY	23/6/99
A	FOR DESIGNATION	JJH	4.5.99

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Designed	SJF	Approved for Construction	Scale as drawn 1:5000/1000
Drawn	BF		
Traced	CAD	Sign	Reduced Drawing 1:10000/2000
Dsg Check			
Drg Check	SJF	Date	

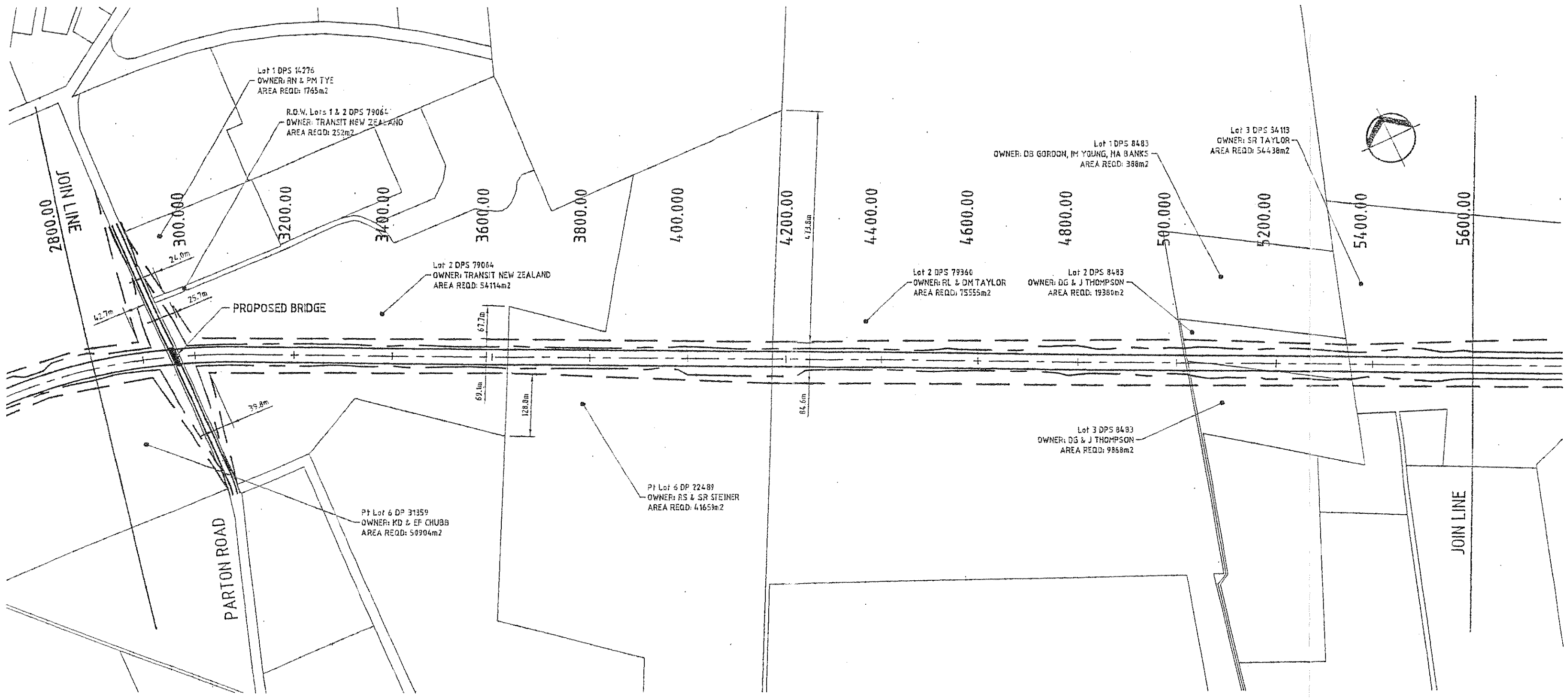
TRANSIT NEW ZEALAND

TAURANGA EASTERN ARTERIAL
CIVIL

LAND REQUIREMENT PLAN
SHEET 1 OF 6

Job No. 9301240
Drg. No. P013
Rev. B

CAD DWG No. P:\9301\9301240\CAD\1240P013



PLAN
SCALE 1:5000

LEGEND

———————	EDGE OF SEAL
—— — ——	EXTENT OF BATTERS
—— —— ——	DESIGNATION REQUIREMENT
—— - —— - ——	CENTRELINE OF ALIGNMENT
———————	LEGAL BOUNDARY

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3. FLOOD LEVEL DATA SUPPLIED BY ENVIRONMENT B.O.P.

No.	Revision	Appd	Date
B	LAND OWNERSHIP UPDATED TO REFLECT TNZ PURCHASES		
A	FOR DESIGNATION		

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Designed / Drawn / Traced / Dsg Check / Drg Check — Approved for Construction — Scale as drawn 1:5000/1000 — Reduced Drawing 1:10000/2000

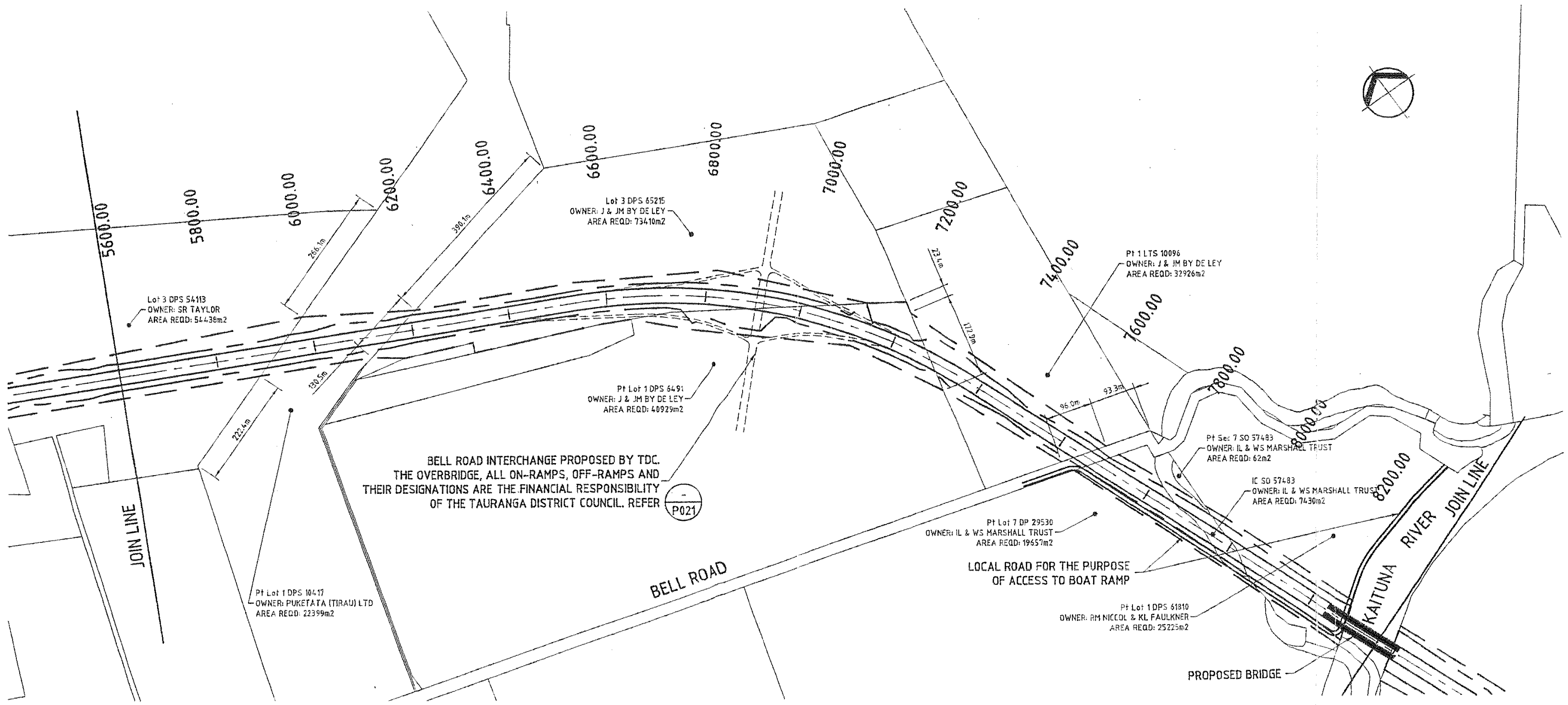
TRANSIT NEW ZEALAND

TAURANGA EASTERN ARTERIAL
CIVIL

LAND REQUIREMENT PLAN
SHEET 2 OF 6

Job No. 9301240
Drg No. P014
Rev. B

Beca Carter Hollings & Ferner



PLAN
SCALE 1:5000

LEGEND

- EDGE OF SEAL
- EXTENT OF BATTERS
- DESIGNATION REQUIREMENT
- CENTRELINE OF ALIGNMENT
- LEGAL BOUNDARY

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3. FLOOD LEVEL DATA SUPPLIED BY ENVIRONMENT B.O.P.

No.	Revision	Appd	Date
D	MINOR CHANGES TO ACCESS ROAD DESCRIPTION		
C	ALIGNMENT ALTERED TO AVOID RESERVE	DRY	5.5.00
B	LEGAL BOUNDARY AMENDED BELL ROAD	DRY	23.6.99
A	FOR DESIGNATION	JJH	4.5.99

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Designed	SJF	Approved for Construction	Scale as drawn 1:5000/1000
Drawn	BIL		
Traced	CAD	Sign	Reduced Drawing 1:10000/2000
Dsg Check			
Drg Check	SJF	Date	

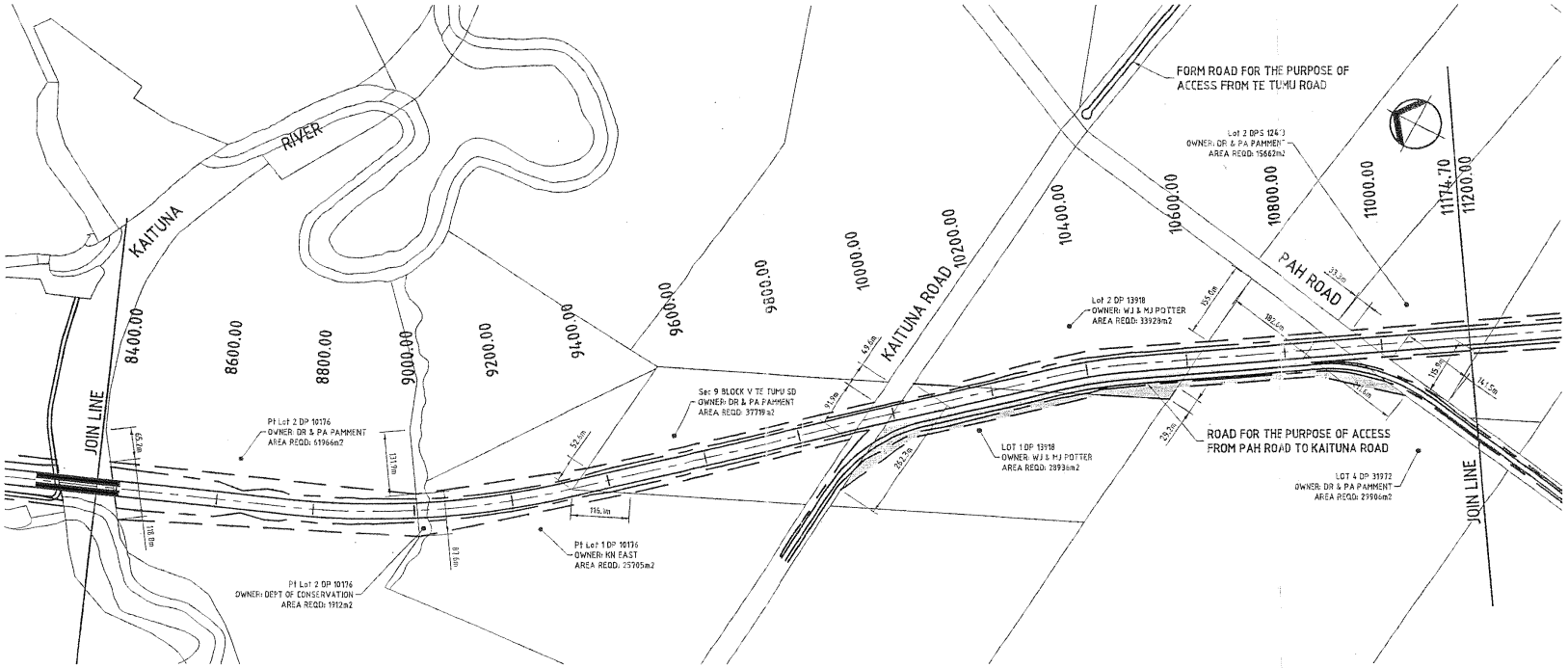
TRANSIT NEW ZEALAND

TAURANGA
EASTERN ARTERIAL
CIVIL

LAND REQUIREMENT
PLAN
SHEET 3 OF 6

Job No. 9301240
Drg. No. P015
Rev. D

CAD DRG No. P:\9301240\CAD\1240P015



PLAN
SCALE 1:5000

LEGEND

- EDGE OF SEAL
- EXTENT OF BATTERS
- DESIGNATION REQUIREMENT
- CENTRELINE OF ALIGNMENT
- LEGAL BOUNDARY
- AREA OF LOCAL ROAD TO BE DESIGNATED FOR THE PURPOSE OF ACCESS

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3. FLOOD LEVEL DATA SUPPLIED BY ENVIRONMENT B.O.P.

No.	Revision	Appd	Date
D	MINOR CHANGES TO ACCESS ROAD DESCRIPTIONS		
C	LAND OWNERSHIP UPDATED TO REFLECT TNZ PURCHASES	DRY	29.9.99
B	ALIGNMENT AMENDED TO AVOID RESERVE AREAS AMENDED	DRY	3.8.99
A	FOR DESIGNATION	JMH	4.3.99

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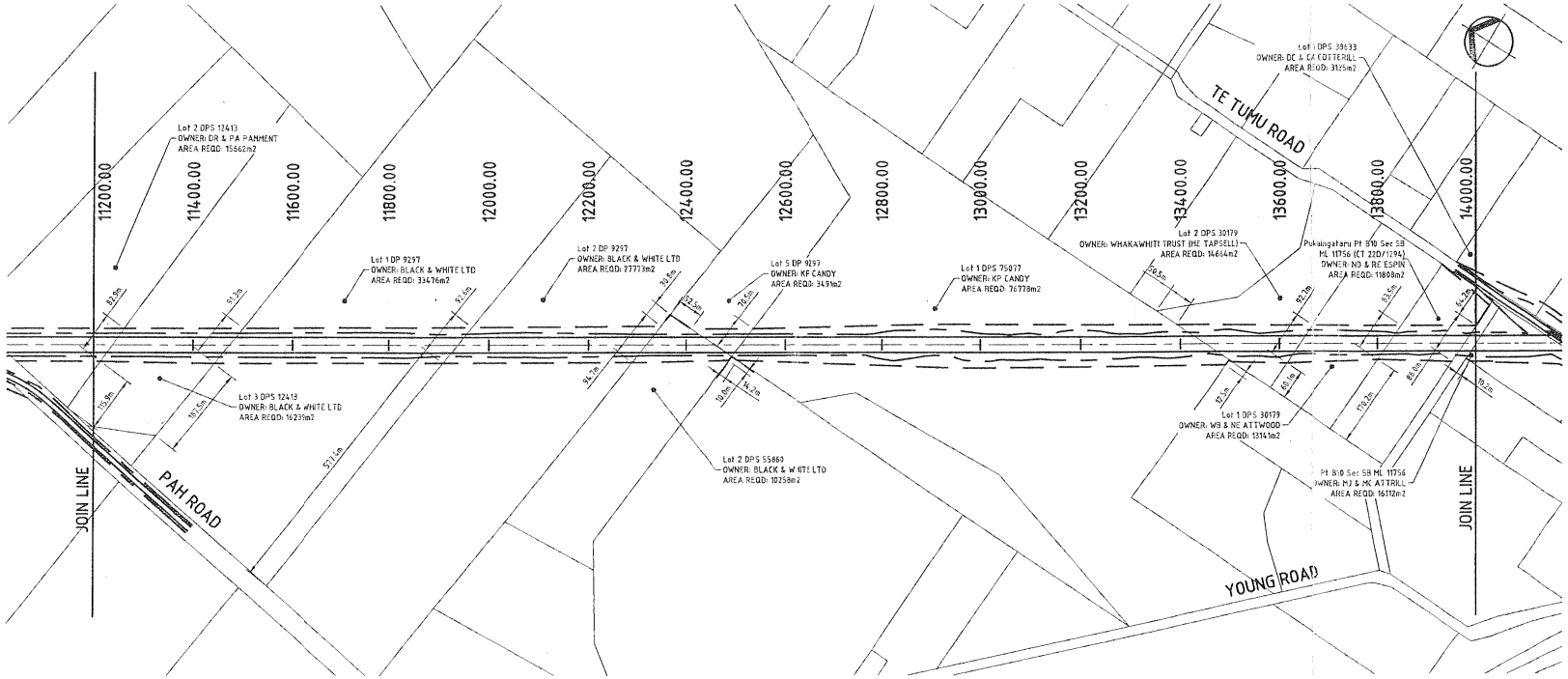
Designed	SJP	Approved for Construction	Scale as drawn 1:5000/1000
Drawn	BK	Sign	
Traced	CAD		Reduced Drawing 1:10000/2000
Dsg Check			
Drg Check	SJP	Date	

TRANSIT NEW ZEALAND
TE ARA HIA O AOTEAROA

TAURANGA EASTERN ARTERIAL
CIVIL

LAND REQUIREMENT PLAN
SHEET 4 OF 6

Job No. 9301240
Drg No. P016
Rev. A



PLAN
SCALE 1:5000

LEGEND

- EDGE OF SEAL
- EXTENT OF BATTERS
- DESIGNATION REQUIREMENT
- CENTRELINE OF ALIGNMENT
- LEGAL BOUNDARY

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3. FLOOD LEVEL DATA SUPPLIED BY ENVIRONMENT B.O.P.

No.	Revision	Appd	Date
E	ESPIN PROPERTY DESCRIPTION AMENDED	DRY	22.10.99
D	TE TUMU ROAD CROSSING & DESIGNATION AREAS AMENDED	DRY	28.9.99
C	LAND OWNERSHIP UPDATED TO REFLECT TNZ PURCHASES	DRY	23.6.99
B	MINOR AMENDMENTS TO DESIGNATION BOUNDARY	DRY	4.5.99
A	FOR DESIGNATION	JJM	4.5.99

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Melbourne, Sydney, Port Moresby, Jakarta, Singapore, Brunei.

Designed	SJF	Approved for Construction	
Drawn	BIL		
Traced	CAD	Sign	
Dsg. Check			
Drg. Check	SJF	Date	

Scale as drawn 1:5000/1000
Reduced Drawing 1:10000/2000

TRANSIT NEW ZEALAND
WAKA KAUL AOTEAROA

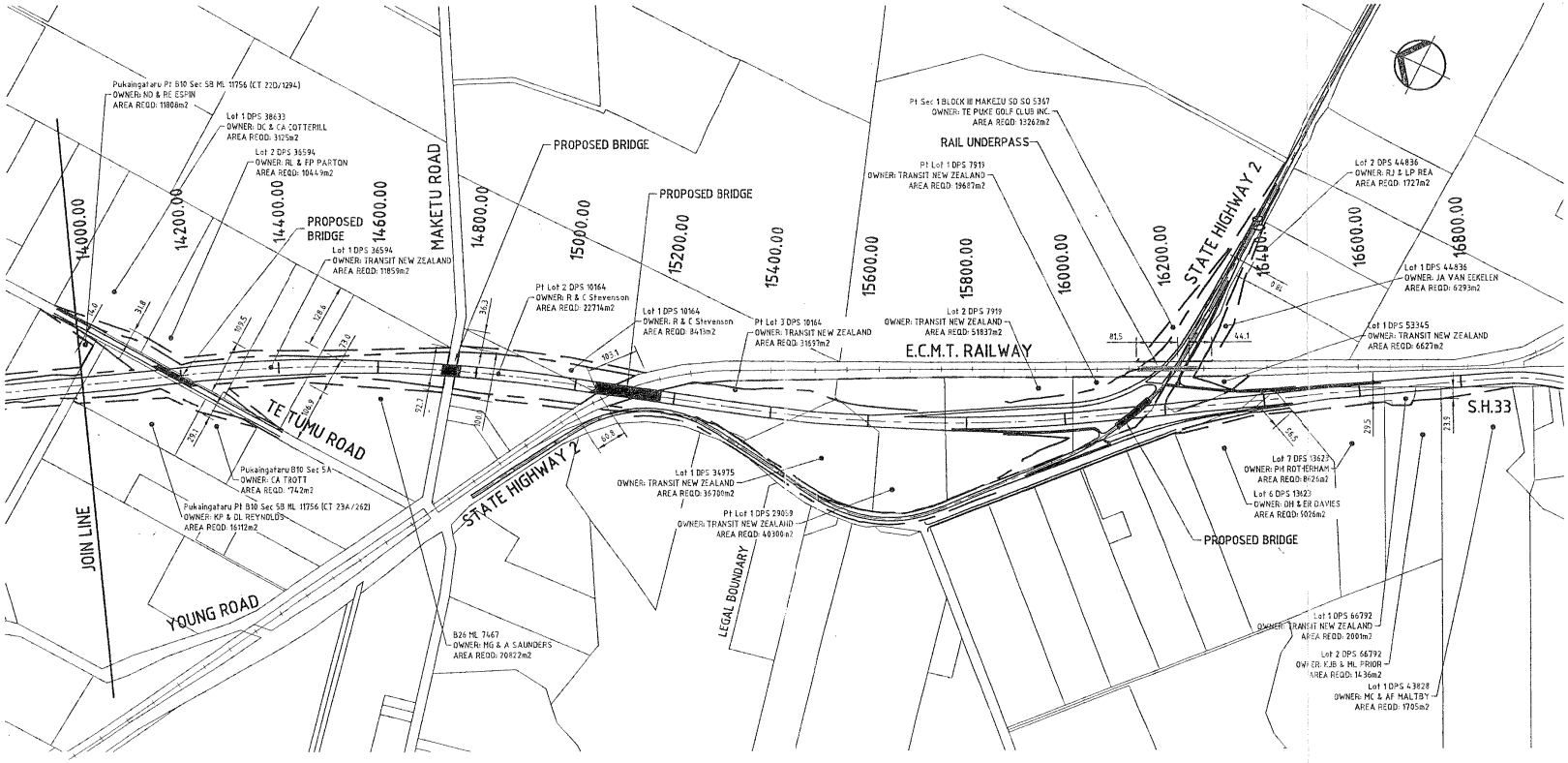
TAURANGA EASTERN ARTERIAL
CIVIL

LAND REQUIREMENT PLAN SHEET 5 OF 6

Job No. 9301240
Drg No. P017
Rev. E

CAD DRG No. P:\9301240\CAD\1240P017

Beca Carter Hollings & Ferner



PLAN
SCALE 1:5000

LEGEND

- EDGE OF SEAL
- EXTENT OF BATTERS
- DESIGNATION REQUIREMENT
- CENTRELINE OF ALIGNMENT
- EXISTING RAILWAY TRACK

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No.	Revision	Appd	Date
F	ESPIN & REYNOLDS PROPERTY DESCRIPTIONS AMENDED		
E	MAKETU & TE TUMU ROAD CROSSINGS & DESIGNATION AREAS AMENDED	DRY	24.11.00
D	LAND OWNERSHIP UPDATED TO REFLECT TNZ PURCHASES	DRY	28.9.00
C	SH 2 REALIGNED, RAIL UNDERPASS ADDED	DRY	16.08.00
B	OWNERSHIP DETAILS CORRECTED, LOT 1 DPS 66792	DRY	23.6.99
A	FOR DESIGNATION	JM	4.5.99

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Consulting Engineers

Designed	SJF	Approved for Construction	Scale as drawn 1:5000/1000
Drawn	BH		
Traced	CAD	Sign	Reduced Drawing 10000/2000
Chg. Check			
Chg. Check	SJF	Date	

TRANSIT NEW ZEALAND
TE ARA TIKI O AOTEAROA

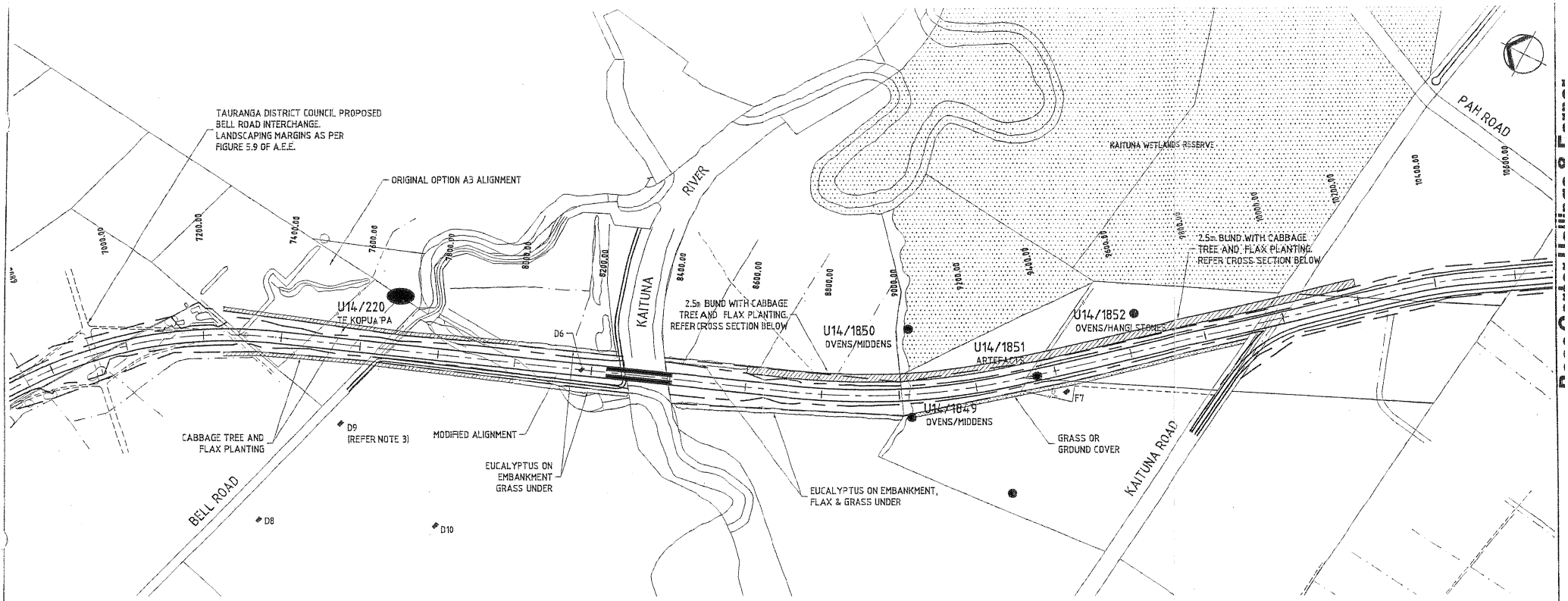
TAURANGA EASTERN ARTERIAL
CIVIL

LAND REQUIREMENT PLAN SHEET 6 OF 6

Job No. 9301240
Drg No. P018
Rev. F

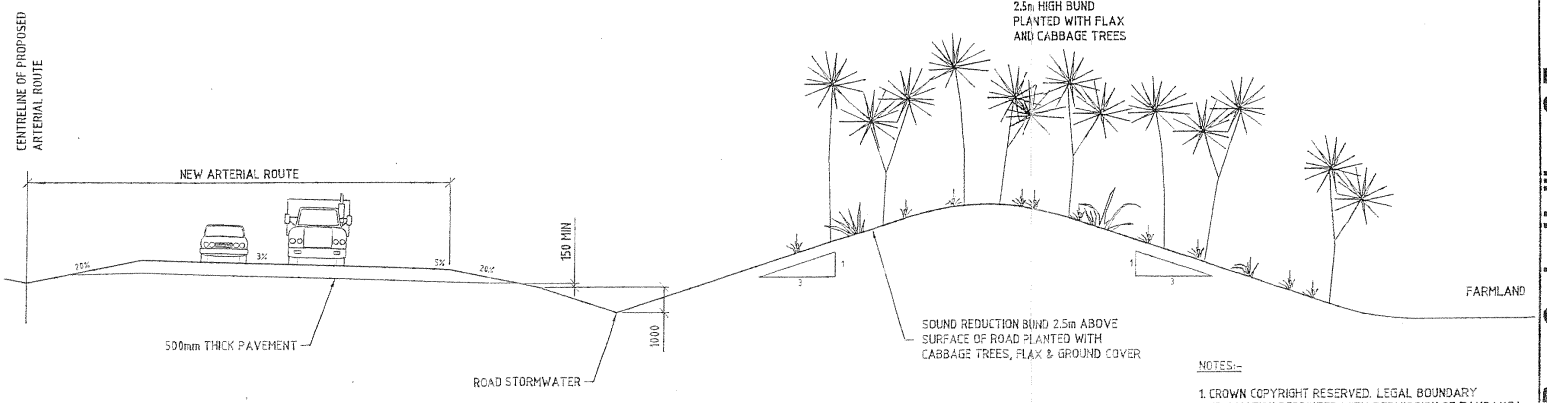
CAD DRG No. P:\9301240\PLANS\124P018

Beca Carter Hollings & Ferner



LEGEND

- EDGE OF SEAL
- EXTENT OF BATTERS
- DESIGNATION BOUNDARY
- CENTRELINE OF ALIGNMENT
- EXISTING FENCE
- EXISTING RAILWAY TRACK
- EXISTING DRAIN
- EXISTING TRACK
- LEGAL BOUNDARY
- ARCHAEOLOGICAL SITE
- D6, F1 DWELLINGS
- CABBAGE TREE/FLAX PLANTINGS



TYPICAL CROSS SECTION OF SOUND REDUCTION BUND

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2. DTM DATA AND AERIAL PHOTOGRAPHY SUPPLIED BY NEW ZEALAND AERIAL MAPPING LTD.
3. NOISE MITIGATION FOR DWELLING D9 TO BE EITHER 300m OF FRICTION COURSE OR 400m OF EARTH BUND & 100m OF FRICTION COURSE.

No.	Revision	Appd	Date
B	NOTE 3 ADDED, LEGEND AMENDED		
A	FOR DESIGNATION (AMENDED ALIGNMENT)	BRY	

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Designed		Approved for Construction	Scale as drawn: 1:5000
Drawn		Sign	
Traced	EAD		Reduced Drawing: 1:10000
Des. Check		Date	
Grp. Check			

TRANSIT NEW ZEALAND

TAURANGA EASTERN ARTERIAL

CIVIL

REALIGNMENT TO AVOID RESERVE. MITIGATION PLAN

Job No. 9301240
Drg No. P031
Rev. B

NOTICE OF REQUIREMENT FOR A DESIGNATION UNDER SECTION 168 AND SECTION 168A OF THE RESOURCE MANAGEMENT ACT 1991

To: Tauranga District Council
Private Bag
Tauranga

Western Bay of Plenty District Council
Private Bag 12803
Tauranga

From: Tauranga District Council
Private Bag
Tauranga

Notice is given of a designation for an interchange on the proposed Tauranga Eastern Arterial in the location of Bell Road, Papamoa East. Tauranga District Council proposes to construct, maintain and operate the junction in the manner described in the attached assessment of environmental effects. Pursuant to section 184(1)(c) RMA the period for which the designation is sought is 20 years.

1. (a) **The reason why the Designation is needed is:**

The designation technique is considered an appropriate planning tool in the context of the District Plan as it gives a clear indication to the public of the future location and scale of this arterial road. The public will be better able to make decisions that concern capital investment and lifestyle with the knowledge that this designation brings. If the resource consent technique was adopted, the application would have to be made 2 to 3 years prior to the construction occurring as a resource consent is only valid for 2 years. It is to be anticipated that if this course of action was taken that there would be significant development in the path of the alignment which would significantly increase the costs to TDC and to perhaps even make the attainment of the interchange impossible.

1. (b) **The physical and legal descriptions (noting any distinguishing characteristics) of the site to which the Requirement applies are:**

(i) The physical description of the sites:

These are set out in detail in the Tauranga Eastern Arterial Assessment of Environmental Effects (AEE) Section 4 and the Addendum dated December 2000.

The Requirement applies to an area of land between along the proposed Tauranga Eastern Arterial, north of Bell Road and east of the Kaituna River that has the following zones under the District Councils' Plans.

Tauranga District

Transitional District Plan

Future Urban.

Proposed District Plan

Future Urban.

Western Bay of Plenty

Effectively Operative Proposed District Plan

Rural G

Physical details noting any other distinguishing characteristics are shown on the set of Designation drawings attached to this Requirement (P021). This set of drawings shows, from the preliminary design, the position, configuration, associated cut and fill batters, relative to existing property boundaries, existing topography (including streams, rivers, estuaries) and vegetation features.

(ii) The legal descriptions of the sites and a schedule of owners of the land physically affected are as follows.

Route B – Farmland Route

Owner's Name	*Legal Title*	*Land Area Affected m²*
J & JM by de Ley	Lot 1 DPS 65215	19,819 m²
J & JM by de Ley	Lot 3 DPS 65215	22,918 m²

1. (c) **The nature of the work and any proposed restrictions are:** the construction, operation and maintenance of an interchange on the proposed Tauranga Eastern Arterial, north of Bell Road and west of the Kaituna River. The design and construction of the proposal will be generally in accordance with the description of the proposal in the AEE which is in sufficient detail as to identify the nature of the work, the significant effects and the required mitigation.

The exact extent of works, construction methodology, possible staging and costs will be finalised as the design details are finalised. To date the design is at a preliminary stage.

1. (d) **The effect that the proposed work will have on the environment and the proposed mitigation measures are:**

(i) Effects

The effects that the proposed work will have on the environment can be summarised as follows:

- No significant effects on ecology, hydrology and water quality assuming mitigation measures set out below are actioned
- No significant visual effects subject to mitigation measures set out below

- Positive traffic effects resulting from travel time and vehicle cost savings and an improved level of travel safety
- No significant archaeological effects.
- The effect of land-take on adjacent areas

These effects are described in Section 5 of the AEE and the Addendum dated December 2000.

(ii) Mitigation Measures

The following mitigation measures are general concepts developed for the existing situation and will be carried through in principle to the final design stage. At the final design stage these principles will be refined to enable construction.

- Negotiated agreements with property owners for acquisition of land
- Careful planning and management of all construction works with particular emphasis on and use of mitigation techniques in regard to sediment control, construction noise and dust
- Use of appropriate and practical mitigation techniques in circumstances where protection of amenity in adjacent areas zones is warranted. These include the landscaping to reduce the visual effect of the highway.

These mitigation measures are described in Section 6 of the AEE.

1. (e) **The following alternative sites, routes, and methods have been considered:**

At grade alternatives such as T-junction, 'seagull' intersections and roundabouts were considered but not considered appropriate. Details of these and the reasons for their rejection are set out in the attached Assessment of Environmental Effects.

1. (f) **The following resource consents will be required in relation to the activity to which the application relates:**

- Earthworks consent - from the Regional Council and Tauranga District Council.

1. (g) **The following resource consents have been applied for:** Nil.

2. **The consultation undertaken with parties likely to be affected by the Designation, public work, project, or work** is detailed in Section 4.6 of the AEE and the Addendum dated December 2000.

3. **Additional information** ***(if any)*** **as required by Tauranga and Western Bay of Plenty District Plans is set out as follows:**

(i) Relevant Provisions of National Policy Statements, Regional Plan, District Plans:

The proposed work and mitigation measures has been assessed and been found consistent in terms of the provision of the following plans and policy statements:

- Bay of Plenty Proposed Regional Land Management Plan
- Bay of Plenty Regional Land Transport Strategy
- Bay of Plenty Proposed Regional Policy Statement
- Tauranga District Council Proposed District Plan
- Tauranga District Council Transitional District Plan (County Section).

(ii) Proposed Sequence and Implementation of the Work

Construction details are given in Section 3.3 of the attached AEE.

For and on behalf of

Tauranga District Council

.....

Paula Thompson, Chief Executive,

Tauranga District Council

Dated this 4 day of December 2000

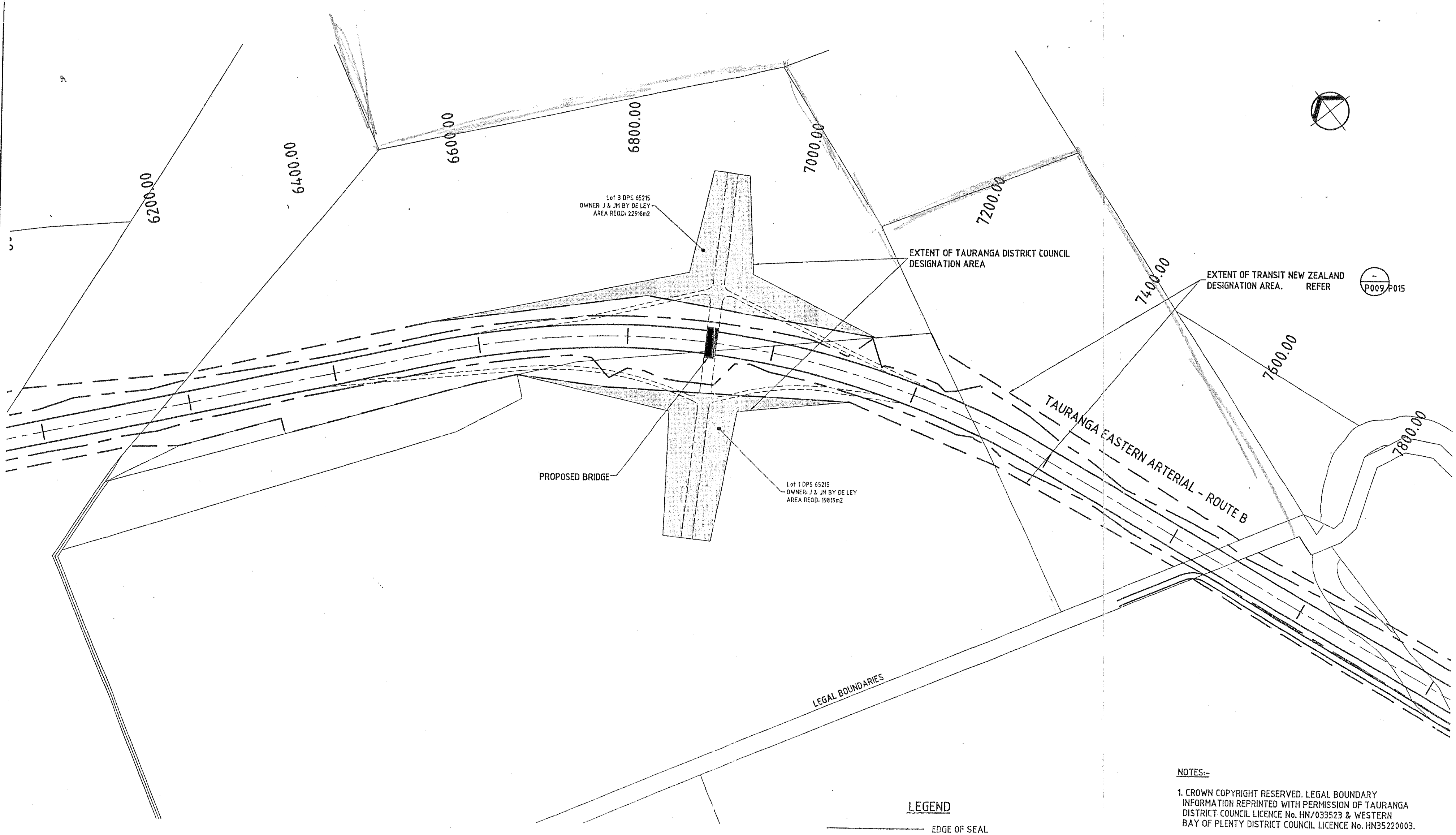
Address for service:

c/- Beca Carter Hollings & Ferner Ltd
PO Box 903
TAURANGA

Telephone: (07) 578 0896

Fax.: (07) 578 2968

Contact Person: Christine Ralph



LEGEND

- EDGE OF SEAL
- EXTENT OF BATTERS
- TNZ DESIGNATION REQUIREMENT
- CENTRELINE OF T.E.A. ALIGNMENT
- POSSIBLE TDC OFF-RAMPS
- TDC DESIGNATION AREA

NOTES:-

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THE TAURANGA DISTRICT COUNCIL The Common Seal of

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APPROVED FOR RELEASE
B.W.PETRENAS
Director of City Services
Tauranga District Council
RECOMMENDED

No.	Revision	Appd	Date
A	FOR DESIGNATION		15.9.98

Beca Carter Hollings & Ferner Ltd.
Consulting Engineers
BECA
Auckland, Wellington, Christchurch, New Plymouth, Tauranga, Melbourne, Sydney, Port Moresby, Jakarta, Singapore, Brunei.

Designed	SJE	Approved for Construction	Scale as drawn 1:2500
Drawn	JFL	Sign	Reduced Drawing 1:5000
Traced	CAD		
Dsg Check			
Drg Check		Date	

TRANSIT NEW ZEALAND

TAURANGA EASTERN ARTERIAL
CIVIL

BELL ROAD INTERCHANGE
DESIGNATION & LAND REQ.
PLAN - ROUTE B

Job No. 9301240
Drg No. P033
Rev. A

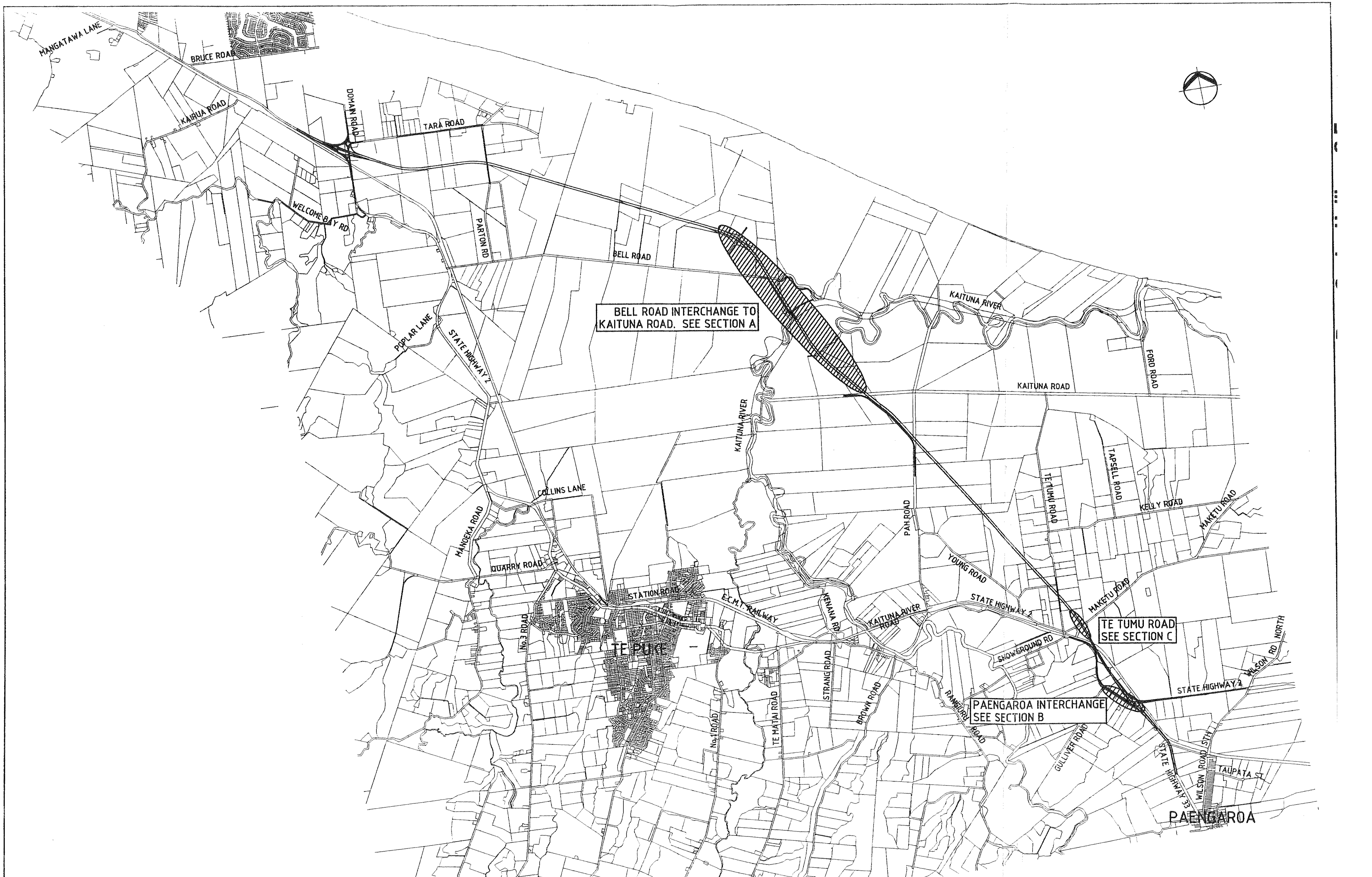
CAD DRG. No. P\9301240\CAD\1240P033

Background

An earlier Notice of Requirement for the Tauranga Eastern Arterial was lodged by Transit New Zealand in August 1999. Following the receipt of submissions and Pre-Hearing meetings an alignment which follows a different course between Bell Road and Kaituna Road (to avoid the Kaituna Reserve) was analysed and an Addendum AEE and Notice of Requirement was provided to the Councils in May 2000.

The earlier Notice of Requirement was withdrawn on 20 July 2000 with the intention of replacing it with a new Notice of Requirement which provides for the revised alignment from Bell Road interchange to Kaituna Road as well as for minor alterations to the Te Tumu Road crossing and the Paengaroa interchange design. **Transit's accompanying Notice of Requirement incorporates these three revisions to the proposal.** Plan P035 Rev. A overleaf shows the location of the three revisions which are reported in Sections A, B and C of the attached Addendum to the Assessment of Environmental Effects dated August 1999. The yellow Notice of Requirement and Plans in the 1999 document is now replaced by the green coloured pages which are the new Transit NZ Notice and Plans.

Please note that the Tauranga District Council's Notice of Requirement for the Bell Road interchange as submitted in the original documentation in August 1999 is withdrawn as of the date at which this documentation is lodged. Included with the attached documentation is a new Notice of Requirement for the Bell Road interchange by Tauranga District Council to link to the new Route. The previous Bell Road interchange design did not link to the new route. The blue coloured pages in this document replace the previously yellow coloured Notice of Requirement and Plans for Bell Road.



No.	Revision	Appd	Date
A	FOR DESIGNATION		

Beca Carter Hollings & Ferner Ltd.
BECA
Auckland, Wellington, Christchurch, New Plymouth, Tauranga, Melbourne, Sydney, Port Moresby, Jakarta, Singapore, Brunei.
Consulting Engineers

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Traced	CAD	Sign	Reduced Drawing 1:50000
Dsg Check			
Drg Check		Date	

TRANSIT NEW ZEALAND
ARARAU AOTEAROA

TAURANGA EASTERN ARTERIAL
CIVIL

LOCATIONS OF AMENDMENTS TO ALIGNMENT

Job No. 9301240
Drg No. P035
Rev. A

Section A – Proposed New Alignment from Bell Road Interchange to Kaituna Road to Avoid Reserve

Introduction

At the Pre-Hearing meeting held with environmental groups concerning the Tauranga Eastern Arterial alignment through the Lower Kaituna Wildlife Reserve, the Department of Conservation stated that the alignment could be placed over the western most oxbow at Bell Road if it meant that the Lower Kaituna Wildlife Reserve would be untouched. Transit has been advised by the Department of Conservation that it is in the public's interest to protect the grazing area that has the potential to be reverted to wetland over the coming years rather than the western oxbow remnant at the end of Bell Road which has existing higher values. Meetings were held with the environmental groups on 10 April 2000 to confirm this stance.

Transit New Zealand and its advisers have investigated this alternative as shown on plans P009 Rev. C, P010 Rev. D, P015 Rev. D, P016 Rev. D, P031 Rev. B attached. The new alignment starts at the Bell Road interchange and moves to the west of the Te Kopua Pa and aligns itself down the western oxbow. The Bell Road interchange is skewed slightly to enable the alignment curvature of the oxbow. This alignment would cross the river on twin bridges with set back abutments. The alignment swings across the farmland moving to the east of the East farmhouse and returns to the previously notified alignment at Kaituna Road. A bund will be provided along the route at the edge of the Reserve from meterage 8600 to meterage 10,200.

The new bridge structure (D) will replace bridge 6 and consist of twin 2 lane bridge structures carrying the northbound and southbound traffic respectively over the Kaituna River. Each bridge is 180m long and comprises a 5-span layout with 36.0 m spans, and is 23.0 m wide between parapets (see Figure 3.10).

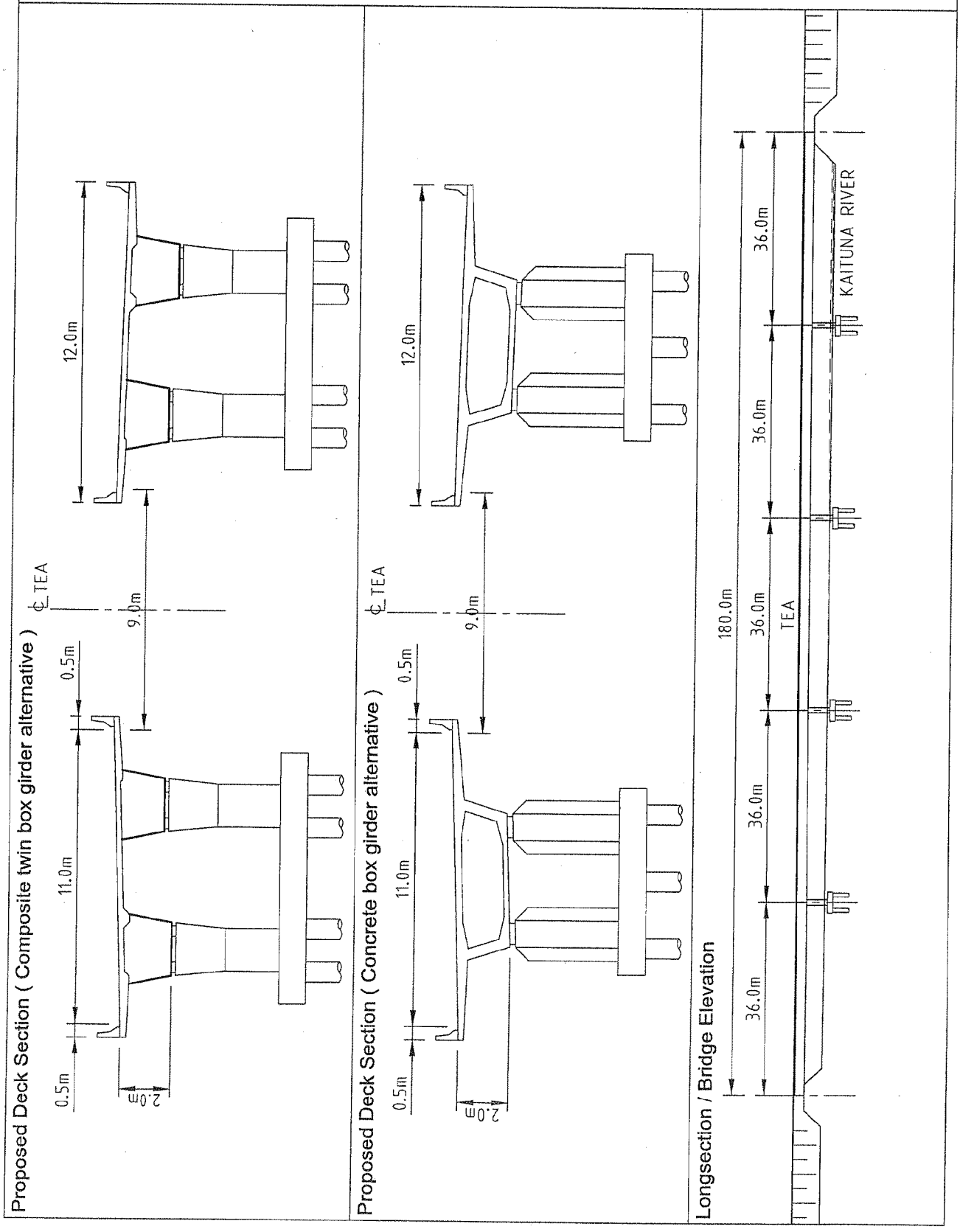
Each carriageway deck consists of a composite section comprising twin, single cell, steel box girders with cast in situ concrete deck slab to provide a 2000 mm deep section. The abutments comprise perched bearing beams supported on extended piles through the embankment, and the piers comprise single columns under each box-girder spine supported on a piled foundation, founded at 10 m depth.

Alternatively, for a deck constructed by the incremental launch technique, the deck depth would have to increase significantly for a 5-span layout with a 40 m interior span. A continuous, prestressed concrete, single cell box-girder deck, 2.7 m deep is proposed.

The following script identifies the effects of the new alignment.

Route: TAURANGA EASTERN ARTERIAL

Route Location: TWIN 2-LANE BRIDGES OVER KAITUNA RIVER



BECA

FIGURE 3.10

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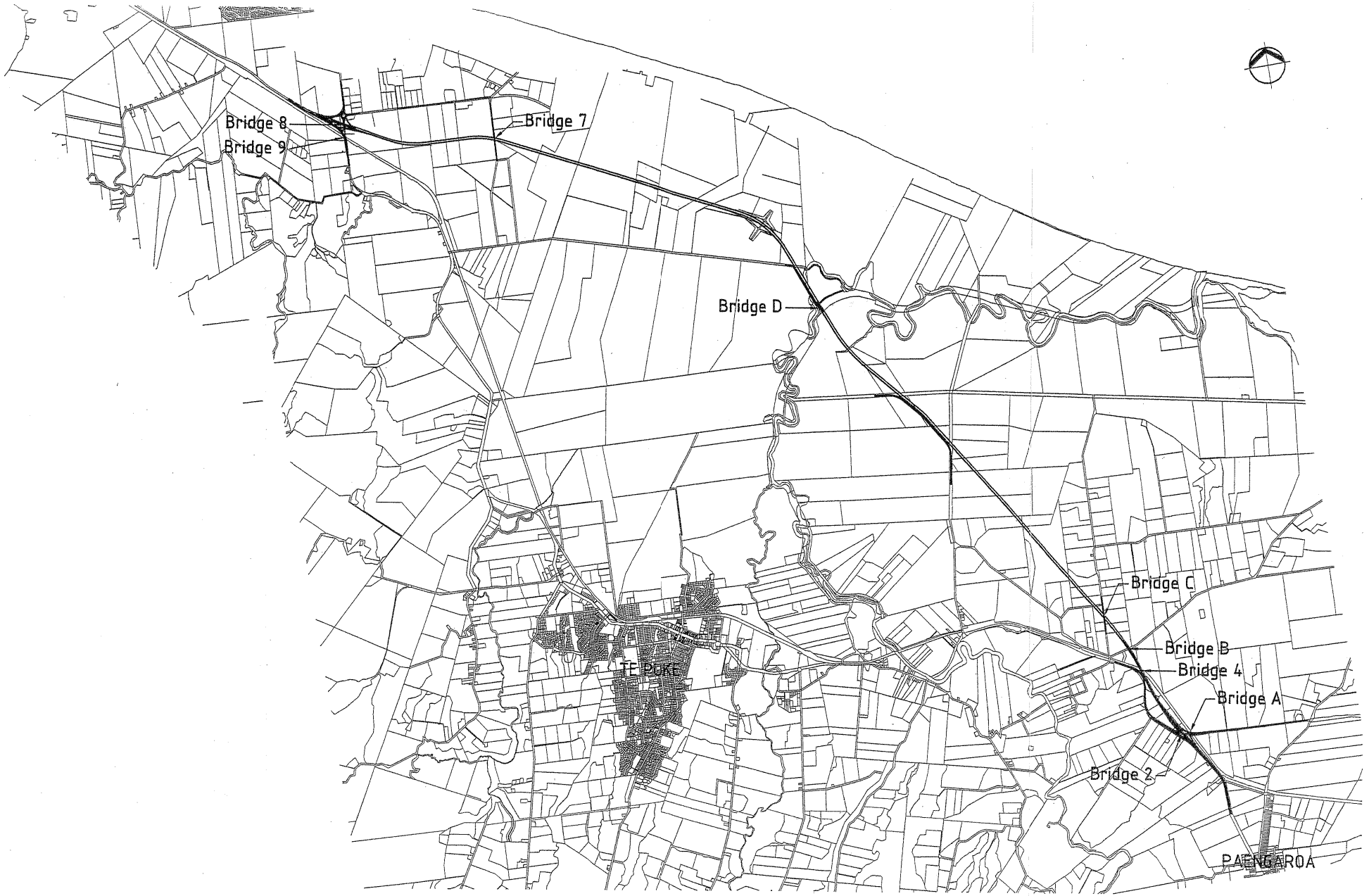

Figure 3.3

No.	Revision	Appd	Date
B	ALIGNMENTS AND BRIDGES AMENDED		
A	FOR DESIGNATION	JJH	4.8.99

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Designed	SJF	Approved for Construction	
Drawn	BIL		
Traced	CAD	Sign	
Org Check			
Drg Check	SJF	Date	

Scale as drawn 1:25000
Reduced Drawing 1:50000

TRANSIT NEW ZEALAND WAKARAU ARTERIORA

TAURANGA EASTERN ARTERIAL
CIVIL

BRIDGE LOCATIONS

Job No. 9301240
Drg No. P023
Rev. 6

1 Social

1.1 Introduction

The new alignment has overall greater effects on land holdings than the previously notified alignment in the following ways:

- One less certificate of title is affected (previous alignment affects 9, proposed alignment affects 8)
- Three more rural buildings are within a 100m band of the designation (previous 3, proposed 6)
- Two more dwellings within the 100m band (previous 1 plus a sleep out, proposed 3)
- One more farm unit affected (previous 4, proposed 5).

There would be greater losses to the farming sector by the new route as the land affected by the alignment is in pasture. No horticultural land is affected by the new alignment.

1.2 Landowners

All owners directly affected by the new alignment have received copies of the plans. All advise continued dismay at the impact of the alignment on the farms/lifestyle blocks and seem to perceive there is little difference in the locations - any location is adverse on the use of the blocks. The new alignment raises a fresh set of queries about compensation under the Public Works Act and a Property Group representative has contacted all landowners to clarify likely compensation outcomes.

For three of the directly affected properties the new alignment produces greater effects in terms of being closer to the farm houses, sheds or bisecting the farm, requiring an underpass and rearrangement of the unit. For a fourth property the alignment impacts on the dwelling which is likely to ensure that the entire property is purchased. This may not have been the case previously.In the short term the emotional upheaval remains significant.

1.3 Reserve Activities

The carriageway would be approximately 450 metres from the nearest oxbow with maimais. The proposed includes a planted bund from meterage 8600 to 10 200 to reduce visual and audible effects.

The new alignment does reduce the potential impacts on the wildlife reserve particularly the direction of shooting in season (shooting would be uninhibited assuming that the game hunting continues on the lands as they are today) and the general wilderness experience that may be experienced by the general public. The reserve area would retain the existing

grazing area and the opportunity for wetland replanting. The Department of Conservation has advised that the 40 ha of pasture in the south western portion of the reserve, currently grazed, is to be rehabilitated by the Department to wetland and kahikatea forest subject to the outcomes of the Management Plan process and resolving a rating issue with Environment BOP for the Kaituna Catchment Control Scheme. The Management Plan for the Reserve will be prepared over the next three years. The rehabilitation objective is to create a diversity of wetland ecosystem and kahikatea forest, with some areas of mixed lowland forest to enhance habitat values for primarily terrestrial species while providing the reserve a degree of buffering from activities that could occur on adjoining land.

The rehabilitation by the Department includes some manipulation of existing ground contours is proposed to encourage development of diversity. Two areas as shown, totalling 8.7 ha in area, are proposed to be shallowly excavated, with gently shelving margins sloping in to a maximum depth of 500-600mm below existing. The excavated material is to be contoured as shown to form two areas of gently rising ground, totalling 7.2 ha in area, to support establishment of lowland forest.

The Department anticipates that excavated areas and their margins, together with an area of low-lying wet ground at the eastern end (about 17 ha in total), will largely be left to succeed naturally into wetland vegetation. Selective week control to facilitate natural succession will be the main active management in these areas. Kahikatea forest (14 ha) and mixed-species lowland forest (7 ha) will be established through an active planting programme, with an intensive maintenance programme (mainly weed control) operating through the first three years after planting. Refer Figure 1.

2 Visual

2.1 Visual Catchment

The visual catchment will change slightly with the realignment across the Kaituna River. Through the realigned stretch, the visual catchment depicted on Figure 5.1 of the AEE will move south west, but will be similar in width to the catchment for the previous alignment. Overall there would not be any very significant differences between this alignment and the last.

Overall the visual catchment of the proposed arterial (i.e. where it can be seen from) is of moderate size, because of its visual exposure over flat land. However because the proposed road is sited on fairly low embankments it will not be particularly intrusive.

2.2 The Viewing Audience

The differences in terms of the viewing audience as a result of the new alignment would be that more houses would be affected. One additional house would be removed (D6), and

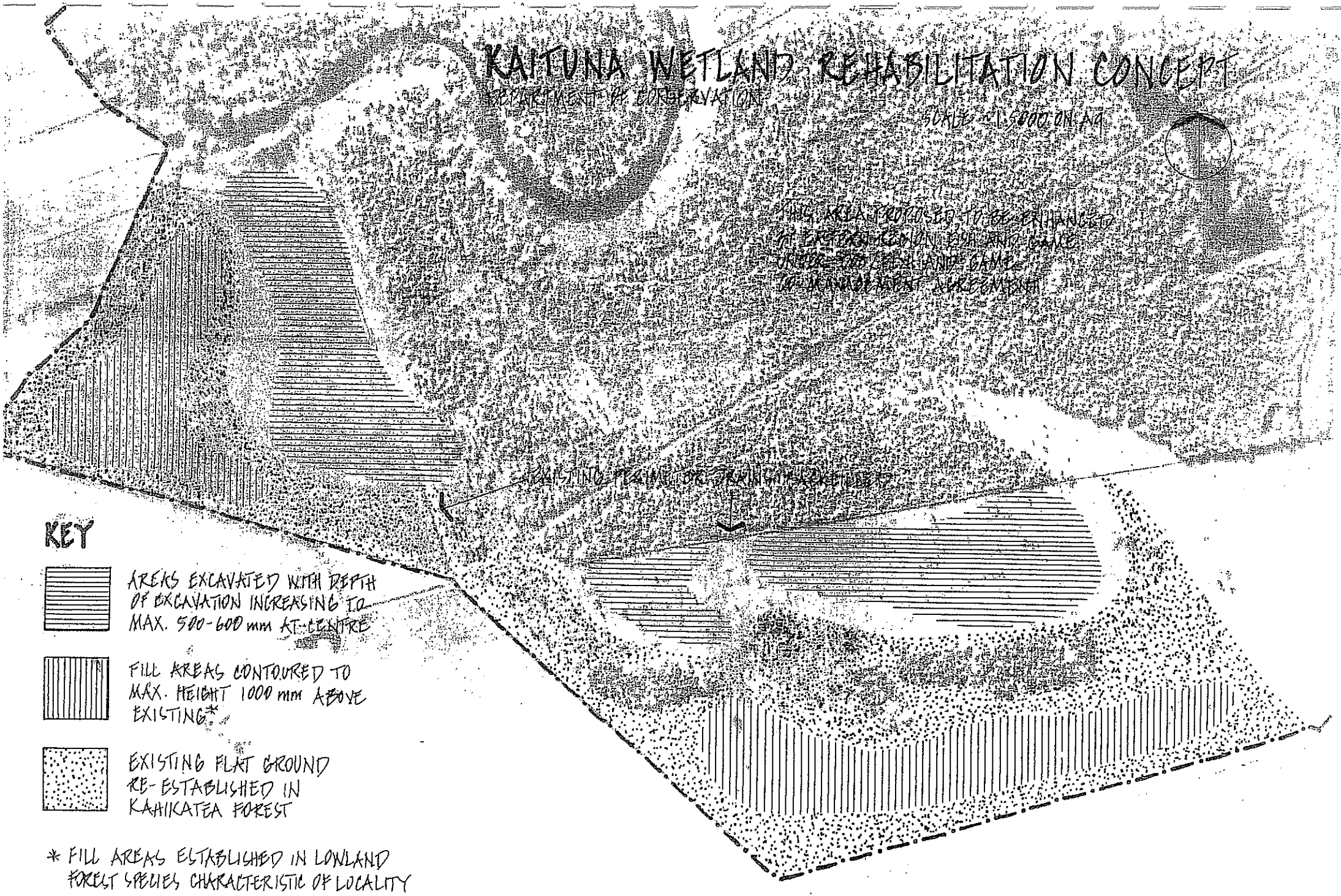
KAITUNA WETLAND REHABILITATION CONCEPT
DEPARTMENT OF CONSERVATION
SCALE 1:5000 ON A4
KEY
AREAS EXCAVATED WITH DEPTH OF EXCAVATION INCREASING TO MAX. 500-600 mm AT CENTRE
FILL AREAS CONTOURED TO MAX. HEIGHT 1000 mm ABOVE EXISTING*
EXISTING FLAT GROUND RE-ESTABLISHED IN KAHIKATEA FOREST
* FILL AREAS ESTABLISHED IN LOWLAND FOREST SPECIES CHARACTERISTIC OF LOCALITY

Figure 1

the new alignment would be closer to people occupying 2 other houses (D8 and D9) all on the western side of the river. The new alignment will also run very close to a house on the east side of the river (F7), where it would come within 40 metres. In our opinion the visual effects that would result from this proximity, even with landscape mitigation, are likely to be unacceptably high. However, we are advised that the house will be removed. See P031 Rev. B.

The two landscape units that would be affected by the realignment are Bell Road Flats and Kaituna River and immediate surroundings.

2.3 Bell Road Flats

The main visual and landscape changes that will result from the new alignment in this unit are that the Bell Road interchange will be aligned more on a NE/SW axis, and the new eastern arterial will cut across the end of Bell Road. Bell Road extension will be realigned alongside the west side of the new arterial, and will pass under the new Kaituna River bridges to link up with the existing boat ramps. This will mean that the arterial will cross Bell Road further west than the previous alignment and will be closer to and more visible from the 2 houses (D8 and D9) on or adjacent to Bell Road.

Overall the visual effects through this landscape unit will remain moderate.

2.3.1 Amelioration Potential

The main themes of the landscape mitigation will be similar to the previous alignment. There will be Eucalyptus trees massed around the Bell Road interchange, and Eucalyptus and Cabbage trees along the road margins to the Kaituna River crossing.

2.4 Kaituna River and Immediate Surroundings

2.4.1 Physical Description of Arterial

The new alignment passes through a different part of the oxbow lakes in this area, further west than the previous alignment and through a group of Eucalyptus trees associated with it, as well as some indigenous and wetland vegetation. It would also result in the removal of a house - D6. In relation to the oxbows on the river, the new alignment passes through one side of a larger oxbow lake rather than through the centre of it.

As it approaches the river the new arterial will rise on an embankment and crosses the river on 2 bridges – 5 metres high - with a 9 metre gap between them. The new bridges will be about 300 metres south west of the previous single bridge.

2.4.2 *Visual and Landscape Effects*

The Kaituna River is a locally very important landscape feature, partly concealed by its stop banks. The landscape has a higher quality than surrounding landscapes, and the bridges across the river will be visually intrusive. The two new bridges will be positioned 300 metres south of the existing boat ramps, and about 450 metres south west of the Kaituna Wetland oxbow. It seems likely that additional piers will be required for the two bridges will be the same as indicated for the previous single bridge. However two separate bridges may add to the visual effects when viewed from the immediate surrounds to the river.

Though the new arterial will be visually intrusive as it crosses the river, by moving it south it will have less effect on the Kaituna Wetlands and the people who use this area for recreational purposes – fishing and bird watching. Though the visual effects of the bridge will remain high, overall this alignment is an improvement in terms of its visual and landscape effects on the Kaituna wetland.

2.4.3 *Amelioration Potential*

The new alignment will have less visual and landscape effects on the areas used for recreational purposes than the previous one. Landscape mitigation will include massed eucalyptus planting on the rising embankments to the bridge. There will be no need for a sound barrier fence across the bridge but there will be a 2.5 metre high planted earth bund between chainage 8600m and 10,200m on the east side of the river, along the north-eastern side of the arterial, planted with cabbage trees and flaxes. This berm gives sound insulation to the Kaituna wetland.

Along the southern side of the new road the proposal is to plant grass or ground cover where screening eucalyptus have not been provided.

2.5 Conclusions

The effects on the Bell Road flats and Kaituna River corridor will remain much the same viewed from the wider perspective. The proposed arterial has been designed to have a very low profile. It will be sited on a low embankment, and will be reasonably well integrated into its surroundings, without either significant cuts or fills. The overall visual effects ratings on the Bell Road Flats and Kaituna River corridor will remain the same for the new alignment.

In terms of close up views, more houses will be directly affected than with the previous option. The Nicholls' house (D6) and house (F7) will be removed. In terms of the landscape and recreational features including Kaituna River and Wetland, the boat ramps and fishing sites along the river, the effects will be less.

In general terms the potential for landscape amelioration is very good, with the introduction of groups of trees to break views of the arterial from local roads and houses,

earth berms and tree planting for most close up houses, and groups of large trees at the main intersections.

Where the arterial has adverse effects, for example the two main intersections, and crossing the Kaituna River, once the trees and mitigation planting have had a chance to mature, and provided that the Kaituna Bridges are well designed, the visual effects will be acceptable.

3 Noise

3.1 Dwellings

There is a house at meterage 7200 (labelled D4 in the AEE) which we presume will be acquired as part of the land requirement. (See P031 Rev. B.) At about meterage 7500 there is a house (D9) which will be about 170m from the edge of the alignment. This will require mitigation, either by a section of quiet road surface (approximately 300m) or an earth bund of 400 metres and a 100 metre section of quiet road surface. With this mitigation the effects will be less than minor. The house near the oxbow (D6, meterage approximately 8200) will obviously be acquired and so we have not considered any noise effects on this house. There is a house F7 (at meterage 9400) which will be within about 40m of the alignment. The effects of traffic noise on this house will not be able to be mitigated to within Transit guidelines with any practical treatment. Even with a long section of quiet road surface and an earth bund the noise levels will be above 55 dBA. We recommend that this house be acquired as part of the land purchase if this option is pursued. There are three other houses (D8, D10, F8) which are all further than 400m from the alignment and will require no mitigation to achieve Transit Design Guidelines of 55 dBA L_{eq} (24 hour). The effects on these dwellings will be less than minor.

3.2 Reserve

We have previously set 50 dBA as the desirable noise limit for the reserve. With a plain chip seal, and a 2.5m high bund (but no additional fence), the 50dBA limit can be achieved over the whole reserve except for a small triangular tip about 40 metres into the reserve, representing an insignificant portion of the area of the reserve. We have assumed a bund from meterage 8600 to 10200. This could be refined at a later stage by some noise modelling if desired and it is likely that the length could be reduced if necessary. We think it unlikely that a noise barrier would be required on the bridge.

4 Ecological

Comparing the original alignment and the new proposed alignment, the only significant difference in terms of construction disturbance to **existing** habitats would be the loss of the Niccol oxbow which is the higher value oxbow of the two on the western side of the Kaituna River. The Department of Conservation has, however, stated that its loss would be preferable to the alignment closest to the existing kahikatea stands. The realignment would also avoid the ephemeral Waimarae Stream within the Lower Kaituna Management Reserve (LKMR).

Clearly if a longer time frame requires consideration, and assuming that planting by the DoC will occur, the realignment would avoid an area of potential kahikatea forest in the area which is presently grazed pasture.

The realignment would provide a greater buffer area between the roadway and the existing tall vegetation habitat within the Reserve. The actual and future ecological benefits would be difficult to quantify, however, and this aspect is more in the realms of a qualitative perception, i.e. it must be better by definition.

The realignment would have quantifiable benefits with respect to noise effects on wildlife although a noise bund (of reduced length) is likely to remain necessary, particularly if the assessment must be directed at the ultimate potential value of the present area of grazed pasture.

No mitigation measures over and above those already proposed would be necessary. Although the oxbow would be filled in, its characteristics which are different from the northern oxbow are the result of its weired nature and the present road crossing rather than its being a "naturally" higher value area (on a relative scale). An area of open standing water would be removed; that habitat type has increased in the LKMR as a result of the EF & G/Wildfowlers excavations.

Our baseline report noted that the southern oxbow was fished by commercial eel fishers. Fish recorded in the initial survey were eels and mosquito fish only.

Overall the realignment from the western bank of the oxbows to Kaituna Road would result in a relatively minor ecological benefit, but a benefit nonetheless, if existing habitat conditions are considered. A significant ecological benefit would result if the full future potential habitat value of the presently grazed areas is considered.

5 Archaeological

5.1 Archaeological Survey and Assessment of Effects Modified Alignment, Tauranga Eastern Arterial: Nicholls, Marshall's and By de Ley Properties.

Introduction

This survey and report was commissioned by Beca Carter Hollings and Ferner Ltd Consulting Engineers to form part of an Assessment of Environmental Effects for a modification to the proposed Tauranga Eastern Arterial (TEA) alignment in the vicinity of the Kaituna River crossing (refer TEA Drawing No. SK08). The modified alignment affects land between the Tauranga District Council proposed Bell Road Interchange on the northern-western side of the Kaituna River and Kaituna Road on the south-eastern side of the River. This report assesses effects on archaeological resources between the Kaituna River and the Bell Road Interchange within properties owned by the Nicholl's, Marshall's and By de Ley's. An archaeological assessment of the modified alignment between the Kaituna River and Kaituna Road is dealt with in a separate report.[1]

Iwi consultation is being carried out separate to this report. An assessment of the cultural significance of an area can only be competently made by the affected tangata whenua. It should be noted that an assessment of cultural significance might not necessarily correlate with an assessment of archaeological significance.

Method

Prior to the archaeological survey the records of the New Zealand Archaeological Association (NZAA) were consulted in order to determine if archaeological sites have been recorded on or in the immediate vicinity of the modified TEA alignment. Relevant literature, early Deposited Plans, and aerial photographs of the area were examined for archaeological or historical information.

Ken Phillips completed an archaeological field survey on 10 May 2000. The survey included an inspection of land affected by the modified alignment of the TEA and the assessment of previously recorded archaeological sites within, or in close proximity to the alignment.

Sub-surface testing was carried out in order to determine if buried archaeological deposits could be identified. This was undertaken using spade test pitting at frequent intervals throughout the survey area as well as the examination of existing exposed cuttings and disturbed soils.

At the time of the field inspection the affected properties were in short to medium length pasture and surface visibility was excellent in all areas.

---

[1] Phillips: April 2000

RESULTS

Background

Des Kahotea carried out an archaeological survey and assessment of effects for that part of the Tauranga Eastern Arterial between the Wairaki Confiscation boundary south-east to the termination of the proposed designation at SH33 and SH2 junction[2]. The original Option A3 alignment assessed by Kahotea did not affect recorded archaeological features between the Kaituna River and Bell Road Interchange.

The area assessed during the May 2000 survey includes land within a large oxbow of the Kaituna River and infilled wetlands immediately south of the high back dunes of the Papamoa Dune Plain north of Bell Road.

Physical/Archaeological Landscape

For details and on previous archaeological surveys and assessments in the Papamoa and lower Kaituna district and for a synthesis of the ecological, traditional and archaeological landscape of the general area refer to Bowers & Phillips 1998, Kahotea 1998 and Phillips 2000.

Nicholls Property

Land within the large oxbow at the western end of Bell Road (Nicholls property) encompasses an additional three smaller oxbows one of which was part of the river course as late as 1899[3]. A mosaic of soil profiles was evident from test pitting within the Nicholls property as a result of the earlier oxbows. Soils of the oxbow valleys were predominantly gleyed soils from rhyolitic alluvium. Soils of the higher ground are surprisingly free draining comprising at least 50 cm of coarse alluvial pumiceous sand overlain by Rhyolitic alluvium and topsoil.

A survey plan derived from Land Court Records indicates land within the large oxbow was traditionally known as Te Topuni however it is unclear whether pre European occupation occurred within the Nicholls property. Extensive test pitting did not reveal evidence for buried archaeological deposits.

Marshall Property

Land affected by the TEA within the Marshall property is low lying drained wetland. There are no visible archaeological features and no evidence for the presence of buried archaeological deposits within the affected area of the Marshall property. There is no archival evidence for pre 1900 historic occupation within the affected area.

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[2] Kahotea 1998
[3] ML 1916 (A)

By de Ley Property

Land affected by the TEA realignment between Bell Road and the Interchange within the By de Ley property has been extensively modified[4]. This has included pre European occupation (Te Kopua Pa), a flax mill complex (c. 1900), drainage systems and most recently infilling of wetlands for horticultural development (1980s).

High dunes within paddocks immediately east of the By de Ley milking Shed have been used as borrow material to infill wetlands towards Bell Road. This has resulted in the destruction of the original Holocene dune contour and the burying of low dunes the wetlands. A low dune ridge running approximately parallel with, and 20 metres north of, Bell Road was used as a bund for the infilling process. This ridge was the location of Te Kopua Pa and the flax mill complex. Physical evidence of both occupations can still be identified in drain cuttings and on the ridge crest immediately west of the section of drain running north south.

Test pitting of the ridge crest revealed archaeological deposits associated with both the Pa and the flax mill extending for approximately 30 metres west of the drain (ref Figure 2). The remainder of the ridge extending west to the Bey de Ley farm road did not reveal buried archaeological deposits and may have been disturbed by the 1980s earthworks associated with horticultural development.

SUMMARY

- There has been significant post 1900 modification to the river, wetland and dune landscape between the Kaituna River and the proposed Bell Road Interchange, however, there is surviving intact archaeological deposits and archival information indicating pre European occupation occurred within the Nicholls' and By de ley properties.

- There is one previously recorded archaeological site (Te Kopua Pa U14/220) within 200 metres of the modified alignment of the TEA between the Bell Road Interchange and the Kaituna River.

- The alignment has been designed to avoid impact on archaeological deposits associated with the occupation of Te Kopua Pa.

- The modified alignment does not affect recorded archaeological features between the Kaituna River and the Interchange.

- No unrecorded archaeological features or evidence for the presence of buried archaeological deposits were identified during the May 2000 survey.

[4] See Kahotea for details on history of Te Kopua.

IDENTIFICATION AND ASSESSMENT OF EFFECTS

The archaeological survey involved a visual inspection of land affected by the modified alignment of the Tauranga Eastern Arterial near the Kaituna crossing.

No visible archaeological sites or evidence for the presence of buried archaeological deposits were identified during the May 2000 Survey. However, due to the close proximity of a recorded pa site on the By de ley property and possible occupation with the Oxbow forming the Nicholls property there remains a possibility that sub surface archaeological deposits will be encountered during the construction of the modified alignment of the TEA within these two properties. Therefore a program to avoid or mitigate impacts upon archaeological resources will be required.

All archaeological sites whether recorded or not are afforded legal protection by the Historic Places Act (1993), and may not be modified, damaged or destroyed without prior authority having been obtained under the provisions of Section 11 and Section 12 of the Act.

Archaeological survey and mitigation deals solely with the scientific identification and recovery of the physical evidence of past human habitation. Archaeological methods cannot usually identify the spiritual or cultural values associated with that occupation.

RECOMMENDATIONS

The following recommendations for avoidance or mitigation are provided as points of discussion between the applicant, statutory agencies and tangata whenua.

1. That the proposed modified alignment of the Tauranga Eastern Arterial is designed to avoid or minimize impact on archaeological resources.

2. That all earthworks in the vicinity of Te Kopua Pa and within the Nicholls' property are subject to archaeological monitoring. Archaeological monitoring should involve controlled stripping of topsoil carried out under the supervision of a suitably qualified archaeologist in order to determine if intact buried archaeological deposits are encountered.

3. Archaeological survey cannot always detect sites of traditional value to Maori, such as wahi tapu. Tangata whenua should be consulted regarding the possible existence of such sites and informed of the recommendations of this report.

As Section Six describes the archaeological report has been given to the hapu groups.

The AEE dated August 1999 recommends in Section 6 that approvals under the Historic Places Act be gained for monitoring and earthworks.

The attendance of a hapu representative during the removal of topsoil is also recommended and this is in line with Transit's construction protocol.

REFERENCES

Bowers, L. & K Phillips 1998 Archaeological Survey and Assessment of Effects: Tauranga Eastern Arterial.

Healy J., J.C. Schofield, and B.N. Thompson. 1964. New Zealand Geological Survey, Sheet 5, First Edition. Department of Scientific and Industrial Research.

Kahotea, Des. 1998 Archaeological Assessment: Tauranga Eastern Arterial

Phillips, K.J. 2000 Archaeological Survey and Assessment of Effects – Modified Alignment Tauranga Eastern Arterial. Unpublished report prepared for Beca Carter Hollings & Ferner Ltd.

Rijkse, W.C. & W.E. Cotching 1995. Soils and Land Use of Part Tauranga County, North Island, New Zealand. Landcare Research Technical Report, Hamilton.

Aerial Photos

NZ Aerial Mapping Ltd 1950, 1959, 1963

Airmaps 1980, 1987, 1999

Survey Plans

ML 1916
ML 10096

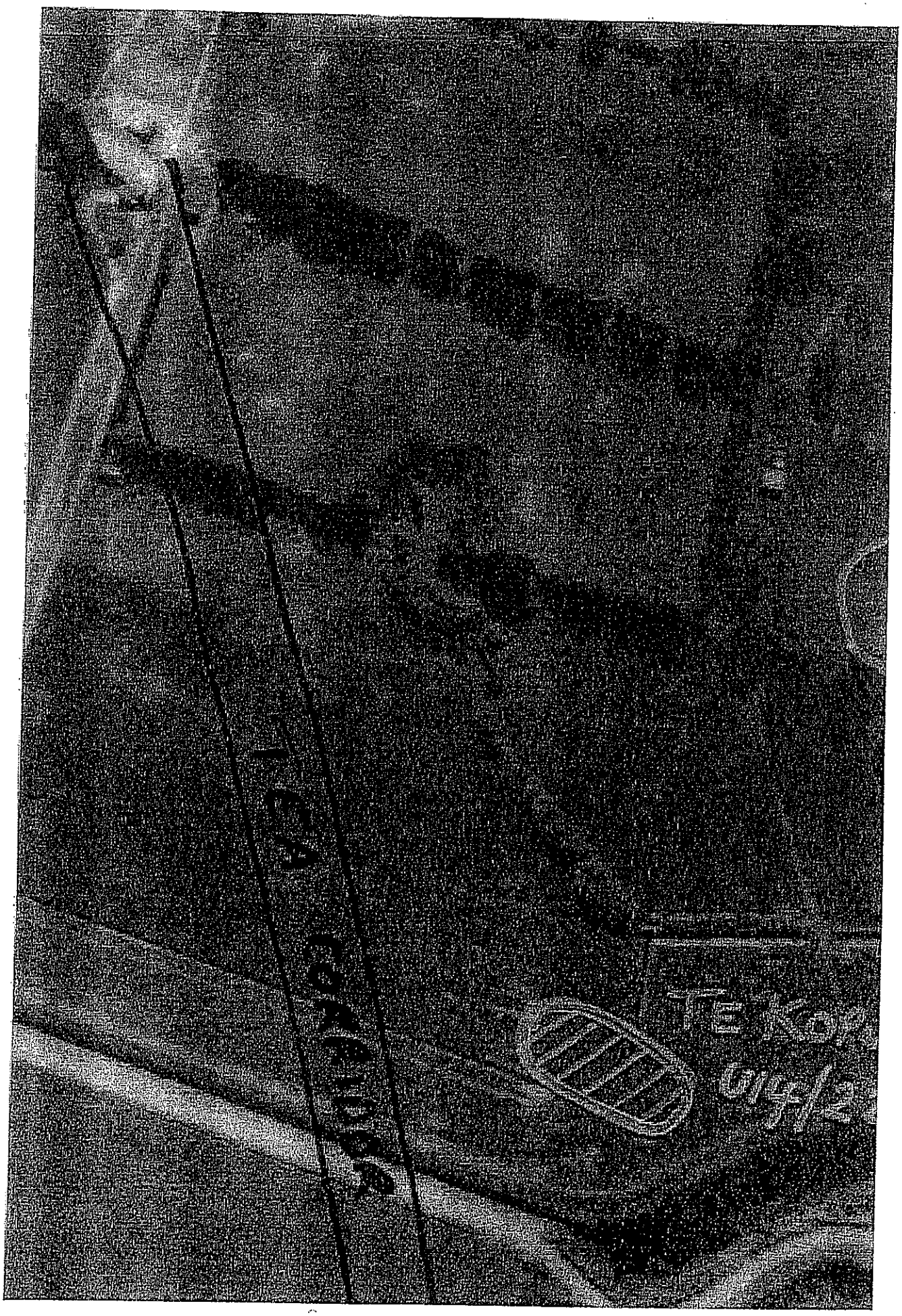


Figure 2. Aerial Photo flown 1999 showing location and archaeological sites in the vicinity of the proposed Taurau alignment.

5.2 Kaituna River to Kaituna Road

Archaeological Survey and Assessment of Effects Modified Alignment, Tauranga Eastern Arterial

INTRODUCTION

This survey and report was commissioned by Beca Carter Hollings and Ferner Ltd Consulting Engineers to form part of an Assessment of Environmental Effects for a modification to the proposed Tauranga Eastern Arterial (TEA) alignment in the vicinity of the Kaituna River crossing (refer TEA Drawing No. SK08). The modified alignment affects land between the Tauranga District Council proposed Bell Road Interchange on the northern-western side of the Kaituna River and Kaituna Road on the south-eastern side of the River. This report assesses effects on archaeological resources between the Kaituna River and Kaituna Road within properties owned or administered by the Pamment's, the East's and the Department of Conservation. An archaeological assessment of the modified alignment between the Kaituna River and the proposed Bell Road Interchange is not dealt with in this report.

Iwi consultation is being carried out separate to this report. An assessment of the cultural significance of an area can only be competently made by the affected tangata whenua. It should be noted that an assessment of cultural significance might not necessarily correlate with an assessment of archaeological significance.

METHOD

Prior to the archaeological survey the records of the New Zealand Archaeological Association (NZAA) were consulted in order to determine if archaeological sites have been recorded on or in the immediate vicinity of the modified TEA alignment. Relevant literature, early Deposited Plans, and aerial photographs of the area were examined for archaeological or historical information.

Ken Phillips completed an archaeological field survey on 20 April 2000. The survey included an inspection of land affected by the modified alignment of the TEA and the assessment of previously recorded archaeological sites within, or in close proximity to the alignment.

Sub-surface testing was carried out in order to determine if buried archaeological deposits could be identified. This was undertaken using spade test pitting at frequent intervals throughout the survey area as well as the examination of existing exposed cuttings and disturbed soils.

At the time of the field inspection the affected properties were in short to medium length pasture and surface visibility was excellent in all areas.

RESULTS

Background

Des Kahotea carried out an archaeological survey and assessment of effects for that part of the Tauranga Eastern Arterial between the Wairaki Confiscation boundary south-east to the termination of the proposed designation at SH33 and SH2 junction[1]. The original Option A3 alignment assessed by Kahotea did not affect recorded archaeological features between the Kaituna River and Kaituna Road. The modified alignment is in close proximity to five previously recorded archaeological features one of which will be directly affected by the alignment.

The area assessed during the April 2000 survey encompasses drained wetlands and a distinct low sand ridge running approximately east-west. The Wai-o-marai Stream[2], a small tributary of the Kaituna River, runs approximately north-east across the survey area.

Physical Landscape

The sand ridge extends for approximately one kilometre and is 300 metres broad at its widest point. The highest point of the ridge in the vicinity of the house and implement sheds on the East property would be little more than two metres above the surrounding wetlands.

The soils of the sand ridges are Podzols of the Kairua series and while they make up much of the Papamoa back dunes south of the Papamoa Drainage Reserve they are uncommon on the eastern side of the Kaituna River. The sand ridge forms a physical division between the dominant gley soils (Raparapahoe & Waiari Series) to the north and an island of organic soils (Ohineangaanga Series) to the south[3]. The Ohineangaanga soils are more consolidated and may have supported a wider variety of plant species than surrounding gley soils.

The Wai-o-marai Stream begins midway along the sand ridge and runs northeast to a debouchment point on a former bend in the Kaituna River.

Pre European vegetation coverage within the survey area likely conformed with much of the Kaituna swamp. The sand ridge may have supported vegetation similar to the consolidated Papamoa dunes to the north including fern, shrublands and native forest.

---

[1] Kahotea 1998
[2] (Pt Lot 2 DP 10176, Owner: Department of Conservation)
[3] Rijkse & Cotching 1995

Archaeological Landscape

For details on previous archaeological surveys and assessments in the Papamoa and lower Kaituna district and for a synthesis of the ecological, traditional and archaeological landscape of the general area refer to Bowers & Phillips 1998 and Kahotea 1998.

Land forms within the survey area form an interesting variable in a pre European landscape otherwise dominated by impenetrable swamp. The Wai-o-marai stream likely provided navigable access to the sand-ridges from the Kaituna River. In turn the sand-ridges provided terra-firma for temporary or permanent camps while exploiting otherwise inaccessible resources within the swamp lands and on the organic soils to the south.

Recorded archaeological features in the vicinity of the sand ridge include exposures of oven stones and shell midden and artefact findspots. All five recorded sites are located on the sand- ridge formations. In addition to these recorded sites a further six adzes have been found on the sand-ridge and in the vicinity of the upper reaches of the Wai-o-marai Stream[4].

The distribution of archaeological features and artefact find spots clearly identifies the sand-ridge as an important pre European landform used on a permanent or semi permanent basis. The purpose of occupation may have been primarily concerned with the exploitation of wetland resources. The presence of adzes may indicate the presence of construction timbers such as Matai and Totara on the more consolidated free draining soils on and in the immediate vicinity of the sand ridge. At least three Pa, on the banks of the Kaituna River, are located within three kilometres of the sand-ridges.

Post 1900 Modifications to the Landscape

Alteration to the course of the lower Kaituna River and drainage of the surrounding wetlands was implemented in the 1920s and was finalised in the 1980s. Drainage and land development of properties between the Kaituna River and Kaituna Road occurred during the 1970s. As part of this latter development an extensive drainage ditch network and numerous collection ponds were excavated. Collection ponds were particularly numerous within the Pamment's eastern property[5].

The drained wetlands did not provide sufficiently consolidated land for building and farm race construction. Consequently, large areas of the sand ridge were quarried and bulldozed for this purpose. It was during this process, as well as general farm activities, that many of the recorded and unrecorded archaeological deposits were identified.

---

[4] Mr East. Pers com 20 April 2000
[5] Sec 9 Block V Te Tumu SD

Collection ponds within the Pamment's eastern block were later filled in using the surrounding sand ridge as fill. The access drive from Kaituna Road to the East's house was formed by bulldozing sand from the high section of the sand ridge immediately to the east and west of the house.

As a result of this development much of the sand ridge system has been heavily modified, however, there remains a possibility that areas of intact ridge contour remain in the vicinity of the East's house and within the construction corridor of the modified alignment of the TEA.

Recorded Archaeological Sites

The five archaeological sites within the survey area (U14/1848, 1849, 1850, 1851 and 1852) were recorded by Su'a and McFadgen in January 1984 during the New Zealand Historic Places Trust Archaeological Survey of the greater Western Bay of Plenty District. All five sites were recorded based on information provided by the land owners. Su'a and McFadgen and more recently Kahotea did not identify visible archaeological features during their respective surveys of land between the Kaituna River and Kaituna Road.

U14/1848 Findspot

This site comprises an adze found by a Mr Furniss on the surface of a sandy ridge. No visible archaeological features or evidence for the existence of buried archaeological deposits was found in the vicinity of coordinates for U14/1848 during the April 2000 survey.

U14/1849 Hangi Stones and Midden

Mrs. East reported seeing hangi stones and midden on the bank of the Wai-o-marai stream. Fire cracked stones and occasional shell fragments (species unidentified but likely to be either pipi or tuatua) were identified in the vicinity of the coordinates provided for U14/1849 during the April 2000 survey.

U14/1850 Hangi Stones and Midden

Mrs. East reported seeing hangi stones and some pipi near the bank of the Wai-o-marai Stream. No visible archaeological features or evidence for the existence of buried archaeological deposits was found in the vicinity of coordinates for U14/1850 during the April 2000 survey.

U14/1851 Findspot

'The East's daughter' found a Duff 2B type adze near the fence line 10 metres northeast of the East's house. No visible archaeological features or evidence for the existence of buried archaeological deposits was found in the vicinity of coordinates for U14/1851 during the April 2000 survey.

U14/1852 Hangi Stones and Findspot

Mr. and Mrs. East reported finding a Duff 2B type adze in association with midden and hangi stones on the edge of the sand ridge 32 metres north of Kaituna West Road and 19 metres east of Mr. and Mrs. East's farm race. No visible archaeological features or evidence for the existence of buried archaeological deposits was found in the vicinity of coordinates for U14/1852 during the April 2000 survey.

Unrecorded Sites

No visible unrecorded archaeological features were found during the April 2000 survey.

SUMMARY

- Five previously recorded archaeological sites have grid coordinates that fall within 200 metres of the modified alignment of the Tauranga Eastern Arterial.
- Additional artefacts have been found within 200 metres of the modified alignment of the TEA.
- All previously recorded archaeological sites and unrecorded Artefact findspots are associated with pre European occupation of a series of isolated low sand ridges within the former Kaituna Swamp.
- One site recorded as a findspot (U14/1851) is located within the construction corridor of the modified alignment of the TEA.
- No unrecorded archaeological sites were identified during the course of the April 2000 survey.

IDENTIFICATION AND ASSESSMENT OF EFFECTS

The archaeological survey involved a visual inspection of land affected by the modified alignment of the Tauranga Eastern Arterial near the Kaituna crossing.

Sites recorded as findspots indicate places where isolated artefacts have been found, and there are no other traces of occupation present. **Findspots do not constitute archaeological sites as defined by the Historic Places Act 1993 and therefore an authority to modify ground relating specifically to the findspot location is not required.** However, on the basis of the results of the archaeological survey and supporting research, and despite significant post 1900 modification to the wetland landscape, there remains a possibility that sub surface archaeological deposits will be encountered during the construction of the modified alignment of the TEA where it transects the sand ridge. Therefore a program to avoid or mitigate impacts upon archaeological resources will be required

All archaeological sites whether recorded or not are afforded legal protection by the Historic Places Act (1993), and may not be modified, damaged or destroyed without prior authority having been obtained under the provisions of Section 11 and Section 12 of the Act.

Archaeological survey and mitigation deals solely with the scientific identification and recovery of the physical evidence of past human habitation. Archaeological methods cannot usually identify the spiritual or cultural values associated with that occupation.

RECOMMENDATIONS

The following recommendations for avoidance or mitigation are provided as points of discussion between the applicant, statutory agencies and tangata whenua.

1. That the proposed modified alignment of the Tauranga Eastern Arterial is designed to avoid or minimize impact on archaeological resources.

2. That all earthworks in the vicinity of the sand ridge are subject to archaeological monitoring. Archaeological monitoring should involve controlled stripping of topsoil carried out under the supervision of a suitably qualified archaeologist in order to determine if intact buried archaeological deposits are encountered.

3. Archaeological survey cannot always detect sites of traditional value to Maori, such as wahi tapu. Tangata whenua should be consulted regarding the possible existence of such sites and informed of the recommendations of this report.

As Section Six describes the archaeological report has been given to the hapu groups.

The AEE dated August 1999 recommends in Section 6 that approvals under the Historic Places Act be gained for monitoring and earthworks.

The attendance of a hapu representative during the removal of topsoil is also recommended and this is in line with Transit's construction protocol.

REFERENCES

Bowers, L. & K Phillips 1998 Archaeological Survey and Assessment of Effects: Tauranga Eastern Arterial.

Healy J., J.C. Schofield, and B.N. Thompson. 1964. New Zealand Geological Survey, Sheet 5, First Edition. Department of Scientific and Industrial Research.

Kahotea, Des. 1998 Archaeological Assessment: Tauranga Eastern Arterial

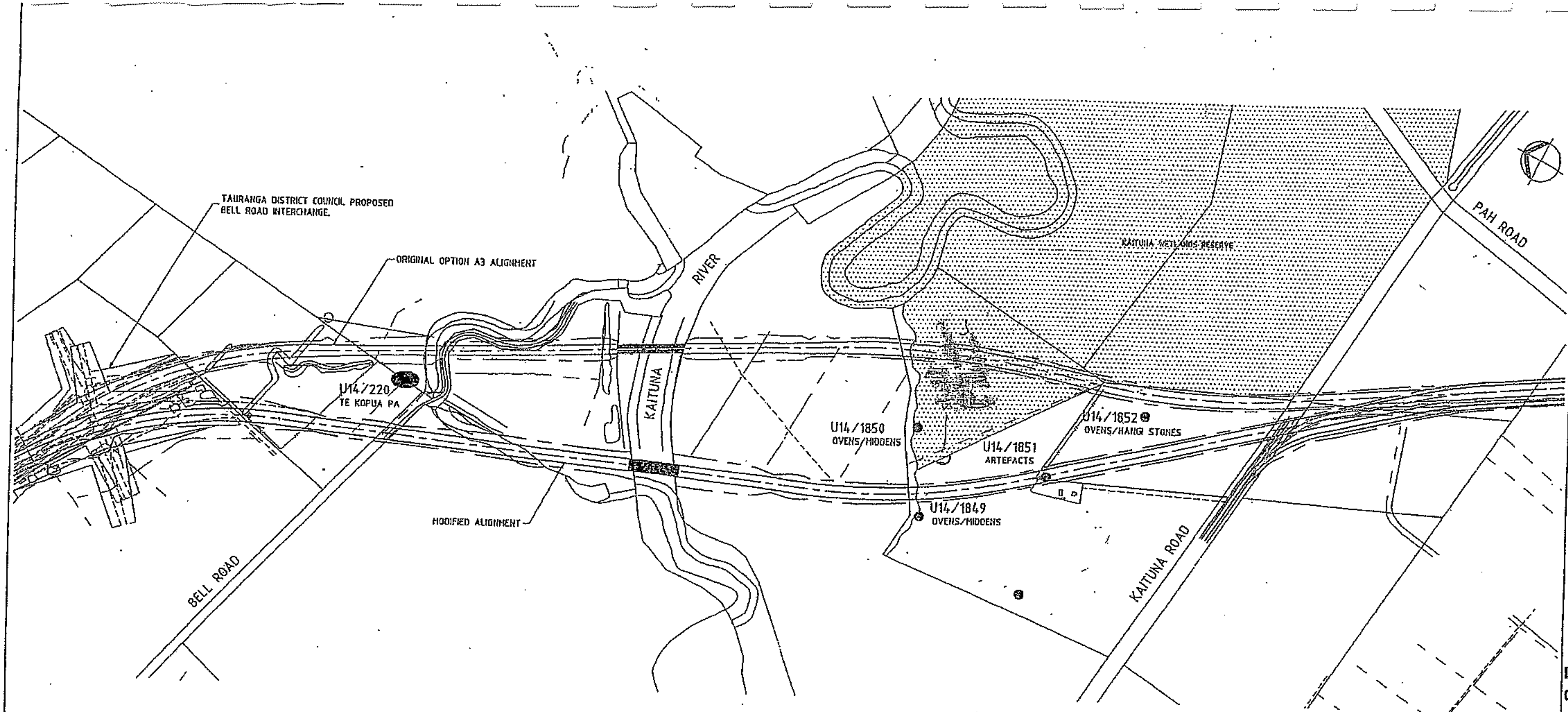
Rijkse, W.C. & W.E. Cotching 1995. Soils and Land Use of Part Tauranga County, North Island, New Zealand. Landcare Research Technical Report, Hamilton.

Aerial Photos

NZ Aerial Mapping Ltd	Neg: 502/73 & 503/132	Flown: 26 April 1950
Airmaps	Flown: March 1997	

Survey Plans

ML 1916



Beca Carter Hollings & Ferner

LEGEND

- EDGE OF SEAL
- EXTENT OF BATTERS
- CENTRELINE OF ALIGNMENT
- EXISTING FENCE
- EXISTING RAILWAY TRACK
- EXISTING DRAIN
- EXISTING TRACK
- LEGAL BOUNDARY
- ARCHAEOLOGICAL SITE

ISSUED FOR INFORMATION AND CONSULTATION PURPOSES ONLY

NOTES:-

2. OTH DATA AND AERIAL PHOTOGRAPHY SUPPLIED BY NEW ZEALAND AERIAL MAPPING LTD.

A	FOR INFORMATION		
No.	Revision	Appd	Date

Beca Carter Hollings & Ferner Ltd.
Consulting Engineers
Auckland, Wellington, Christchurch, New Plymouth, Tauranga, Melbourne, Sydney, Port Moresby, Jakarta, Singapore, Brunei.

Scale as drawn 1:5000

TRANSIT NEW ZEALAND

TAURANGA EASTERN ARTERIAL

REALIGNMENT TO AVOID WETLANDS
ISULT PLAN

Job No. 9301240

Rev. A

Figure 2. Aerial photo flown 1950 showing location of recorded archaeological sites in relation to sand ridge and Wai-o-marai Stream.

NEW ZEALAND ARCHAEOLOGICAL ASSOCIATION

SITE RECORD FORM (NZMS260)

NZMS 260 map number U14
NZMS 260 map name Tauranga
NZMS 260 map edition 1st

NZAA METRIC SITE NUMBER U14/1848
DATE VISITED 16 January 1984
SITE TYPE Find spot
SITE NAME: MAORI
OTHER

Grid References Easting 2,805,970 Northing 6,377,580

1. Aids to relocation of site *(attach a sketch map)*

On a sandy ridge 1.5m E of drain and 31m N of Kaituna West Road. Kaituna.

2. State of site and possible future damage

Found on surface of sandy ridge.

3. Description of site *(Supply full details, history, local environment, references, sketches, etc. If extra sheets are attached, include a summary here)*

One adze.

COMMENT: Mr Furniss found the adze and said that it could be inspected at his home in No 1 Fairview Place, Te Puke.

4. Owner
Address

Tenant/Manager
Address

5. Nature of information *(hearsay, brief or extended visit, etc.)* Hearsay

Photographs *(reference numbers, and where they are held)*

Aerial photographs *(reference numbers, and clarity of site)* Air Maps 154090

6. Reported by Su'a, McFadgen
Address C/- NZHPT

Filekeeper RA Reynolds
Date 18 MAR 1984

7. Key words

8. New Zealand Register of Archaeological Sites *(for office use)*
NZHPT Site Field Code

Latitude S

		Type of site
		Local environment today
		Land classification

Longitude E

		Present condition and future danger of destruction
		Security code
		Local body

NEW ZEALAND ARCHAEOLOGICAL ASSOCIATION

SITE RECORD FORM (NZMS 260)

NZMS 260 map number U14
NZMS 260 map name Tauranga
NZMS 260 map edition 1st

NZAA METRIC SITE NUMBER U14/1849
DATE VISITED 16 January 1984
SITE TYPE Hangi Stones and Midden
SITE NAME: MAORI
OTHER

Grid References Easting 2 8 0 6 0 7 0 Northing 6 3 7 7 8 7 0

1. Aids to relocation of site *(attach a sketch map)*
On the bank of the stream, 62m N of Kaituna West Road and 60m E of the Kaituna River. Kaituna.

2. State of site and possible future damage
Found on the bank by property owners in small pile.

3. Description of site *(Supply full details, history, local environment, references, sketches, etc. If extra sheets are attached, include a summary here)*

Hangi stones.

COMMENT: Mrs East reported seeing small stones that had been cracked due to heat and some pipi shells nearby. She said there were a couple of series of hangi stones in this area.

4. Owner
Address

Tenant/Manager
Address

5. Nature of information *(hearsay, brief or extended visit, etc.)* Hearsay

Photographs *(reference numbers, and where they are held)*

Aerial photographs *(reference numbers, and clarity of site)* Air Maps 154090

6. Reported by Su'a, McFadgen
Address C/- NZHPT

Filekeeper
Date RA Reynolds 13 MAR 1984

7. Key words

8. New Zealand Register of Archaeological Sites *(for office use)*
NZHPT Site Field Code

Latitude S

	Type of site
	Local environment today
	Land classification

Longitude E

	Present condition and future danger of destruction
	Security code
	Local body

NEW ZEALAND ARCHAEOLOGICAL ASSOCIATION

SITE RECORD FORM (NZMS 260)

NZMS 260 map number U14
NZMS 260 map name Tauranga
NZMS 260 map edition 1st

NZAA METRIC SITE NUMBER U14/1850
DATE VISITED 16 January 1984
SITE TYPE Hangi Stones and Midden
SITE NAME: MAORI
OTHER

Grid References Easting 2,806,290 Northing 6,378,000

1. Aids to relocation of site *(attach a sketch map)*

Near bank of stream that narrows to form a drain and 76m N of Kaituna West Road and 65m W of Kaituna River. Kaituna.

2. State of site and possible future damage

Hangi stones still visible, but shells no longer visible.

3. Description of site *(Supply full details, history, local environment, references, sketches, etc. If extra sheets are attached, include a summary here)*

Hangi stones and some pipi shells.

COMMENT: Mrs East reported seeing these small stones that had cracked due to heat and pipi shells nearby.
She said there were a couple of series of hangi stones in this area.

4. Owner
Address

Tenant/Manager
Address

5. Nature of information *(hearsay, brief or extended visit, etc.)* Brief visit.

Photographs *(reference numbers, and where they are held)*

Aerial photographs *(reference numbers, and clarity of site)* Air Maps 154090

6. Reported by Su'a, McFadgen
Address C/- NZHPT

Filekeeper
Date

7. Key words

8. New Zealand Register of Archaeological Sites *(for office use)*
NZHPT Site Field Code

Latitude S

	Type of site
	Local environment today
	Land classification

Longitude E

	Present condition and future danger of destruction
	Security code
	Local body

NEW ZEALAND ARCHAEOLOGICAL ASSOCIATION

SITE RECORD FORM (NZMS 260)

NZMS 260 map number U14
NZMS 260 map name Tauranga
NZMS 260 map edition 1st

NZAA METRIC SITE NUMBER U14/1851
DATE VISITED 16 January 1984
SITE TYPE Find spot
SITE NAME: MAORI
OTHER

Grid References Easting 2,806,310 Northing 6,377,660

1. Aids to relocation of site *(attach a sketch map)*

Near the fence-line 10m NE of Mr and Mrs East's house and 107m E of Kaituna River and 3m E of ditch. Kaituna.

2. State of site and possible future damage

Found on surface near new fence.

3. Description of site *(Supply full details, history, local environment, references, sketches, etc. If extra sheets are attached, include a summary here)*

A Duff 2B type adze was found.

COMMENT: The East's daughter found this.

4. Owner
Address

Tenant/Manager
Address

5. Nature of information *(hearsay, brief or extended visit, etc.)* Hearsay

Photographs *(reference numbers, and where they are held)*

Aerial photographs *(reference numbers, and clarity of site)* Air Maps 154090

6. Reported by Su'a, McFadgen
Address C/- NZHPT

Filekeeper
Date

7. Key words

8. New Zealand Register of Archaeological Sites *(for office use)*
NZHPT Site Field Code

Latitude S

	Type of site
	Local environment today
	Land classification

Longitude E

	Present condition and future danger of destruction
	Security code
	Local body

NEW ZEALAND ARCHAEOLOGICAL ASSOCIATION

SITE RECORD FORM (NZMS 260)

NZMS 260 map number U14
NZMS 260 map name Tauranga
NZMS 260 map edition 1st

NZAA METRIC SITE NUMBER U14/1852
DATE VISITED 16 January 1984
SITE TYPE Hangi Stones and Find spot
SITE NAME: MAORI
OTHER

Grid References Easting 2806540 Northing 6377530

1. Aids to relocation of site *(attach a sketch map)*
On edge of sand ridge, 32m N of Kaituna West Road and 19m E of Mr and Mrs East's race. Kaituna.

2. State of site and possible future damage
On surface of sandy ridge.

3. Description of site *(Supply full details, history, local environment, references, sketches, etc. If extra sheets are attached, include a summary here)*

Some large stones cracked from heat and a Duff 2B type adze.

COMMENT: Mr and Mrs East reported seeing midden and hangi stones eroding out of stock bank about 1600m E of their home along the Kaituna River. 5 Duff 2B type adzes were also found.

4. Owner
Address

Tenant/Manager
Address

5. Nature of information *(hearsay, brief or extended visit, etc.)* Hearsay

Photographs *(reference numbers, and where they are held)*

Aerial photographs *(reference numbers, and clarity of site)* Air Maps 154090

6. Reported by Su'a, McFadgen
Address C/- NZHPT

Filekeeper
Date

R A Rennault

7. Key words

8. New Zealand Register of Archaeological Sites *(for office use)*
NZHPT Site Field Code

Latitude S

Type of site
Local environment today
Land classification

Longitude E

Present condition and future danger of destruction
Security code
Local body

6 Cultural

Consultation with Tapuika was undertaken at a hui on 19 April at the Te Kahika Marae. The representatives of the hapu indicated that they were comfortable with the realignment provided the archaeological survey did not reveal that waahi tapu would be affected by the change. The hapu representatives have received a copy of the archaeological survey and we believe they are comfortable with the findings.

Consultation with Waitaha was undertaken at a hui on 4 May 2000 at the Manoeka Marae. The representatives of the hapu were pleased to see that once again the alignment avoided the Te Kopua Pa. They have been sent a copy of the archaeological report and will be aware that no significant material was found. However in both areas the hapu are aware that archaeological monitoring will be required and this will be as is confirmed in the AEE document. This will be undertaken by Transit NZ's usual protocols.

7 Hydrological

The Bell Road Pump Station is not affected. It is located near the intersection of the Niccol wetland area and the Kaituna stopbank, a little to the south of the alignment.

7.1 Reserve

The general hydrological effects on the Kaituna Wetland are less than previously. Whereas before we were following (and moving) a significant drain, and effectively creating a barrier to outflow from the reserve, that will no longer be the case. The existing drain along the side of the reserve will remain in operation, and the effects of the highway will be neutral. The question of a crossing will still arise at Waimarae Stream, and a culvert may be needed as considered for the previous alignment.

Clearly there will be reduced effects on the drainage outlet to the Kaituna River on north side of Bell Road.Overall we do not see any significant issues from a drainage point of view, and the new alignment certainly has less potential effect on the Kaituna Wetland.

8 Mitigation

1. The new alignment has potential noise effects on one house (D9) which can be easily mitigated, and one house (F7) which can not be practically mitigated and would be removed. Treatment for D9 will require either 300m of friction course or a 400m earth bund and 100m of friction course.

2. The potential effects on the reserve can be mitigated with a 2.5m high planted noise bund from meterage 8600 to 10,2000

The attached plan P031 Rev. shows the friction course seal, bunding and planting that is proposed.

9 Conclusion

The potential noise and visual effects of the new alignment on farm units and the public reserves can be mitigated by quiet road surface, or mounding and planting. There appears to be no cultural matters of concern with the realignment. For these matters we consider the effects to be minor.

The effects on the grazed portion of the Kaituna Reserve are greatly reduced and the earth mound and planting will minimise noise effects on the tip of the reserve that may be affected. Assuming that the current game shooting areas remain, the realignment of the highway will not impair shooting behaviour. The new alignment also provides the opportunity for the future replanting of the grazing land by the Department of Conservation. As such the future potential ecological values of the reserve would be protected for the future generations, and therefore the realignment in our opinion would not be contrary to Section 6 matters. The new alignment has minor and positive effects on the reserve. The projected gains from the realignment are at a social cost in that the new alignment has greater short-term effects on the landowners than the original alignment. It needs to be acknowledged that in the long term with compensation packages, these emotional and farm management effects will diminish. In these circumstances it is necessary to consider all effects in the light of:

- The national need for a safe and efficient highway.
- Pursuant to Section 6, the national importance of the reserve's potential (grazed lands) to be replanted in indigenous wetland plants and thereby attract other native fauna. This is subject to a Management Plan for the reserve promoting such a scenario and the funding being committed to ensure that such benefits are truly realised.

On the above assumptions we regard the new alignment as one that generally does not increase the scale and intensity of the effects of the proposed designation. We also regard it as in keeping with the Resource Management Act.

Section B – Design Adjustment at Paengaroa Interchange

Proposed Design Adjustment at Paengaroa Interchange

Introduction

Notice of Requirement for the Tauranga Eastern Arterial by Transit New Zealand was lodged in August 1999.

Since then Transit, with consideration to the weighbridge proposal has modified the design so that the loop road which was previously across the southern orchards has been realigned onto the current State highway carriageway. Bridges 1 and 3 are replaced by Bridge A which is a long concrete box structure (or multiple armco metal arch) through which the ECMT railway line passes. Over this continuous structure will be the realigned SH2 and the ramp connections from the TEA to SH2 and from SH2 to SH33.

The shrinkage of the designation area at the Paengaroa interchange has been assessed and the following conclusions have been reached.

1 Ecological

The alteration at the Paengaroa interchange raises no new ecological issues.

2 Noise

In comparison with the previous alignment the major change has been to eliminate the loop of road which crosses over the TEA from Whakatane entering into properties on the western side of the existing SH2. The effect of flattening out the alignment of this section of road is to move that source of noise (about 7,000 vehicles/day) further away from houses on the western side of the existing SH2 (H4-H20 see attached Figure 2), thus reducing their potential noise exposure by a small, but in some cases, a noticeable amount.

There may be a small potential increase in noise for two dwellings on the eastern side of the existing road, (H11, H12) but this is too small to be likely to be discernible.

There is already a high noise environment in the area around this proposed junction due to existing traffic on SH2. The Transit design guidelines for this situation specify that the proposed changes should not raise the ambient noise level by more than 3 dBA. Our analysis shows that with suitable design of the road surface and some shielding by noise barriers the Transit design guidelines will be easily met at all dwellings around the proposed junction.

Our conclusion therefore is that this amended layout of the junction is slightly preferable on noise grounds to the original layout, but both layouts are capable of meeting Transit's design guidelines for noise.

Figure 2

3 Visual

The combination of the Maketu Road bridge and the large intersection of SH2 and SH33 means that the roading through this area will be visually prominent, will contrast with its surroundings, and will be visually fairly intrusive in the landscape prior to mitigation. The proposed changes to the alignment will result in less damage to adjacent properties but in terms of overall visual effects will make very little difference. Because the landscape quality of this area is already fairly low, the overall visual effect of the proposal will be moderate high.

In terms of the effects on adjacent properties, effects on the Te Puke Golf Club will remain the same. The proposed embankment of the bridge across the railway line will be about 50 metres away from the club house (H1) and will not affect existing shelter belt and trees immediately around it.

Houses H2 and H3 will be removed by the proposal. (See Figure 5.11 of the original AEE.)

The proposed changes to this intersection will result in much less visual and physical effect for the Lacey's on the corner of State Highway 2 and Gulliver Road.

There will be minor visual effects on the 4 properties

Refer to Figure 5.5 - SH2 looking towards SH33 intersection will change as a result of this proposal in that the current State highway alignment will remain albeit as a ramped structure down to Gulliver Road.

Amelioration Potential

Because of the height and extent of the proposed intersection, landscape mitigation is aimed at reducing the visual effects but will not be able to mitigate all of them. The landscape mitigation will break views of the intersection by using massed Eucalyptus planting, and shelter belts in places.

An earth berm plus tree planting is to be used between the arterial and the golf club. Native shrubs and ground cover plants will be used on embankments.

Refer to LA4 Plans - Concept Landscape and Mitigation Figure 5.11.

4 Archaeological

The original archaeological survey of this area took in a wide 50 metre corridor encompassing all affected areas. As the eastern arterial alignment has not changed no further survey work has been undertaken. With regards the realignment of the Te Puke – Whakatane link the use of existing carriageway does not require archaeological assessment. The survey of existing roadway affected by the change in plans will not add to or alter the assessment or recommendations.

5 Cultural

All eight hapu groups involved in the project have received plans of the Paengaroa changes and have been contacted to discuss the revision. No concerns have been expressed by any of the groups at this stage.

6 Social

Transit New Zealand has purchased all the land that is directly affected by the interchange at Paengaroa with the exception of the Te Puke Golf Course. The effects on the Golf Course are similar to the original alignment.

The new design, by placing the Te Puke – Whakatane connection onto the existing carriageway, avoids affecting the rural lands to the south.

There are roadside stalls on the existing SH2 that will lose passing State highway trade. As the Whakatane and the Rotorua to Te Puke connections ramp up from existing ground levels to join with the proposed overbridge, there will be separation of those roadways from a service road for the orchard properties along that frontage. In these circumstances individual roadside stalls will not be directly on the local road and would require effective signage to enhance trading prospects. Loss of income may result.

One landowner raised concerns about the disposal of stormwater from the highway and connections and this is dealt with below.

7 Stormwater

Overall the changes at the Paengaroa interchange are relatively minor from a stormwater and drainage point of view.

To mitigate any potential adverse stormwater effects there will need to be a small retaining wall between the Rotorua to Te Puke connection and the service road to retain the height of the Te Puke road as it becomes elevated towards the interchange bridge.

Further, the drainage in the vicinity of the State highway southern side is poor (there are hollows with no outlets etc). Drainage outlets under the eastern arterial, the Whakatane and Rotorua to Te Puke connections, and the railway line into existing drainage lines to the north east will be necessary. There is land between the eastern arterial and proposed Te Puke Road for stormwater quality and flood peak attenuation ponding to protect the drains from increased flood risk and erosion.

All of the above shall be considered at the final design stage.

Section C – Design Adjustment at Te Tumu Road

Design Adjustment at Te Tumu Road

Introduction

The previous design, which required Te Tumu Road to be realigned alongside the arterial to Maketu Road, has become unachievable due to difficulties with land negotiations. Therefore, the original proposal for the local (Te Tumu Road) road moving over the arterial on a flyover is being proposed. The Eastern Arterial will be at ground level at Te Tumu Road and become elevated over Maketu Road and the railway line.

Section 3.2.2 of the AEE describes the proposed bridges. The new design at Te Tumu Road and Maketu Road requires new bridging structures as follows.

Bridge B (Maketu Road)

This replaces Bridge 5, and is a 4 lane bridge carrying the TEA over Maketu Road. The bridge comprises a single 14m span layout over Maketu Road. The effective bridge width is 23.0 m between parapets.

The deck consists of precast concrete V-beam units with cast insitu slab to provide a 900mm deep section. The abutments comprise a reinforced earth retaining wall system with a perched bearing beam supported on extended piles through the embankment, founded at 15m deep.

Bridge C (Te Tumu Road)

This bridge is similar to Bridge 7 (Parton Road), (refer Figure 3.6 of August 1999 AEE), and is a 2 lane bridge with footpaths carrying Te Tumu Road over the TEA. This is a skew bridge approximately 70m long, and comprises a 4 span layout with 19m spans over the TEA, and side spans to retain an open approach aspect. It is 11.5m wide between parapets.

The deck consists of pre cast concrete V-beam units with a cast insitu slab to provide an 1100mm deep section. The abutments comprise perched bearing beams supported on extended piles through the embankment, and the piers comprise a bearing beam on multiple columns supported on a piled foundation, founded at 15 to 20m depth.

1 Ecological

There are no ecological effects from this design change.

2 Visual

Section 5.2.5.4 of the AEE is replaced by the following.

5.2.5.4 TE TUMU HORTICULTURAL AREA

i. Physical Description of Arterial

The landscape quality of this area is higher than the surrounding coastal flats. The 4 lane arterial slices obliquely through the patterns of small horticultural fields in this area. The road will be sited on a series of very low cuts and fills, gradually rising onto an 8 – 9 metre high embankment to cross Te Tumu and Maketu Roads at the southern end. Te Tumu and Maketu Roads will be crossed by bridges.

ii. Visual Effects

Because of the surrounding shelter belts the proposed arterial will not be visually prominent or particularly legible and will integrate well. Except at its southern end, it will not intrude into any significant public views. At the southern end the embankment will be surrounded by shelter belts so will not be so visible from the surrounding area. However, it will be visible from local roads close to the arterial.

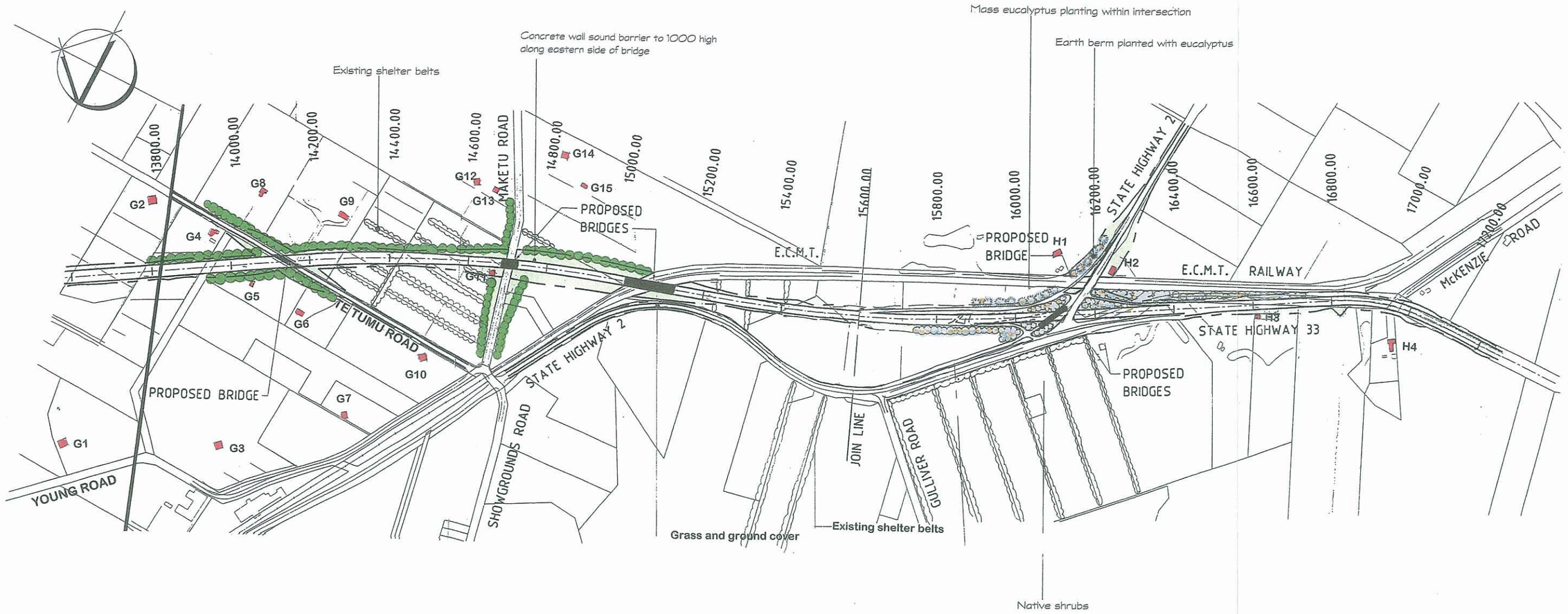
Three houses F6, G12 and G13 will be close to the new alignment and G5 and G 11 will be removed by the arterial.

Overall visual effects would be at the low end of the moderate scale.

iii. Amelioration Potential

The potential for both landscape and noise mitigation is very good. Almost the whole alignment through this area will be screened by shelter belts combined with a sound barrier fence in places close to houses. The aim will be to tie new shelter belts into existing ones in order to complete the screening. Planting will be carried out on the embankments of the two bridges to ensure that as much as possible of the new road is screened. Where fencing is used, new shelter belts will be backed by a 2.5 metre high fence, with a further shelter belt planting inside the fence, thereby ensuring a reasonable view both inside and outside the road corridor.

Refer to LA4 Plans - Concept Landscape and Mitigation. Plan 4 and 5. (Figures 5.10 and 5.11)



- Large feature trees - Eucalyptus sp.
- Proposed shelter belts
- Native shrubs
- Grass or ground cover
- Mass planting of cabbage trees
- Mass planting of kahikatea
- Sand dune species, Carex, toetoe, ice plant
- Existing shelter belts
- Wetland planting
- Houses

TAURANGA
EASTERN ARTERIAL
CONCEPT LANDSCAPE & MITIGATION

SCALE 1:5000 DATE NOVEMBER 2000 REF: 706CP PLAN 5

FIGURE 5.11
REV. A

3 Noise

Section 5.5.3.6 of the AEE is replaced by the following.

The route then passes through a horticultural area near Te Tumu Road. Mitigation will take the form of a stretch of quiet road surface up to 1km in length, with 2-2.5 metre barriers on both sides of the road near dwellings G2-G9. Where the new road is elevated over Maketu Road a 1 metre high solid wall along the eastern side of the bridge may be necessary to shield dwellings G12-G15. With these mitigation measures in place noise effects on dwellings G2-G9 and G12-G15 and dwellings further away would be very minor. Although Te Tumu Road will be elevated over the new road the traffic flow is low and no noise mitigation will be necessary to protect nearby dwellings.

4 Social

Properties about the Te Tumu Road overbridge would now lose more land from their properties to enable the support for the overbridge to be constructed.

Noise is an issue for all residents and this has been discussed above. Many residents were concerned about the further changes not only because of the effect on their property but also because it is simply another change and the indecision affects their plans.

Further loss of land and income will be dealt with in the compensation negotiations.

Section D – Responses to Additional Information Requests

Letter Dated
22 May 2000

Mr Russell De Luca
10 Wiremu Street
TAURANGA

22 May 2000
Our Ref: 9301240
T1:6022-CLR05L18.DOC

Dear Sir

Eastern Arterial

Alternative Alignment

Further to our telephone conversation we enclose for your team's consideration an assessment of effects for the alternative alignment that has arisen out of the Pre Hearing meeting with the environmental groups. In addition we enclose a further opinion from Mr Beech on the matter of how to proceed with the alternative alignment.

We, on behalf of Transit New Zealand (TNZ), formally advise that they will be seeking an amendment of the alignment at the Hearing. By circulating the attached information now we trust that there is ample time for consideration of the alternative and the ability for everyone to address it in their respective reports/evidence.

We advise that we are ready to proceed with the Hearing start date of the 19th June 2000.

Response to Request for Information from Western BOP District Council

1. General

The alignment and construction of the TEA is generally away from local roads and residential areas. It is therefore considered that there will be an insignificant affect on the District roading network, including Bell Road, during construction and also once the new route is operational. If anything, there is likely to be a decrease in traffic and demand on District roads at the time the TEA is constructed.

2. Potential Effects of the Construction of the TEA

The alignment of the TEA, other than at the end junctions of Domain Road (SH2 Intersection) and Paengaroa (SH2/SH33 intersection), and where it crosses Parton Road and Maketu Road, is clear of any District roads. It is envisaged that access to construction for the main roading embankments, drainage and roading formation will be achieved within the designation boundaries along the route. Access roads will be constructed within these boundaries and construction traffic will travel along these and/or on completed new road formation of the TEA.

Construction is likely to commence from either or both of the end junctions on a "one front basis" extending outwards from these junctions.

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A large quantity of fill is required and the granular material could be imported either from the quarries in the Papamoa hills or Maketu, or if permissible at time of construction from sand and/or pumice mining ventures. The material will be delivered to the end junctions using the existing State highways (not the District roads). However there will be an increase in traffic use on the short lengths of link roads from the quarries to the existing State highway network. Consideration will be given prior to construction to providing temporary bridging crossing the existing State highways at either Domain Road or at Paengaroa.

The twin-bridges over the Kaituna River and overbridges at Parton and Maketu Roads could be constructed as stand alone projects, and construction supplies for these could be provided along District roads. However the increase in the quantity of traffic will only be minimal to service the construction of these. Access on Parton and Maketu Roads will be maintained during construction of the overbridges.

3. Potential Effects Once TEA Operational

Without the TDC Bell Road junction (proposed at the end of Bell Road), there is potentially little change in traffic patterns to the Western BOP DC roading network as the TEA bypasses the local roading network,. If anything, there is likely to be a reduction, especially in heavy commercial vehicle usage.

If the Bell Road junction is also completed (which is a separate TDC project being designated at the same time as the TEA), there is a potential for traffic patterns to change in roads feeding to/from this junction. It may generate slightly more traffic on some roads but less on others. There will be no significant effect on District roads near the end junctions of the TEA.

Noise Barriers Adjacent to Orchards

At the pre-hearing meeting in Te Puke concern was expressed that when noise barriers were used next to orchards they would generate wind turbulence and negate the effect of shelter belts. This concern has been investigated and it is considered that noise barriers are not likely to generate significant wind turbulence when used in conjunction with shelter belts.

It is well known that solid barriers can not be used as wind breaks because they cause eddies to be generated behind them due to wind shear over the top of the barrier. This is due to the sudden change in wind speed at the top of the barrier. For this reason shelter belts are designed to be porous, allowing a certain amount of wind leakage through them, and so there is no sharp change in wind speed and consequent generation of shear forces.

In this instance it is considered that the noise fences are sufficiently short (2-2.5 m) in relation to the overall height of the typical shelter belts (6 m) that the shelter belts will still be effective in controlling the rate of charge of wind velocity, preventing generation of shearing forces with consequent generation of turbulence and eddies.

Letter to Landowners about Compensation

We can advise that TNZ is sending out an explanatory letter about likely compensation to all land owners affected this week.

Response to ND & RE Espin: Alternative Suggestion

We refer to the submission made by ND & RE Espin to the Western Bay of Plenty District Council in which an alternative alignment was recommended to bypass kiwifruit farms and go through the Te Puke Golf Course before rejoining SH33.

A similar alignment was considered during the Options phase of the project to reduce the effects of going through the kiwifruit farms west of Maketu Road but was discarded for the following reasons:

1. It is difficult, if not impractical, to get a junction with the existing State highway, clear of the existing railway line with access to Te Puke in the position (A) shown on the marked up plan.

2. The alternative alignment would have an adverse effect on the existing kiwifruit packing houses, Kiwifruit Country and also the golf course.

3. It is extremely difficult, if not impractical, to also provide for an intersection which contains the junction of Young Road, Te Tumu Road and Maketu Road along with the railway line and the existing State highway and still provide for the Tauranga Eastern Arterial on the alternative alignment as shown marked (B).

4. The alternative alignment would go through multiple owned Maori land which require protracted negotiations with owners, trustees and the Maori Land Court with no guarantee of a favourable outcome.

5. There would need to be two intersections providing separate junctions with SH33 and one with SH2 at the ends of the Tauranga Eastern Arterial (rather than combining them into one junction as is proposed). Such an approach is not cost effective.

6. The Tauranga Eastern Arterial is a limited access highway and where the suggested alternative alignment follows the existing alignment of SH2, current accessways to SH2 would be compromised and cause what is known as "side friction" i.e. the provision of driveways, if permitted, onto the highway increases the likelihood of delays/slower speeds and accidents. The construction of an additional service road may be required.

While it is acknowledged that some horticultural land being used for kiwifruit will be lost, the alignment chosen for designation avoids the above conflicts.

We trust that this information is satisfactory. If you have any further questions please do not hesitate to contact us.

Yours faithfully
Beca Planning

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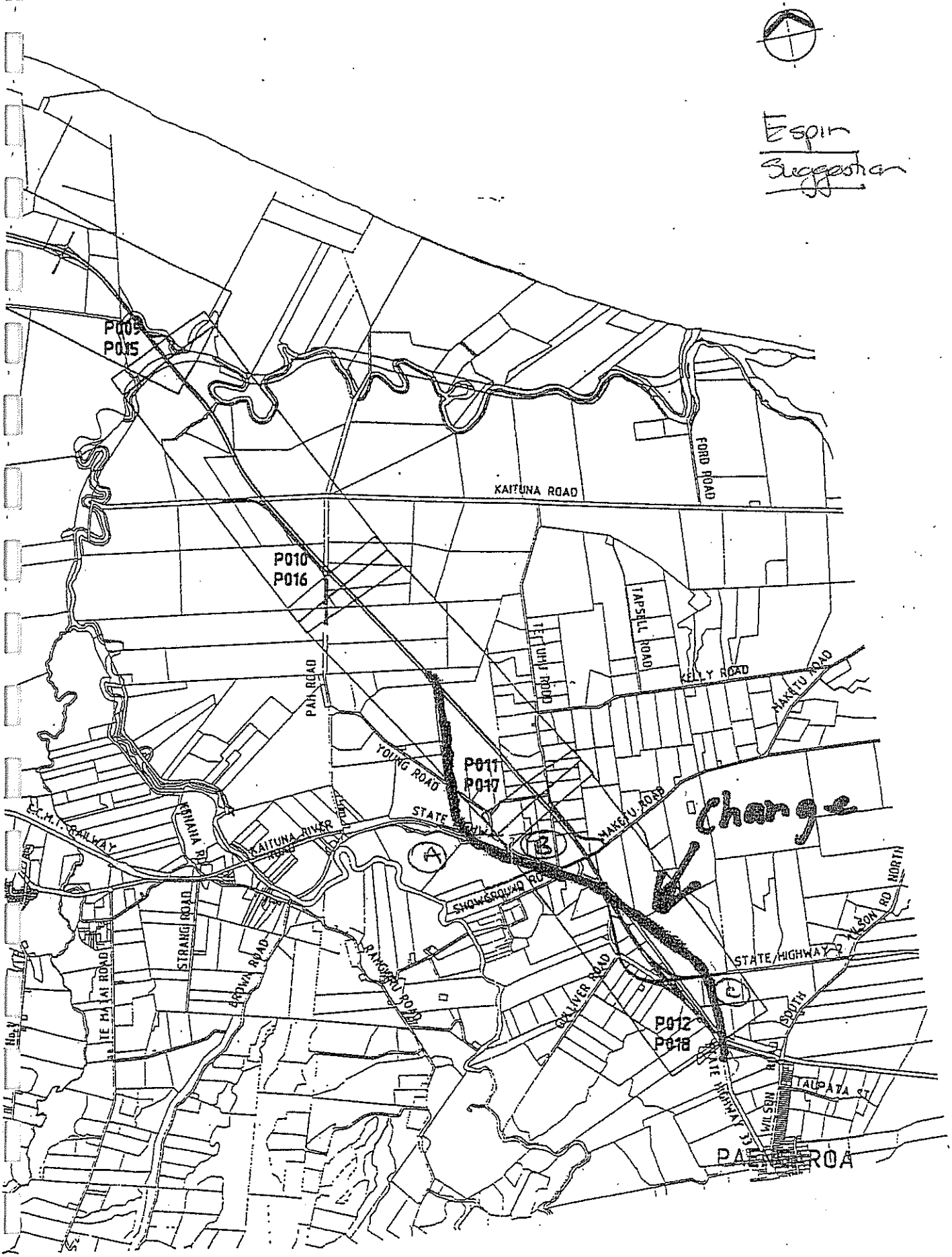
Encl



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Scale as drawn 1:25000 Reduced Drawing 1:50000	TRANSIT NEW ZEALAND	TAURANGA EASTERN ARTERIAL CIVIL	LAND & DESIGNATION REQUIREMENT PLAN INDEX SHEET	Job no. 9301240 Drg no. P006 Rev A