



Te Karaka Stopbank Upgrade

Geotechnical Interpretive Report

Gisborne District Council

31 March 2026

→ **The Power of Commitment**



Project name		Te Karaka Stopbank Upgrade					
Document title		Te Karaka Stopbank Upgrade Geotechnical Interpretive Report					
Project number		12685374					
File name		12685347_Te Karaka Stopbank Upgrade-GIR_DRAFT - Rev1.docx					
Status Code	Revision	Author	Reviewer		Approved for issue		
			Name	Signature	Name	Signature	Date
S3	Rev0	Mel Kleyburg Paula Ramirez	Sam Harris		Darren Maxwell		20/3/2026
S4	Rev1	Mel Kleyburg Paula Ramirez	Sam Harris		Darren Maxwell		31/3/2026

© GHD 2026

This document is and shall remain the property of GHD. The document may only be used for the purpose for which it was commissioned and in accordance with the Terms of Engagement for the commission. Unauthorised use of this document in any form whatsoever is prohibited.

Contents

1.	Introduction	1
1.1	General	1
1.2	Proposed works	1
1.3	Scope of services	2
1.4	Site description	2
1.5	Existing services	2
1.6	Published Geology	3
2.	Geotechnical data	4
2.1	NZGD review	4
2.2	GDC existing geotechnical data	4
2.3	GDC monitoring well	5
2.4	GHD ground investigations (2025)	6
3.	Engineering geological assessment	6
3.1	Ground conditions	6
3.2	Groundwater conditions	7
3.3	Seismicity	7
3.4	Geomorphology	7
4.	Geotechnical assessment	8
4.1	Assumptions and considerations	8
4.2	Ground model	8
4.3	Selected cross sections	8
4.4	Proposed fill material	9
4.5	Seismic considerations	9
4.6	Geotechnical design parameters	9
4.7	Stability analysis	10
	4.7.1 Methodology and criteria	10
	4.7.2 Loading cases and assumed water levels	10
	4.7.3 Summary of findings	10
	4.7.4 Discussion	11
4.8	Liquefaction	12
4.9	Bearing capacity	12
4.10	Static settlement	12
5.	Considerations for detailed design	12
6.	Limitations	14
7.	References	15

Table index

Table 1	Extract of the 1:250,000 geological map legend of the Raukumara area.	4
Table 2	GDC Well details.	5
Table 3	Summary of ground conditions	7
Table 5	Geotechnical design parameters	10
Table 6	Slope stability results – Section 1 – Western side at CH3800	11
Table 7	Slope stability results – Section 2 – Middle side at CH2560	11
Table 8	Slope stability results – Section 3 – Eastern side at CH680	11

Figure index

Figure 1	Te Karaka Stopbank site location (extract from drawing provided by GDC).	1
Figure 2	Te Karaka indicative services plan. Green circles indicate potential service clashes with stopbank.	3
Figure 3	Extract of the 1:250,000 geological map of the Raukumara area.	4
Table 1	Extract of the 1:250,000 geological map legend of the Raukumara area.	4
Figure 4	Location of WSP investigations – proposed fill material	5
Figure 5	GDC Well locations.	6
Table 4	Input parameters for determination of peak ground acceleration	9

Appendices

Appendix A	Proposed Stopbank Drawings
Appendix B	GDC existing Geotechnical Investigations
Appendix C	Slope Stability Analysis

1. Introduction

1.1 General

GHD Limited (GHD) have been engaged by Gisborne District Council (GDC) to undertake a Geotechnical Assessment to inform the design of proposed stopbank upgrades at Te Karaka, Gisborne. These proposed stopbank upgrades are part of the Te Karaka Flood Protection Scheme which has an overall aim to upgrade and improve the Te Karaka township's flood defences¹.

A Geotechnical Factual Report (GFR) was previously prepared by GHD (dated 9th February 2026). The purpose of this Geotechnical Interpretive Report (GIR) is to present the results of the Geotechnical Assessment. We understand that this GIR may be used to support Resource Consent. This GIR should be read in conjunction with the GFR.

1.2 Proposed works

The proposed Te Karaka Stopbank Upgrade comprises approximately 4.32 km of new and existing stopbank upgrade adjacent to the Waipaoa River and aims to provide a similar level of service to the (we understand) recently completed downstream Waipaoa Stopbank Upgrades.

The proposed stopbank alignment has been divided into the Eastern Alignment (Chainage 0 to 1301) and Western Alignment (includes Chainage 1744 to 4360). The approximate height of the proposed stopbank is approximately 2.0 to 5.0 m above existing ground level. Resource Consent level Drawings (not for Construction) of the proposed alignment are presented in Appendix A. The approximate location of the existing and new stopbank is presented in Figure 1.

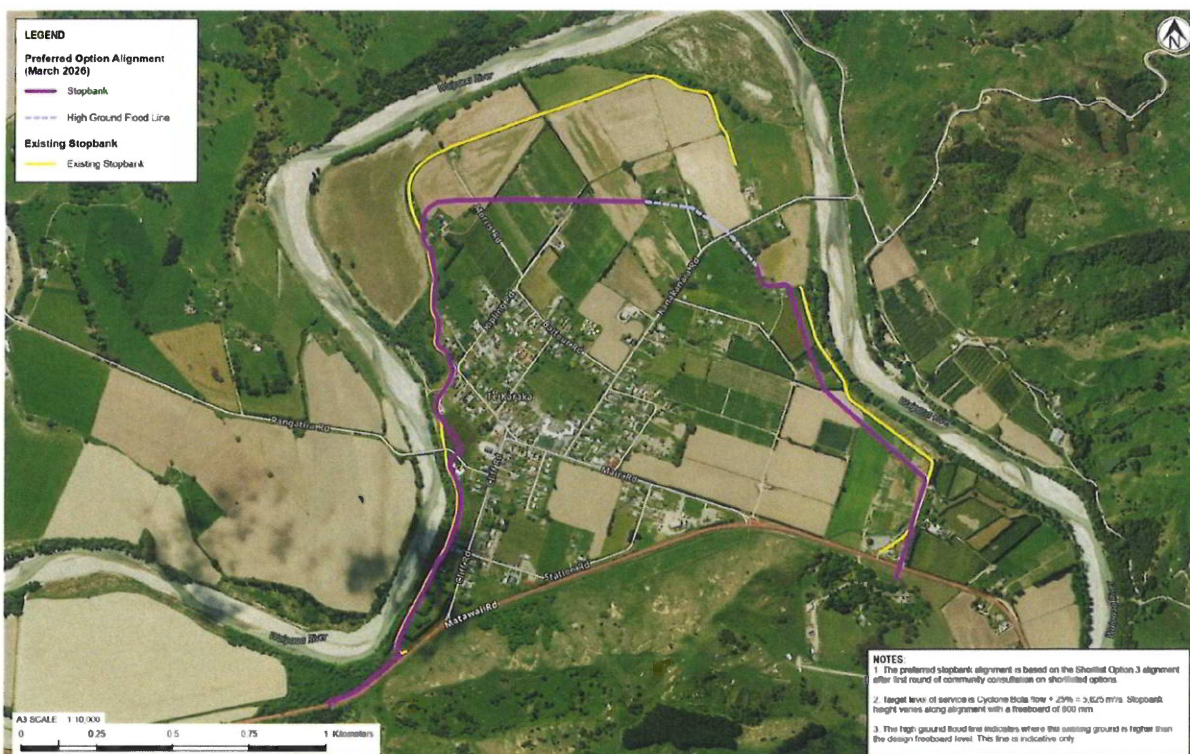


Figure 1 Te Karaka Stopbank site location (extract from drawing provided by GDC).

¹ <https://www.gdc.govt.nz/our-recovery/flood-resilience/te-karaka-flood-resilience-improvements>

1.3 Scope of services

This report is intended to present the results of a geotechnical assessment and provide geotechnical recommendations and design considerations to inform design of the proposed works.

The scope of this report includes:

- Review of existing stopbank design drawings, site geomorphology and site investigation results to identify locations where geotechnical risks (namely settlement/soft ground conditions and slope stability) may need to be considered in the detailed design of the stopbank.
- Develop a two-dimensional ground model and geotechnical parameters at three locations based on the site investigation results and survey data provided by GDC.
- Carry out initial slope stability analysis using SLOPE/W two-dimensional limit equilibrium software and assumed flood level scenarios.
- Identify risks, potential mitigation strategies and opportunities associated with the existing stopbank alignment/design. It is intended this GIR will be used to support a resource consent application.

1.4 Site description

The site is located in Te Karaka, inland approximately 30 km north-west of Gisborne. Te Karaka is a small rural township located on a floodplain and surrounded by the Waipaoa River. Te Karaka is bounded by State Highway 2 (SH2) / Matawai Road to the south.

Te Karaka and its surrounds is predominantly used for agricultural purposes (pastoral farming) and forestry. The terrain is relatively flat, with elevations ranging from 38 metres reduced level (m RL) to 42 m RL. At the property 81 Kanakanaia Road there is a small hill with an elevation increase 40 m RL to 53 m RL.

Other notable features include a 70 m wide by 100 m long effluent pond located on the eastern side, which is located approximately 70 m from the existing stopbank at Chainage 640. An old train tunnel is located by State Highway 2, with the entrance approximately 200 m south of start of the western alignment stopbank. The entrance appears to remain open, although has not specifically been inspected to confirm if any plug / blockage exists.

1.5 Existing services

A review of BeforeUdig and the GDC GIS website² indicates the presence of existing wastewater, water supply, stormwater, and gas services within and adjacent to the Te Karaka township and along sections of the proposed stopbank alignment. Refer to Figure 2 which provides an indicative location of known utility services.

A desktop comparison of the proposed stopbank alignment (per Figure 1) and the existing services, indicates that several sections of the alignment traverse or run adjacent to existing buried services.

Localised service interaction areas were identified and have been circled in Figure 2 (green circles). Some of the potential interaction areas have been listed below:

- Wastewater pipelines near the Waipaoa River
- Water supply and stormwater services along road corridors
- Main gas line running along Matawai Road and services adjacent to residential properties
- Overhead power lines are observed in the proximity of alignment.

² https://maps.gdc.govt.nz/H5V2_12/ (Reviewed 10/03/2026)

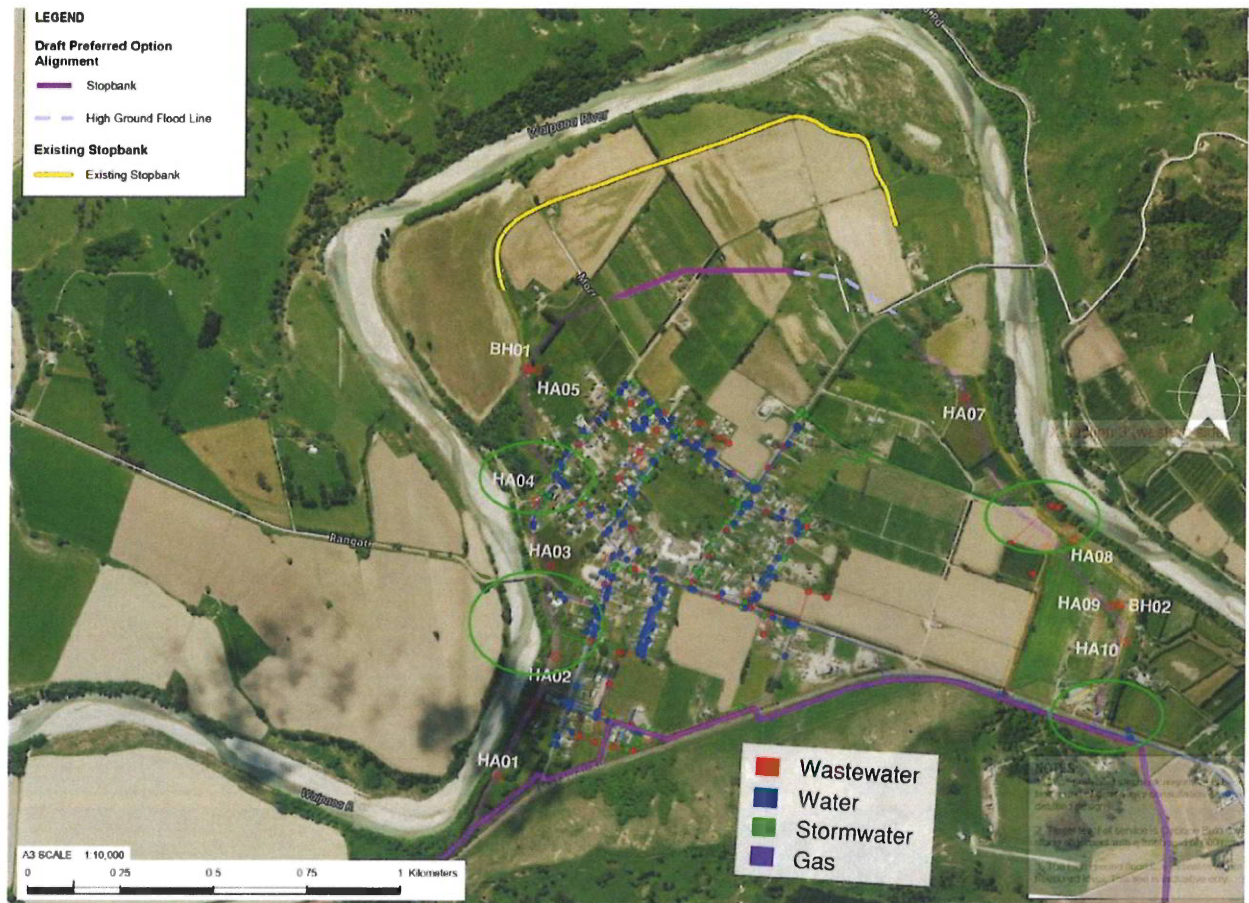


Figure 2 Te Karaka Indicative services plan. Green circles indicate potential service clashes with stopbank.

1.6 Published Geology

The published 1:250,000 geological map of the Raukumara area (Mazengarb and Speden, 2000) shows the surficial geology of the sites to comprise of Holocene river deposits (Q1a) and a pocket of Late Pleistocene river deposits (Q3a) of the Pakihi Supergroup. An extract of this map is presented in Figure 3 and shows the geology of the sites and surrounding area, with the units present described in Table 1 (Mazengarb and Speden, 2000).

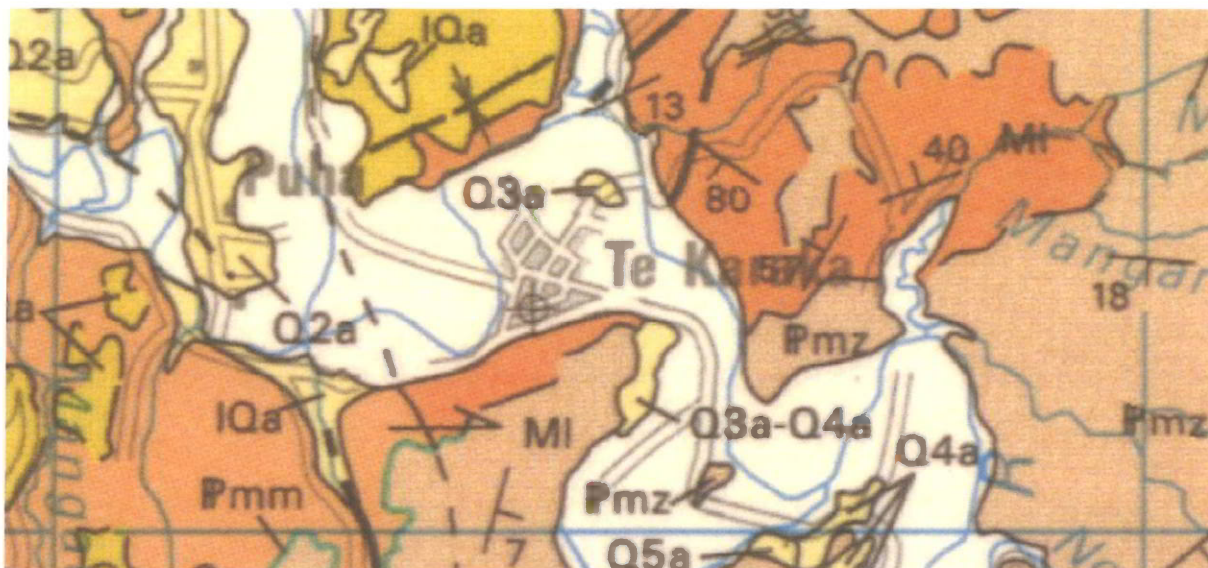


Figure 3 Extract of the 1:250,000 geological map of the Raukumara area.

Table 1 Extract of the 1:250,000 geological map legend of the Raukumara area.

Map symbol	Geological unit	Description
Q1a	Holocene river deposits (Q1a)	Poorly to moderately sorted gravel with minor sand and mud, overlain by tephra
Q3a	Pleistocene river deposits (Q3a)	Poorly to moderately sorted gravel with minor sand and mud, overlain by tephra and loess

2. Geotechnical data

2.1 NZGD review

A review of existing ground investigations from the New Zealand Geotechnical Database (NZGD) was undertaken for a radius approximately 1 km from Te Karaka and available data comprised hand augered boreholes. These investigations were conducted by Engineering Design Consultants in 2023 and generally extend to depths between 1.5 m below ground level (m BGL) and 2.5 m BGL. The logs indicate near-surface fill overlying predominantly fine-grained Holocene alluvial soils, comprising silts and clayey silts of low to high plasticity, typically described as firm to very stiff. Interbedded pumiceous sands and silty sands were also encountered locally, often at shallow depths and commonly in a saturated condition. Groundwater was encountered in several hand augers at depths generally between about 0.6 m BGL and 1.3 m BGL.

The subsoils encountered within these investigations was noted as consistent with the published geology, however it was noted these reported groundwater levels were higher than those noted in Sections 2.3 and 2.4. We presume it was due to the storm events related to Cyclone Gabrielle as the hand augers were carried out February 2023.

2.2 GDC existing geotechnical data

GDC provided ground investigation data for the proposed stopbank fill material. The information provided comprises three hand augered drillholes undertaken by WSP in May 2025, approximately 500 m northeast of the central section of the proposed stopbank alignment. The location of HA01, HA02, and HA03 is shown in Figure 4 and logs are included within Appendix B.



Figure 4 Location of WSP investigations – proposed fill material

The hand auger logs indicated near-surface silty soils with minor sand and clay, underlain by predominantly clayey silt and silty clay to the termination depth of approximately 2 m BGL. The soils were generally described as firm, becoming stiff with depth, and exhibit moderate to high plasticity. Minor sand content was present throughout, locally with coarse sand grains evident. Groundwater was not encountered within the investigations. The soil description presented on the logs were consistent with fine-grained alluvial soils typical of the Te Karaka area.

2.3 GDC monitoring well

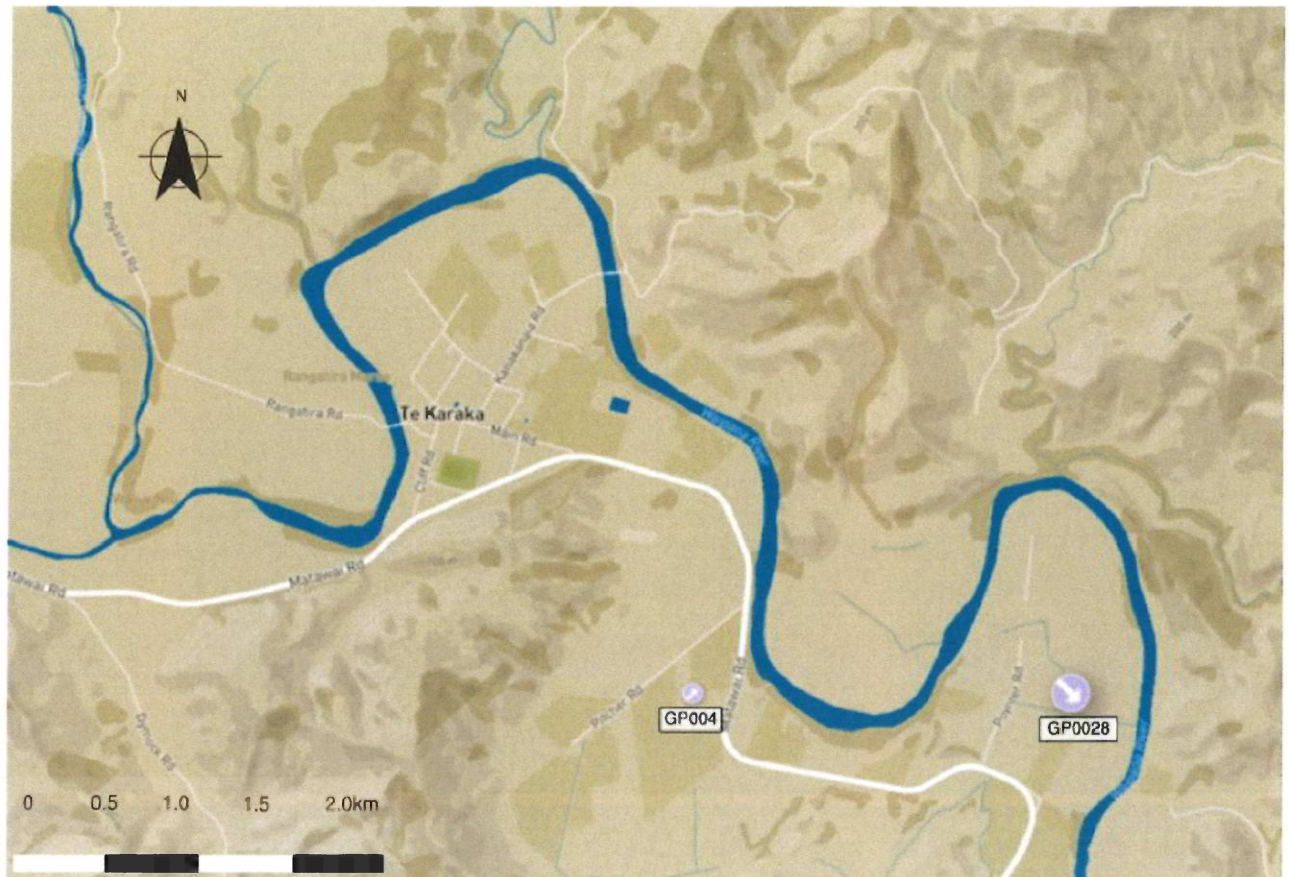
The GDC groundwater monitoring website³ was reviewed to identify groundwater information relevant to the Te Karaka area. Two groundwater monitoring wells (GP0004 and GP0028) are located in the vicinity of Te Karaka township. Well GP0004 is situated to the south of Te Karaka, near the Waipaoa River, and Well GP0028 is located to the east of Te Karaka township. Figure 5 and Table 2 shows the location and well details respectively.

GHD requested the logs for both wells, however these were unavailable at the time of GIR preparation.

Table 2 GDC Well details.

Well ID	Approximate location relative to Te Karaka	Well depth (m)	Casing diameter (mm)	Screen interval (m BGL)	Reported groundwater level (m BGL)
GP0004	South of Te Karaka township, near the Waipaoa River	~9.1	100	Not reported	Not reported
GP0028	East of Te Karaka township	~13.6	100	~12.1 to 13.6	~8.5

³ <https://www.lawa.org.nz/explore-data/groundwater-quality/#/te-region> (Reviewed: 10/03/2026)



2.4 GHD ground investigations (2025)

GHD conducted geotechnical investigations between the 17th and 19th of December 2025. The investigations were undertaken along the proposed (at the time of preparation) Te Karaka Stopbank alignment to characterise subsurface conditions and inform design. The investigation comprised:

- Two machine boreholes were drilled to depths of approximately 10.95 m BGL, and piezometers were installed in both boreholes
- Nine hand augers which were advanced to depths of between 0.2 m BGL and 2.2 m BGL at various locations
- Standard Penetration Tests (SPT) were carried out in the boreholes at 1.5 m depth intervals, and shear vane testing was undertaken in cohesive soils where practicable.

A location map of the geotechnical investigations, borehole logs, core photography and calibration certificates for the relevant testing equipment contained within the GFR.

3. Engineering geological assessment

3.1 Ground conditions

The results of the ground investigation indicate the ground conditions to be topsoil/fill up to 0.3 m BGL followed by interbedded silt and sand, with low plasticity cohesive soils predominating in the upper profile. These materials are typically stiff to very stiff to the base of the hand augers up to 2 m bgl. In the deeper boreholes (BH CH2560 and BH CH380), sandy silts and silty sands extend to depths of approximately 7 m BGL to 9 m BGL, underlain locally by dense sand or gravel layers. A dense gravel layer was encountered at 10.5 m BGL in BH CH2560.

A summary of the anticipated ground conditions across the study area indicates that the proposed alignment will pass through Holocene River Deposits. This formation has been separated into two general engineering geological sub-units, with different engineering characteristics as summarised in Table 3.

Table 3 Summary of ground conditions

Geological Unit	Description	Observations	Typical thickness	Field test results (indicative)
Existing Stopbank Fill / Topsoil	[1] Silt with some sand	- Near-surface fill or reworked soils comprising silt with some sand. - Stiff to very stiff.	~0.2–0.5 m (locally up to ~1.0 m)	Hand auger refusal common at shallow depth. Shear vane values up to 200 kPa.
Holocene deposits	[2] Silty sand / sandy silt – Undrained	- Interbedded sandy silt and silty sand. - Low plasticity cohesive soils with sand partings. - Firm to stiff.	~6–9 m	SPT N: typically 2–7 Shear vane: ~40–100 kPa
	[3] Fine to coarse gravel	Sand and gravel; locally dense; grey; encountered at depth and not laterally continuous.	≥2 m (extends beyond investigation depth locally)	SPT N: up to ~30–33 (dense). No vane testing undertaken.

Notes:

SV = field vane shear strength.

SPT = Standard Penetration Test

Engineering geological units are interpreted from borehole and hand auger logs and represent generalised ground conditions across the site.

3.2 Groundwater conditions

During the 2025 GHD ground investigations, groundwater monitoring was carried out in boreholes BH CH2560 and BH CH380. The observations indicate a fluctuating groundwater table between approximately 5.8 m BGL and 7.8 m BGL. The groundwater levels encountered during the GHD geotechnical investigations are consistent with the recorded groundwater levels at the GDC monitoring well GP0028.

The 2023 EDC investigations encountered comparatively shallower groundwater levels which indicates the possibility of localised, perched groundwater along the proposed stopbank alignment.

For preliminary design purposes, the groundwater level of approximately 7.5 m BGL was adopted. Groundwater levels will be further refined during subsequent stages of design as seepage and flood modelling is developed.

3.3 Seismicity

The nearest active fault to the site recorded on the GNS Active Faults Database is the Otoko-Totangi Fault, which is located approximately 6.5 km southwest of Te Karaka. The fault is classified as active, with normal faulting as the dominant movement sense and down-throw to the south. The geological history indicates possible Pliocene and Quaternary activity; however, the total slip and maximum likely earthquake magnitude are not defined. Information on recurrence interval is not available for this fault (GNS, 2024).

3.4 Geomorphology

Te Karaka is situated on a low-lying alluvial floodplain adjacent to the Waipaoa River. The local geomorphology is dominated by broad, gently undulating floodplain surfaces formed by historical overbank flooding and lateral channel migration.

The floodplain comprises recent Holocene alluvial sediments, with subtle variations in ground level associated with former channel margins, floodplain backswamps, and abandoned channels. River terraces and higher ground are

present locally beyond the immediate floodplain margins, particularly toward the eastern and southern extents of the township, where land rises gently away from the river corridor.

The proposed stopbank alignment generally follows the margin of the active floodplain. The geomorphological setting reflects ongoing fluvial processes, including sediment deposition and localised erosion, which are key considerations for stopbank design, foundation performance, and long-term flood protection resilience.

4. Geotechnical assessment

4.1 Assumptions and considerations

The following assumptions have been made as part of the preliminary assessment:

- The proposed stopbank comprises a 4 m wide crest with 1V:2H embankment slopes
- The stopbank will comprise a homogeneous fill material was modelled
- The provided draft plans indicate that a freeboard of 600 mm has been adopted along the alignment
- Cross-sections have been developed based on information provided by third parties, elevations and crest levels have not been cross checked
- Groundwater levels have been established based on measurements obtained from groundwater monitoring undertaken during the site investigations.
- We note that the chainages discussed/referred to in this report, and the GFR, may refer to outdated/previous chainages and plans (which are presented in Appendix A). We understand that since the issuing of this report, the proposed stopbank alignment has been altered slightly. The updated plans are presented in Appendix D. We do not consider this proposed change in alignment will have a significant impact to the geotechnical assessment presented herein.

4.2 Ground model

A ground model was developed for the three representative cross-sections along the existing and proposed stopbank alignments. These sections are intended to characterise the subsurface conditions across the alignment and to inform the assessment of the existing and proposed stopbank configurations.

The ground models were based on the findings of the GHD geotechnical investigations undertaken in the vicinity of the assessed sections, with geological units extrapolated between investigation locations where required. The cross section locations are shown in Appendix A, and the corresponding ground models are in Appendix C.

The following uncertainties apply with respect to the ground conditions described herein:

- The vertical extent of the ground model is limited to the depth of the geotechnical investigations undertaken by GHD in December 2025.
- Groundwater conditions are based on the design groundwater level previously defined in Section 3.2.
- Investigation locations are offset from the section alignments (per Section 4.3) and geological unit boundaries were extrapolated between boreholes and test locations.
- Natural spatial variability in subsurface conditions across the alignment may not be fully captured by the available investigation data.

4.3 Selected cross sections

The cross-section profiles were derived from LiDAR and GDC data, with both the existing stopbank and the proposed stopbank geometry incorporated into the models. The assessed sections are summarised as follows:

- Section 1 (approximate CH3800) is located on the western side of the alignment and runs generally west to east. This section incorporates investigations HA CH3790 and HA CH3390 (refer to the GFR for investigation locations).

- Section 2 (approximate CH2560) is located within the central portion of the alignment and trends from west to northeast. This section is informed by BH CH2560 and HA CH620. This section was chosen due to its proximity to available geotechnical data, and it being representative of the central portion of the proposed alignment.
- Section 3 (approximate CH680) is located on the eastern side of the alignment and trends from northeast to southwest. This section incorporates BH CH380 and HA CH1130. This section was chosen due to its proximity to an existing effluent pond.

4.4 Proposed fill material

As discussed Section 2.2, the proposed stopbank fill material is to be sourced locally from land adjacent to the Waipaoa River. Based on the description presented on the hand auger logs, the material was described as a cohesive silty clay with minor sand content. Laboratory and field descriptions indicate the material is moderately to highly plastic, with no evidence of organic soils. We consider that the proposed fill material may be suitable to be used as earthfill within stopbank embankments, given the cohesive nature and plasticity of the material is likely to provide sufficient shear strength and low permeability. However additional analysis (seepage analysis) and material testing may be required to confirm compaction requirements.

4.5 Seismic considerations

Seismic considerations for the proposed stopbank were assessed in accordance with NZS 1170, with reference to the 2021 Bay of Plenty Regional Council (BOPRC) Stopbank Design and Construction Guidelines, which provide guidance on seismic performance requirements for flood protection structures. Based on the potential consequences of failure and the level of protection provided to rural land and residential areas within Te Karaka township, the stopbank is considered an Importance Level 2 (IL2) structure. Consistent with NZS 1170.5 and the BOPRC guidelines, the seismic design actions adopted for the preliminary assessment correspond to the serviceability limit state (SLS) and ultimate limit state (ULS) earthquake events applicable to IL2.

The seismic input parameters adopted for the assessment are summarised in Table 4.

Table 4 Input parameters for determination of peak ground acceleration

Seismic case	Input parameter	Parameter value	Comment
General	Importance Level (IL)	2	NZS 1170.0
	ULS return period (years)	1/500	NZS 1170.0 Table 3.3
	PGA	0.65g	MBIE 2021 Table A1
	SLS return period (years)	1/25	NZS 1170.0 Table 3.3
	PGA	0.12g	MBIE 2021 Table A1
	Effective magnitude earthquake	6.3 (SLS) 7.5 (ULS)	MBIE 2021 Table A1

4.6 Geotechnical design parameters

The adopted geotechnical material parameters for the site are presented in Table 5, for the units that were defined in the ground model (Appendix C and Section 5.4). These parameters are based on the interpretation of the results of the investigations carried out onsite, empirical relationships and local experience. These parameters may change as design progresses and further assessment warrants.

Table 5 Geotechnical design parameters

Geological subunit	Unit Weight (kN/m ³)	Effective Cohesion (kPa)	Effective Friction Angle (°)	Undrained shear strength Su (kPa)
[0] Engineered Fill – silty CLAY with minor sand - Proposed stop bank fill (assumed 95% maximum dry density)	18	2	30	100
[1] SILT with some sand [FILL]	18	0	32	N/A
[2] SILT / Sandy SILT [Holocene Deposits]	16	2	28	50
[3] Fine to coarse GRAVEL [Holocene Deposits]	20	0	40	N/A

4.7 Stability analysis

4.7.1 Methodology and criteria

The slope stability analyses was undertaken using GeoStudio 2025.1.1 SLOPE/W software for the cross-sections described in Section 4.3. The following assumptions and methodology was applied:

- The Morgenstern–Price (1967) limit equilibrium method was used to calculate factors of safety (FoS).
- An entry–exit slip surface search was adopted.
- The stopbank geometry was modelled in accordance with the provided draft alignment and the assumptions outlined in this report.
- No surcharge loading was applied at the crest of the stopbank.
- Undrained shear strength parameters were adopted for the end-of-construction and seismic loading cases, while drained shear strength parameters were applied for static and flooding conditions.
- Groundwater conditions were modelled using a piezometric surface based on the assumption that for static groundwater conditions, the piezometric surface was set as consistent with measured groundwater levels. No groundwater seepage analysis has been undertaken at this stage of the assessment.
- For seismic loading conditions, serviceability limit state (SLS) and ultimate limit state (ULS) peak ground accelerations were applied in accordance with Table 4.

4.7.2 Loading cases and assumed water levels

Load cases and target FoS criteria were based on those presented in Table A2.1 of the BOPRC guidelines. The analysed load cases included:

- Case 1: End-of-construction conditions assessed under undrained strength assumptions.
- Case 2: Rapid drawdown following peak flood levels, it was assumed that the water level at the river side will be at peak river level based on GDC data from the Waipaoa River.
- Case 3a: Long-term steady-state seepage conditions (DWSL⁴), the water level at the analysed cross-sections was assumed to be 600 mm below the current stopbank crest level.
- Case 3b: Long-term steady-state seepage conditions (HTOS²), where the water level is the stopbank crest.
- Case 4: Seismic loading conditions 4a and 4b for SLS and ULS respectively.

4.7.3 Summary of findings

Slope stability analyses were undertaken for the loading conditions described in Section 4.7.2. The riverside and landward stopbank slopes were analysed and stability assessment results for the three cross sections are summarised in Table 6, Table 7 and Table 8 respectively. Slope stability analysis outputs are within Appendix C.

⁴ Design Water Service Level (DWSL) and Hydraulic Top of Stopbank (HTOS) are described further within the BOPRC Guidelines.

Table 6 *Slope stability results – Section 1 – Western side at CH3800*

Case	Description	Target FoS	River side achieved FoS	Land side achieved FoS
Case 1	End of Construction - (Undrained strength)	1.3	2.5	2.8
Case 2	Rapid drawdown	1.2	1.2	1.6
Case 3a	Long-term steady conditions -DWSL	1.5	1.6	1.6
Case 3b	Long-term steady conditions - HTOS	1.2	1.7	1.2
Case 4a	SLS (1/25 year return period)	1.0	1.7	2.8
Case 4b	ULS (1/500 year return period)	1.0	0.8	1.1
*Results in red text indicate cases where the target FoS was not met.				

Table 7 *Slope stability results – Section 2 – Middle side at CH2560*

Case	Description	Target FoS	River side achieved FoS	Land side achieved FoS
Case 1	End of Construction - (Undrained strength)	1.3	2.6	5.0
Case 2	Rapid drawdown	1.2	1.3	1.9
Case 3a	Long-term steady conditions -DWSL	1.5	1.6	1.7
Case 3b	Long-term steady conditions - HTOS	1.2	1.7	1.9
Case 4a	SLS (1/25)	1.0	2.0	3.0
Case 4b	ULS (1/500)	1.0	0.9	0.9
*Results in red text indicate cases where the target FoS was not met.				

Table 8 *Slope stability results – Section 3 – Eastern side at CH680*

Case	Description	Target FoS	River side achieved FoS	Land side achieved FoS
Case 1	End of Construction - (Undrained strength)	1.3	3.8	3.7
Case 2	Rapid drawdown	1.2	1.6	1.6
Case 3a	Long-term steady conditions -DWSL	1.5	1.7	1.5
Case 3b	Long-term steady conditions - HTOS	1.2	1.9	1.6
Case 4a	SLS (1/25)	1.0	3.0	2.8
Case 4b	ULS (1/500)	1.0	2.9	2.9
*Results in red text indicate cases where the target FoS was not met.				

4.7.4 Discussion

The stability assessment indicates that for the proposed stopbank geometry and adopted fill material parameters, the riverside slopes meet the target FoS for static, flood, and Serviceability Limit State (SLS) loading conditions. The landside slopes satisfy the static and SLS seismic criteria but do not meet the target FoS under ULS seismic cases.

The Ultimate Limit State (ULS) seismic loading case does not achieve the target factor of safety of 1.0 due to the high peak ground acceleration values; however, the ULS condition is not considered to govern the design. as it may induce some lateral displacement, the stopbank is expected to remain stable and functional under static and flood loading conditions. This means that following a large seismic event, some repairs/maintenance may be required.

This stability assessment should be updated once a seepage analysis has been undertaken (during detailed design).

4.8 Liquefaction

The GDC hazard maps (GDC, 2026) indicate that the proposed stopbank alignment is located within an area mapped as having a moderate liquefaction risk. Soils susceptible to liquefaction are typically granular, non-cohesive, and of low plasticity, with site-specific factors such as groundwater level also influencing liquefaction potential.

Based on available site information, the near-surface materials are interpreted to comprise predominantly fine-grained silts and clayey silts with moderate plasticity, which are generally not considered highly susceptible to liquefaction. Groundwater is anticipated to be encountered at depths greater than approximately 5.8 m below ground level. We consider it likely therefore that there is a non-liquefiable crust present at this site which would reduce the risk / damage induced by liquefaction in deeper layers. Notwithstanding, vertical settlement and potential lateral spreading may occur and disrupt the stopbank should liquefaction manifest in large seismic events.

In our experience, mitigation of liquefaction effects in linear infrastructure such as stop banks is cost prohibitive, and typically the risk of liquefaction is accepted, with the understanding that remedial works will likely be required.

4.9 Bearing capacity

Upon review of the geotechnical logs from the 2025 ground investigations and the ground conditions summarised in Sections 3.1 and 3.2, bearing capacity is unlikely to be a significant risk for the proposed stopbank configuration and alignment based on:

- Typical groundwater levels at depth, though noting there may be some potential of localised perched groundwater tables.
- Holocene deposits with medium density coarse grained, and firm to stiff fine grained materials as less likely to be susceptible to bearing capacity failure.

We recommend bearing capacity be checked during detailed design and following completion of seepage modelling. If needed, mitigations can include options such as drainage zones and flattening stopbank slopes.

4.10 Static settlement

We do not consider static settlement to be a significant risk given ground conditions; however we note there are some softer layers of silt present at depth (at the approximate location of 7.0 m below ground level), which may cause settlement. A detailed settlement assessment is proposed as part of the detailed design process. This will inform the likely additional fill required to achieve the target design stopbank height and inform of which nearby services/infrastructure/buildings may be at risk of settlement induced by the proposed stopbank.

Settlement can be mitigated through monitoring, or relocation of services (which may be required as part of the works for seepage reasons). Alternatively, minor realignment of the stopbank, or floodwalls, could be utilised should settlement be deemed to be a risk during the detailed design stage.

5. Considerations for detailed design

The following items should be considered for the detailed design stage. This is not an exhaustive list.

- Update the slope stability assessment to incorporate seepage modelling results, including both steady-state and transient groundwater conditions. We consider it unlikely that this assessment will significantly affect the results of the assessment presented herein.
- Undertake a piping check utilising the results of the seepage modelling.
- The interaction between the existing services and proposed works should be considered as part of the detailed design.

- Undertake settlement checks at critical locations (where the proposed new stopbank is located within close proximity to services/buildings).
- Inspect the railway tunnel and assess the risk associated with this existing tunnel. We understand that a bund is proposed around this tunnel entrance to act as a stopbank in this area.
- A safety in design assessment should be undertaken for the proposed design.
- Construction recommendations and methodology where the existing stopbank is to be raised, as particular care is required in rural areas where the embankment may comprise topsoil or other pervious materials. In such cases, stripping and benching of the existing embankment is important to reduce the risk of slippage and preferential seepage during and after construction.
- Existing topsoil will need to be stripped and stockpiled for re-use.
- Detailed design should consider maintenance and pastoral farmland requirements. Although side slopes of 1V:2H may result in adequate stopbank performance, they may create a health and safety risk (farm vehicles and maintenance vehicles), be challenging to maintain, and may be difficult for pastoral farmland use.
- At chainage 680 (on the eastern side) seepage analysis will need with the effluent pond will need to be considered for detail design.
- We note that the chainages discussed herein may be subject to change/differ from those presented on plans due to minor alignment changes. These alignments/chainages should be confirmed during the detailed design phase.

6. Limitations

This report has been prepared by GHD Limited for Gisborne District Council and may only be used and relied on by Gisborne District Council for the purpose agreed between GHD and Gisborne District Council as set out in Section 1.3 of this report.

GHD otherwise disclaims responsibility to any person other than Gisborne District Council arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report. GHD disclaims liability arising from any of the assumptions being incorrect.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

GHD has prepared this report on the basis of information provided by Gisborne District Council and others who provided information to GHD (including Government authorities), which GHD has not independently verified or checked beyond the agreed scope of work. GHD does not accept liability in connection with such unverified information, including errors and omissions in the report which were caused by errors or omissions in that information.

Data queried from the New Zealand Geotechnical Database (NZGD) have been considered in the preparation of this report. Where boreholes, test pits, cone penetration tests, laboratory tests, geophysical tests and similar work have been performed and recorded by others, the data are included and used in the form provided by others to the NZGD. No warranty or representation whatsoever (including as to its accuracy, adequacy, completeness, or fitness for any purpose) is provided by GHD in connection with the data.

Where boreholes, test pits, cone penetration tests, laboratory tests, geophysical tests and similar work have been performed and recorded by others under a separate commission, the data are included and used in the form provided by others. The responsibility for the accuracy of such data remains with the issuing authority, not with GHD.

An understanding of the geotechnical site conditions depends on the integration of many pieces of information, some regional, some site specific, some structure specific and some experienced based. Hence this report should not be altered, amended, abbreviated, or issued in part in any way without prior written approval by GHD. GHD does not accept liability in connection with the issuing of an unapproved or modified version of this report.

This report is based on information obtained from specific investigation locations, test points and sample points undertaken at a specific point in time. As a result, such information may not represent the conditions that may be encountered across the site at any future point in time. The actual characteristics of materials may vary significantly. Ground and groundwater conditions have been inferred between locations. Ground conditions, including groundwater levels and contaminant concentrations can change over time. GHD does not accept liability in connection with varied conditions.

Verification of the geotechnical assumptions and/or model is an integral part of the design process - investigation, construction verification, and performance monitoring. If the revealed ground or groundwater conditions vary from those assumed or described in this report the matter should be referred back to GHD.

7. References

The following sources of information were referred to in the preparation of this report.

- Bay of Plenty Regional Council. 2021. Stopbank Design and Construction Guidelines. Guideline 2021/01.
- Geological National Service active faults viewer. Retrieved March 2026, <https://data.gns.cri.nz/geology/>
- GHD. February 2026. Ferndale Bund Concept Design – Basis of Design Report.
- Gisborne District Council Tairāwhiti Maps. Retrieved March 2026, https://maps.gdc.govt.nz/H5V2_12/
- Mazengarb, Speden, 2000. Geology of the Raukumara area. Scale 1:250 000. Institute of Geological and Nuclear Sciences.
<https://www.nzgd.org.nz/arcgismapviewer/mapviewer.aspx>
- Ministry of Business, Innovation & Employment & New Zealand Geotechnical Society (2021), *Earthquake geotechnical engineering practise, Module 1: Overview of the guidelines*
- New Zealand Geotechnical Database. Retrieved March 2026
- New Zealand Geotechnical Society, 2005, *Field Description of Soil and Rock*.
- New Zealand Standards, 2004, NZS 1170.5:2004 Structural Design Actions Part 5: Earthquake Actions – New Zealand.

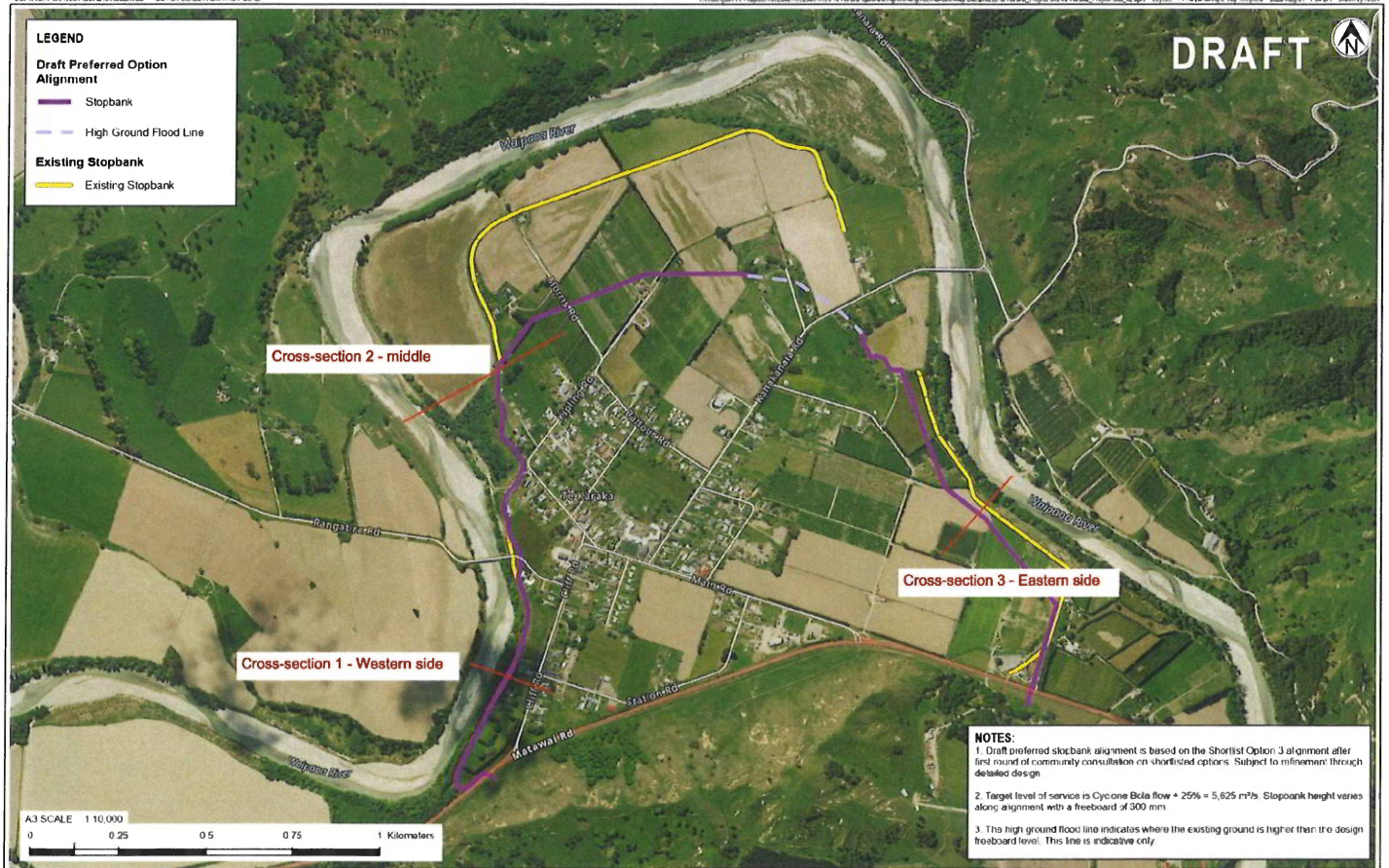
Appendices

Appendix A

Proposed Stopbank Drawings (Original)

COPYRIGHT ON THIS FIGURE IS RESERVED. DO NOT SCALE FROM THIS FIGURE.

Final Design/TT Project/1052556/100 To Karaka optioneering/stopbank/area/Map Documents/To Karaka Project/Stopbank Area Project/386_v2.dwg Layer: "TAJ Landscape Map Template" 2025-Aug-01 11:04 am Drawn by: MCA



TT Tonkin+Taylor

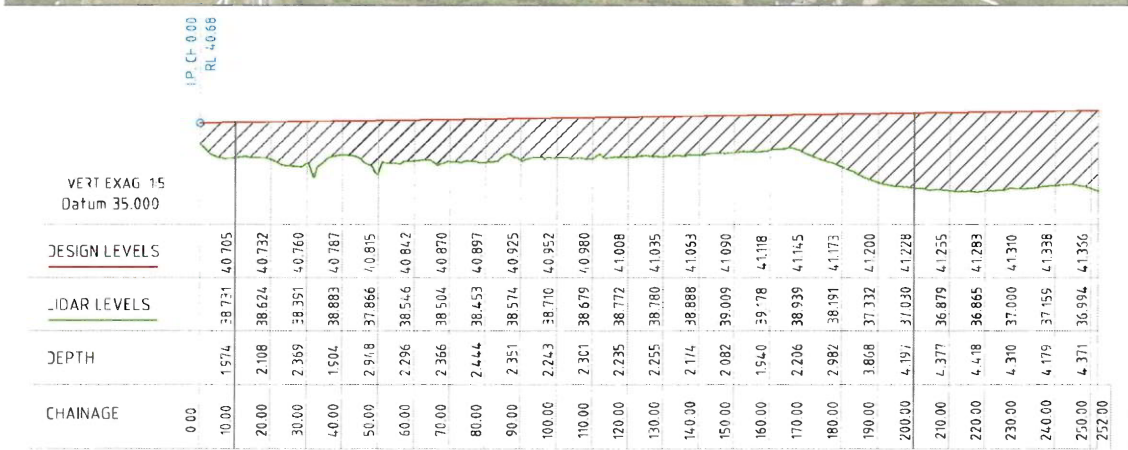
Exceptional thinking together www.tonkin+taylor.co.nz

NOTES			
Basemap: NZ Hybrid Reference Layer, Eagle Technology, LNZ, StateNZ, NIWA, Natural Earth, © OpenStreetMap contributors, NZ Navigation Map, Eagle Technology, LNZ, StateNZ, NIWA, Natural Earth, © OpenStreetMap contributors, NZ Imagery, Eagle Technology, Land Information New Zealand, GBCO, Community maps contributors, Shapfiles provided by GBCO			
0	First version	MCA	JAF/L 18/25
REV	DESCRIPTION	GIS	CHK DATE

LOCATION PLAN			
APPROVED DATE			

PROJECT No. 1052556-000			
DESIGNED	MCA	AUG 25	
DRAWN	MCA	AUG 25	
CHECKED	JAF/L	AUG 25	

CLIENT GISBORNE DISTRICT COUNCIL			
PROJECT TE KARAKA FLOOD MANAGEMENT OPTIONEERING			
TITLE DRAFT PREFERRED OPTION ALIGNMENT			
SCALE (A3) 1:10,000		FIG No. FIGURE 1.2	REV 0



Source Name	
Falls	
	Name Primary Falls Power Lines Poles Caverns
Alignment / Obstacle Navigable / To Karara Crossing	
	
	
Coordinate System in form of: NZTD 2000 Vertical Datum in form of: NZVD 2016	
	
LOCAL PROJECT SUBMITTALS	
Surveyed by:	S. LAMBERTS
Drawn by:	P. J. AUGERIE 02/2025
Checked by:	J. L. B. DE K. (SMT) 10/2025
	
1	Name / User / DTG
Rev	Revisions/Date
	
WE WANT A NEW SIGN	
 GISBORNE DISTRICT COUNCIL The Governance of the Tairāwhiti	
 CPS Land Project Solutions	
4 NEW SIGN FOR SIGNAGE	
WAPARUA RIVER TE KARARA TOWNSHIP EASTERN SHIP STOPBANK LONG SECTION	
Date WAPARUA RIVER 11.10.2025	Sheet 1
13000 B A3	



0.3%

VERT EXAG 1:5
Datum 35.000

CHAINAGE	252.00	266.00	270.00	280.00	290.00	300.00	310.00	320.00	330.00	340.00	350.00	360.00	370.00	380.00	390.00	400.00	410.00	420.00	430.00	440.00	450.00	460.00	470.00	480.00	490.00	500.00	504.00
DEPTH	4.738	4.738	5.078	4.664	4.472	4.356	4.373	4.293	4.264	4.407	4.389	4.695	5.176	5.135	4.574	4.523	4.573	4.609	4.620	4.597	4.559	4.527	4.567	4.576	4.517	4.734	
LIDAR LEVELS	36.655	36.313	36.784	37.003	37.148	37.158	37.266	37.322	37.206	37.232	36.914	36.520	36.588	37.077	37.255	37.233	37.225	37.241	37.292	37.357	37.417	37.410	37.423	37.409	37.320		
DESIGN LEVELS	41.393	41.721	41.448	41.476	41.503	41.531	41.558	41.586	41.613	41.641	41.668	41.696	41.723	41.751	41.779	41.806	41.834	41.861	41.889	41.916	41.944	41.971	41.999	42.026	42.054		

EASTERN ALIGNMENT - LONG SECTION

Scale Notes

Map

Bar

Boundary lines

Force lines

Setback

Contours

Alignment / Change
Proposed
To Karaka Township

Coordinate System in form of NZTM 2000
Vertical Datum in form of NZVD 2000

CIVIL PROJECT SOLUTIONS

Surveyed by: B. CAMPBELL

Drawn by: P. HARRIS

Checked by: J. CAMPBELL

1: New Layer 001

2: New Layer 002

3: New Layer 003

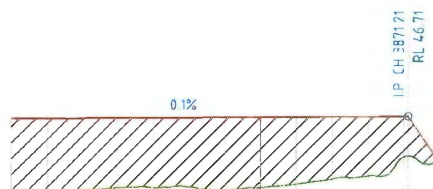


WAPADA RIVER
TE KARAKA TOWNSHIP
EASTERN SIDE STOPBANK
LONG SECTION

WAPADA RIVER

11.10.2025

2



VERT EXAG 15 Datum 40.000					
<u>DESIGN LEVELS</u>		4.2 518	4.6 610		
		4.2 620	4.6 620		
		4.2 716	4.6 630		
		4.2 726	4.6 641		
<u>LIDAR LEVELS</u>		4.2 514	4.6 661		
		4.2 717	4.6 671		
		4.2 917	4.6 692		
		4.3 204	4.6 632		
		4.3 370	4.6 707		
		4.4 434	4.6 712		
DEPTH		4.092		4.147	
		4.000		3.955	
		3.914		3.765	
		3.914		3.486	
		3.914		3.332	
		3.914		2.278	
CHAINAGE	3760.00	3770.00	3780.00	3790.00	3800.00
		3770.00	3780.00	3790.00	3800.00
		3780.00	3790.00	3800.00	3810.00
		3790.00	3800.00	3810.00	3820.00
		3800.00	3810.00	3820.00	3830.00
		3810.00	3820.00	3830.00	3840.00
		3820.00	3830.00	3840.00	3850.00
		3830.00	3840.00	3850.00	3860.00
		3840.00	3850.00	3860.00	3870.00
		3850.00	3860.00	3870.00	3880.00
		3860.00	3870.00	3880.00	3890.00
		3870.00	3880.00	3890.00	3900.00
		3880.00	3890.00	3900.00	3910.00
		3890.00	3900.00	3910.00	3920.00
		3900.00	3910.00	3920.00	3930.00
		3910.00	3920.00	3930.00	3940.00
		3920.00	3930.00	3940.00	3950.00
		3930.00	3940.00	3950.00	3960.00
		3940.00	3950.00	3960.00	3970.00
		3950.00	3960.00	3970.00	3980.00
		3960.00	3970.00	3980.00	3990.00
		3970.00	3980.00	3990.00	4000.00
		3980.00	3990.00	4000.00	4010.00
		3990.00	4000.00	4010.00	4020.00
		4000.00	4010.00	4020.00	4030.00
		4010.00	4020.00	4030.00	4040.00
		4020.00	4030.00	4040.00	4050.00
		4030.00	4040.00	4050.00	4060.00
		4040.00	4050.00	4060.00	4070.00
		4050.00	4060.00	4070.00	4080.00
		4060.00	4070.00	4080.00	4090.00
		4070.00	4080.00	4090.00	4100.00
		4080.00	4090.00	4100.00	4110.00
		4090.00	4100.00	4110.00	4120.00
		4100.00	4110.00	4120.00	4130.00
		4110.00	4120.00	4130.00	4140.00
		4120.00	4130.00	4140.00	4150.00
		4130.00	4140.00	4150.00	4160.00
		4140.00	4150.00	4160.00	4170.00
		4150.00	4160.00	4170.00	4180.00
		4160.00	4170.00	4180.00	4190.00
		4170.00	4180.00	4190.00	4200.00
		4180.00	4190.00	4200.00	4210.00
		4190.00	4200.00	4210.00	4220.00
		4200.00	4210.00	4220.00	4230.00
		4210.00	4220.00	4230.00	4240.00

WESTERN ALIGNMENT - LONG SECTION

[illegible]

Chainage 00.000
Datum: 35.000

PROPOSED LEVELS		39.456	
EXISTING LEVELS	39.456	39.497	39.491
LEVEL DIFFERENCE	0.000	1.043	
OFFSETS	-4.349	0.000	4.278

Total Volume at Station 0+00.000	
Cut Vol	0.00
Fill Vol	0.00

Chainage 40.000
Datum: 35.000

PROPOSED LEVELS		38.936	
EXISTING LEVELS	38.936	38.883	38.841
LEVEL DIFFERENCE	0.000	1.057	
OFFSETS	-5.608	0.000	5.796

Total Volume at Station 0+40.000	
Cut Vol	0.00
Fill Vol	312.84

Chainage 20.000
Datum: 35.000

PROPOSED LEVELS		38.655	
EXISTING LEVELS	38.655	38.624	38.541
LEVEL DIFFERENCE	0.000	2.111	
OFFSETS	-4.500	0.000	6.787

Total Volume at Station 0+20.000	
Cut Vol	0.00
Fill Vol	242.58

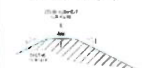
Chainage 60.000
Datum: 35.000

PROPOSED LEVELS		38.487	
EXISTING LEVELS	38.487	38.546	38.338
LEVEL DIFFERENCE	0.000	2.799	
OFFSETS	-4.815	0.000	6.914

Total Volume at Station 0+60.000	
Cut Vol	0.00
Fill Vol	345.31

General Notes

Keys

Alignment / Chainage
Horizontal
Te Karaka TownshipTYPICAL CROSS SECTION
see cross section (100%)Coordinate System in terms of NZTM 2000
Vertical Datum is based on: MVD 2016

SURVEYED: CPS CREW

DRAWN: P. RAUJOUR (CPS)

CHECKED: J. RAUJOUR (CPS)

No. Revision/Issue Date

Project Name and Address
WAIPOA RIVER
TE KARAKA TOWNSHIP
EASTERN SIDE STOPBANK
CROSS SECTIONSProject
WAIPOA RIVER
Date
11.10.2025
Scale
1:500 @ A3
Sheet
1

Chainage 80.000
Datum: 35.000



Total Volume at Station 0+80.00	
Cut Vol	0.00
Fill Vol	405.67

PROPOSED LEVELS	38.526	41.900	38.446
EXISTING LEVELS	38.526	38.633	38.446
LEVEL DIFFERENCE	0.000	2.447	0.000
OFFSETS	-5.649	0.000	6.808

Chainage 120.000
Datum: 35.000



Total Volume at Station 0+120.00	
Cut Vol	8.03
Fill Vol	379.32

PROPOSED LEVELS	38.871	41.000	38.737
EXISTING LEVELS	38.871	38.772	38.737
LEVEL DIFFERENCE	0.000	2.238	0.000
OFFSETS	-5.777	0.000	6.446

Chainage 100.000
Datum: 35.000



Total Volume at Station 0+100.00	
Cut Vol	0.00
Fill Vol	798.84

PROPOSED LEVELS	38.561	40.955	38.590
EXISTING LEVELS	38.561	38.710	38.558
LEVEL DIFFERENCE	0.000	2.245	0.000
OFFSETS	-6.688	0.000	6.879

Chainage 140.000
Datum: 35.000



Total Volume at Station 0+140.00	
Cut Vol	8.03
Fill Vol	957.91

PROPOSED LEVELS	39.046	41.000	38.953
EXISTING LEVELS	39.046	38.888	38.851
LEVEL DIFFERENCE	0.000	2.112	0.000
OFFSETS	-4.917	0.000	6.547

General Notes		
Keys --- Banks --- Boundary lines --- Fence line --- Culvert --- Culverts		
Alignment / Chainage Horizontal Te Karaka Township		
TYPICAL CROSS SECTION at VERTICAL STOPBANK (100%)		
Coordinate System: in terms of NZTM 2000 vertical Datum: in terms of MVD 2018		
SURVEYED	CPS CREW	-
DRAWN	P. HALL (CPS)	15/08/20
CHECKED	J. HALL (CPS)	15/08/20
No.	Revision/Issue	Date
For more info visit 		
Project Name and Address WAIPAQA RIVER TE KARAKA TOWNSHIP EASTERN SIDE STOPBANK CROSS SECTIONS		
Project WAIPAQA RIVER Date 11.10.2025 Scale 1:500 @ A3	Sheet 2	

Chainage 160.000
Datum: 35.000

Total Volume of Station 6+100.00
Cut Vol 0.00
Fill Vol 118.84

PROPOSED LEVELS				
EXISTING LEVELS				
LEVEL DIFFERENCE				
OFFSETS				

Chainage 200.000
Datum: 30.000

Total Volume of Station 6+100.00
Cut Vol 0.03
Fill Vol 84.16

PROPOSED LEVELS				
EXISTING LEVELS				
LEVEL DIFFERENCE				
OFFSETS				

Chainage 180.000
Datum: 35.000

Total Volume of Station 6+100.00
Cut Vol 0.00
Fill Vol 150.18

PROPOSED LEVELS				
EXISTING LEVELS				
LEVEL DIFFERENCE				
OFFSETS				

Chainage 220.000
Datum: 35.000

Total Volume of Station 6+100.00
Cut Vol 0.00
Fill Vol 99.66

PROPOSED LEVELS				
EXISTING LEVELS				
LEVEL DIFFERENCE				
OFFSETS				

General Notes													
Station Boundary lines Fence line Chain Culverts													
Alignment / Chainage Interruption Te Karaka Township													
TYPICAL CROSS SECTION 4m WIDE STOPBANK (TOP) 10m WIDE STOPBANK (TOP) 10m WIDE STOPBANK (TOP)													
Coordinate System is north of NZTM 2000 Vertical Datum is base of NZVD 2016													
<table border="1"> <tr> <td>SURVEYED</td> <td>CPS CREW</td> <td>-</td> </tr> <tr> <td>DRAWN</td> <td>P. LANGRISH (CPS)</td> <td>15/08/08</td> </tr> <tr> <td>CHECKED</td> <td>J. HUI (HOK / GDC)</td> <td>15/08/08</td> </tr> </table>		SURVEYED	CPS CREW	-	DRAWN	P. LANGRISH (CPS)	15/08/08	CHECKED	J. HUI (HOK / GDC)	15/08/08			
SURVEYED	CPS CREW	-											
DRAWN	P. LANGRISH (CPS)	15/08/08											
CHECKED	J. HUI (HOK / GDC)	15/08/08											
<table border="1"> <tr> <th>No.</th> <th>Revision/Notes</th> <th>Date</th> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </table>		No.	Revision/Notes	Date									
No.	Revision/Notes	Date											
Prepared and issued GISBORNE DESIGN ENGINEERS Te Karaka Township CPS 2nd Floor Building													
Project Name and address WAIAPAOA RIVER TE KARAKA TOWNSHIP EASTERN SIDE STOPBANK CROSS SECTIONS													
<table border="1"> <tr> <td>Project</td> <td>WAIAPAOA RIVER</td> <td>Sheet</td> <td>3</td> </tr> <tr> <td>Date</td> <td>11.10.2025</td> <td></td> <td></td> </tr> <tr> <td>Scale</td> <td>1:500 @ A3</td> <td></td> <td></td> </tr> </table>		Project	WAIAPAOA RIVER	Sheet	3	Date	11.10.2025			Scale	1:500 @ A3		
Project	WAIAPAOA RIVER	Sheet	3										
Date	11.10.2025												
Scale	1:500 @ A3												

Chainage 240.000
Datum: 35.000

Total Volume at Station 240.00
Cut Vol 0.00
Fill Vol 894.14

PROPOSED LEVELS	37.029	41.340	39.290
EXISTING LEVELS	37.029	37.159	39.290
LEVEL DIFFERENCE	0.000	4.181	0.000
OFFSETS	-8.573	0.000	6.000

Chainage 280.000
Datum: 35.000

Total Volume at Station 280.00
Cut Vol 0.03
Fill Vol 996.33

PROPOSED LEVELS	36.400	41.650	39.267
EXISTING LEVELS	36.334	36.786	39.267
LEVEL DIFFERENCE	0.065	4.865	0.000
OFFSETS	-12.000	0.000	6.766

Chainage 260.000
Datum: 35.000

Total Volume at Station 260.00
Cut Vol 0.00
Fill Vol 1225.57

PROPOSED LEVELS	36.747	41.395	39.274
EXISTING LEVELS	36.747	36.653	39.274
LEVEL DIFFERENCE	0.000	4.742	0.000
OFFSETS	-11.104	0.000	5.942

Chainage 300.000
Datum: 35.000

Total Volume at Station 300.00
Cut Vol 0.03
Fill Vol 929.95

PROPOSED LEVELS	37.010	41.505	39.293
EXISTING LEVELS	37.010	37.076	39.293
LEVEL DIFFERENCE	0.000	4.429	0.000
OFFSETS	-8.800	0.000	6.324

General Notes

Keys

- Boundary line
- Fence line
- Chain
- Culverts

Alignment / Chainage
throughout
Te Karaka Township

TYPICAL CROSS SECTION
4m WIDE STOPBANK (CPS)

Coordinate System in terms of NZTM 2011
Vertical Datum of base of: NZVD 2016

APPROVED	CPS CHIEF	-
DRAWN	SPRINGCORE (CPS)	10/2018
CHECKED	J. H. HICK (CPS)	10/2018

No.	Revision/Notes	Date
-----	----------------	------

Prepared by and issued to:
GISBORNE DISTRICT COUNCIL
For Roadworks on Te Karaka Road

Prepared by and issued to:
WAI PAO A RIVER
TE KARAKA TOWNSHIP
EASTERN SIDE STOPBANK
CROSS SECTIONS

WAI PAO A RIVER	Sheet	4
Date	11.10.2025	
Scale	1:500 @ A3	

Chainage 320.000
Datum: 35.000

Total Volume at Station 6+320.00
Cut Vol 0.00
Fill Vol 876.02

PROPOSED LEVELS	37.299	38.806	41.560	39.379
EXISTING LEVELS	37.299	37.251	37.268	39.319
LEVEL DIFFERENCE	0.000	1.558	4.294	0.000
OFFSETS	-16.422	-7.444	0.000	6.382

Chainage 360.000
Datum: 35.000

Total Volume at Station 6+360.00
Cut Vol 0.00
Fill Vol 1132.88

PROPOSED LEVELS	37.964	38.363	41.670	36.774
EXISTING LEVELS	37.964	36.971	36.971	36.774
LEVEL DIFFERENCE	0.000	1.412	4.696	0.000
OFFSETS	-11.025	-8.476	0.000	11.692

Chainage 340.000
Datum: 35.000

Total Volume at Station 6+340.00
Cut Vol 0.00
Fill Vol 823.82

PROPOSED LEVELS	37.335	37.581	41.615	39.815	38.304
EXISTING LEVELS	37.335	37.319	37.711	39.815	38.304
LEVEL DIFFERENCE	0.000	0.268	4.149	1.244	0.000
OFFSETS	-36.502	-10.131	0.000	7.100	8.522

Chainage 380.000
Datum: 35.000

Total Volume at Station 6+380.00
Cut Vol 0.00
Fill Vol 1362.68

PROPOSED LEVELS	36.699	39.988	41.725	38.175	36.675
EXISTING LEVELS	36.699	36.509	36.588	36.645	36.650
LEVEL DIFFERENCE	0.000	3.399	5.137	1.650	0.225
OFFSETS	-11.162	-5.374	0.000	9.100	12.000

General Notes								
Keys 								
Alignment / Chainage Waipaoa River Te Karaka Township								
TYPICAL CROSS SECTION 4m WHEEL STOPPING (TOP)								
Coordinate System in terms of NZTM 2011 Vertical Datum in terms of MVD 2011								
SURVEYED	CPS CREW							
DRAWN	P. PLANGKRE (CPS)	12/2020						
CHECKED	J. RAJAKOR (CPS)	1/2021						
<table border="1"> <tr> <th>No.</th> <th>Revision/Issue</th> <th>Date</th> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </table>			No.	Revision/Issue	Date			
No.	Revision/Issue	Date						
Project Name and Address GISBORNE DISTRICT COUNCIL Te Kaunihara o Te Tairāpahi CPS Ltd 2001 Project Station								
Project Name and Address WAIPAQA RIVER TE KARAKA TOWNSHIP EASTERN SIDE STOPBANK CROSS SECTIONS								
Project Name and Address WAIPAQA RIVER 11.10.2025 1:500 @ A3		Sheet 5						

Chainage 400.000
Datum: 35.000



Total Volume at Station 6+430.00
Cut Vol: 0.00
Fill Vol: 8395.15

PROPOSED LEVELS	37.485	4.1780	36.022
EXISTING LEVELS	37.186	37.255	36.977
LEVEL DIFFERENCE	0.000	4.525	1.055
OFFSETS	-10.438	0.000	9.397
			11.196

Chainage 440.000
Datum: 35.000



Total Volume at Station 6+440.00
Cut Vol: 0.00
Fill Vol: 1186.45

PROPOSED LEVELS	37.271	4.4275	37.807
EXISTING LEVELS	37.271	37.219	37.218
LEVEL DIFFERENCE	0.000	3.956	0.659
OFFSETS	-11.138	-5.038	10.866
		0.000	11.028

Chainage 420.000
Datum: 35.000



Total Volume at Station 6+420.00
Cut Vol: 0.00
Fill Vol: 1012.01

PROPOSED LEVELS	37.282	4.1835	37.433
EXISTING LEVELS	37.282	37.225	37.220
LEVEL DIFFERENCE	0.000	4.510	0.213
OFFSETS	-11.006	0.000	10.584
			11.131

Chainage 460.000
Datum: 35.000



Total Volume at Station 6+460.00
Cut Vol: 0.00
Fill Vol: 1186.87

PROPOSED LEVELS	37.339	4.1945	37.441
EXISTING LEVELS	37.339	37.417	37.441
LEVEL DIFFERENCE	0.000	4.528	0.000
OFFSETS	-11.113	0.000	10.909

General Notes		
Key: --- Station --- Boundary line --- Fence line --- Chain --- Culvert		
Alignment / Chainage Borough: Te Karaka Township		
TYPICAL CROSS SECTION at WORK STOPPAGE (TOP)		
Coordinate System in terms of NZTM 2011 Vertical Datum is based on: MEVD 2016		
SURVEYED	CPS CIVIL	-
DRAWN	P. PLANGSRI (CPS)	10/03/20
CHECKED	J. PLANK (CPS)	10/03/20
No. Revision/Issue Date		
For Name and Address GISBORNE DISTRICT COUNCIL Te Kaitiaki o Te Taiohi CPS Civil Project Services		
Project Name and Address WAIAPAQA RIVER TE KARAKA TOWNSHIP EASTERN SIDE STOPBANK CROSS SECTIONS		
Project: WAIAPAQA RIVER Date: 11.10.2025 Scale: 1:500 @ A3		6

Chainage 480.000
Datum: 35.000

Total Volume at Station 345.9830
Cut Vol 0.00
Fill Vol 1877.25

PROPOSED LEVELS	37.284	39.668	42.000
EXISTING LEVELS	37.384	37.378	37.451
LEVEL DIFFERENCE	0.000	2.290	4.547
OFFSETS	-11.381	-5.564	0.000
			9.443
			10.877

Chainage 520.000
Datum: 35.000

Total Volume at Station 345.9830
Cut Vol 0.00
Fill Vol 1231.24

PROPOSED LEVELS	37.392	42.110	37.553
EXISTING LEVELS	37.392	37.452	37.553
LEVEL DIFFERENCE	0.000	4.658	0.000
OFFSETS	-11.395	0.000	11.013

Chainage 500.000
Datum: 35.000

Total Volume at Station 345.9830
Cut Vol 0.00
Fill Vol 1219.91

PROPOSED LEVELS	37.277	38.954	42.655	37.412
EXISTING LEVELS	37.277	37.331	37.320	37.412
LEVEL DIFFERENCE	0.000	1.624	4.735	0.000
OFFSETS	-11.556	-8.899	0.000	11.985

Chainage 540.000
Datum: 35.000

Total Volume at Station 345.9830
Cut Vol 0.00
Fill Vol 1279.54

PROPOSED LEVELS	37.493	42.105	37.587
EXISTING LEVELS	37.493	37.534	37.587
LEVEL DIFFERENCE	0.000	4.531	0.000
OFFSETS	-11.544	0.000	11.656

General Notes			
Coordinates Derived in terms of NZTM 2011 Vertical Datum in terms of MVD 2011.			
SURVEYED	CPS CREW		
DRAWN	P. RAUJARE (CPS)		
CHECKED	J. RAUJARE (CPS)		

Chainage 560.000
Datum: 35.000



Total Volume at Station 8+560.00	
Cut Vol	0.00
Fill Vol	1214.26

PROPOSED LEVELS	37.546	4.360	42.220	37.579
EXISTING LEVELS	37.516	37.522	37.549	37.579
LEVEL DIFFERENCE	0.000	2.778	4.672	0.000
OFFSETS	-11.308	-5.739	0.000	11.083

Chainage 600.000
Datum: 35.000



Total Volume at Station 8+600.00	
Cut Vol	0.00
Fill Vol	1389.09

PROPOSED LEVELS	37.645	38.032	42.380	37.603
EXISTING LEVELS	37.625	37.650	37.699	37.603
LEVEL DIFFERENCE	0.000	0.381	4.681	0.000
OFFSETS	-11.271	-10.497	0.000	10.953

Chainage 580.000
Datum: 35.000



Total Volume at Station 8+580.00	
Cut Vol	0.00
Fill Vol	1222.33

PROPOSED LEVELS	37.578	42.275	39.857	37.681
EXISTING LEVELS	37.578	37.608	37.670	37.681
LEVEL DIFFERENCE	0.000	4.667	2.186	0.000
OFFSETS	-11.395	0.000	6.737	11.088

Chainage 620.000
Datum: 35.000



Total Volume at Station 8+620.00	
Cut Vol	0.00
Fill Vol	1597.63

PROPOSED LEVELS	37.954	42.385	39.589	37.841
EXISTING LEVELS	37.954	37.954	37.878	37.841
LEVEL DIFFERENCE	0.000	4.431	1.651	0.000
OFFSETS	-10.803	0.000	7.652	10.588

General Notes

Keys

- Boundary line
- Fence line
- Chains
- Culverts

Alignment / Chainage

Waipaoa River

TE KARAKA TOWNSHIP

TYPICAL CROSS SECTION
4m WIDE STOPBANK (TOP)

Coordinate System in terms of NZTM 2010
Vertical Datum: Mean of MVD 2010

SURVEYED	CPS CREW	-
DRAWN	P. LANGRISH (CPS)	10/08/08
CHECKED	J. H. HICK (CPS)	10/08/08

No.	Revision/Notes	Date

Prepared by and issued to:

GISBORNE DISTRICT COUNCIL
For Engineering & Transport

CPS
Civil Engineering Solutions

Project Name and Address:

WAIPAPOA RIVER
TE KARAKA TOWNSHIP
EASTERN SIDE STOPBANK
CROSS SECTIONS

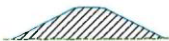
Project: WAIPAPOA RIVER

Date: 11.10.2025

Scale: 1:500 @ A3

Sheet: 8

Chainage 640.000
Datum: 35.000



Total Volume at Station 6-640.00
Cut Vol 0.00
Fill Vol 118.02

PROPOSED LEVELS	38.007	38.007	42.637	42.440	42.851	38.111
EXISTING LEVELS	38.007	38.007	38.007	38.006	38.043	38.111
LEVEL DIFFERENCE	0.000	0.000	4.630	4.434	4.808	0.000
OFFSETS	-10.775	0.000	-5.867	0.000	5.078	10.557

Chainage 680.000
Datum: 35.000



Total Volume at Station 6-680.00
Cut Vol 0.00
Fill Vol 125.50

PROPOSED LEVELS	37.835	37.835	42.550	42.550	37.875
EXISTING LEVELS	37.835	37.835	37.878	37.878	37.875
LEVEL DIFFERENCE	0.000	0.000	4.672	4.672	0.000
OFFSETS	-11.370	0.000	0.000	0.000	11.250

Chainage 660.000
Datum: 35.000



Total Volume at Station 6-660.00
Cut Vol 0.00
Fill Vol 102.74

PROPOSED LEVELS	37.835	37.835	42.495	42.495	37.947
EXISTING LEVELS	37.835	37.835	37.878	37.878	37.901
LEVEL DIFFERENCE	0.000	0.000	4.617	4.617	0.046
OFFSETS	-11.221	0.000	0.000	0.000	11.088

Chainage 700.000
Datum: 35.000



Total Volume at Station 6-700.00
Cut Vol 0.00
Fill Vol 127.87

PROPOSED LEVELS	37.871	37.871	42.548	42.548	37.923
EXISTING LEVELS	37.871	37.871	37.824	37.821	37.923
LEVEL DIFFERENCE	0.000	0.000	4.724	4.727	0.000
OFFSETS	-11.293	0.000	0.000	0.000	11.190

General Notes

Keys

- Boundary lines
- Proposed Levels
- Existing Levels
- Offsets
- Alignment / Chainage

TYPICAL CROSS SECTION
4m WIDE STOPBANK (TOP)

Coordinate System in terms of NZTM 2000
Vertical Datum in terms of MVD 2016

DESIGNED BY	CPS CREW	DATE	10/10/2025
CHECKED BY	J. H. H. (CPS)	DATE	10/10/2025

No.	Revisions/Notes	Date
-----	-----------------	------

GISBORNE
DISTRICT COUNCIL
Te Karaka o Te Taupō

CPS
Civil Engineering

Project Name and Address
WAIKAPA RIVER
TE KARAKA TOWNSHIP
EASTERN SIDE STOPBANK
CROSS SECTIONS

WAIKAPA RIVER
Date: 11.10.2025
Scale: 1:500 @ A3

9

Chainage 720.000
Datum: 35.000

Total Volume at Station 6+720.00	
Cut Vol	0.00
Fill Vol	1244.38

PROPOSED LEVELS	37.807	40.769		
EXISTING LEVELS	37.807	37.864	42.586	
LEVEL DIFFERENCE	0.000	2.925	37.693	42.586
OFFSETS	-11.637	0.000	6.723	10.988

Chainage 760.000
Datum: 35.000

Total Volume at Station 6+760.00	
Cut Vol	0.00
Fill Vol	1235.54

PROPOSED LEVELS	37.857	40.586		
EXISTING LEVELS	37.857	38.139	37.595	39.663
LEVEL DIFFERENCE	0.000	2.447	37.595	42.622
OFFSETS	-11.628	0.000	4.707	11.241

Chainage 740.000
Datum: 35.000

Total Volume at Station 6+740.00	
Cut Vol	0.00
Fill Vol	1235.56

PROPOSED LEVELS	37.823	42.604	38.701	
EXISTING LEVELS	37.823	37.831	38.052	37.975
LEVEL DIFFERENCE	0.000	4.772	0.649	0.000
OFFSETS	-11.662	0.000	9.795	11.957

Chainage 780.000
Datum: 35.000

Total Volume at Station 6+780.00	
Cut Vol	0.00
Fill Vol	1283.56

PROPOSED LEVELS	37.886	42.644	37.595	
EXISTING LEVELS	37.886	37.510	38.024	36.058
LEVEL DIFFERENCE	0.000	1.810	4.615	1.537
OFFSETS	-11.206	-7.738	0.000	11.993

General Notes								
Keys 								
Alignment / Chainage 								
TYPICAL CROSS SECTION 								
Coordinate System in terms of NZTM 2000 Vertical Datum in terms of MVD 2016								
SURVEYED	CPS CREW	-						
DRAWN	P. PLANGIERE (CPS)	10/03/08						
CHECKED	J. R. FROE (CPS)	10/03/08						
<table border="1"> <tr> <th>No.</th> <th>Revisions/Notes</th> <th>Date</th> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </table>			No.	Revisions/Notes	Date			
No.	Revisions/Notes	Date						
Project Name and Address WAIPAQA RIVER TE KARAKA TOWNSHIP EASTERN SIDE STOPBANK CROSS SECTIONS								
Sheet 11.10.2025 1:500 @ A3		Sheet 10						



PROPOSED LEVELS	37,818	39,814	4,267
EXISTING LEVELS	37,818	38,191	38,238
LEVEL DIFFERENCE	0.000	1,623	38,256
OFFSETS	-1,578	-7,588	0.000

Chainage 840.000
Datum: 35.000



PROPOSED LEVELS	14.96	4.693	38.036
EXISTING LEVELS	30.45	30.956	38.036
LEVEL DIFFERENCE	0.000	4.698	0.000
OFFSETS	-11.045	0.000	11.215

Chainage 820.000
Datum: 35.000



PROPOSED LEVELS			
EXISTING LEVELS	36.021	36.021	42.675
LEVEL DIFFERENCE	0.000	0.000	4.703
OFFSETS	-11.210	10.560	0.000

Chainage 860.000
Datum: 35.000



PROPOSED LEVELS	38.10	40.378		42.711	
EXISTING LEVELS	36.10	38.050		38.055	38.374
LEVEL DIFFERENCE	0.000	2.328		4.657	0.252
OFFSETS	-11.007	-6.547		0.000	18.215

400



Alignment / Chaining
throughout
La Grange Township

TYPICAL CROSS SECTION



Coordinate System in term of : NZTM 2000
Vertical Datum in term of : NZVD 2016.

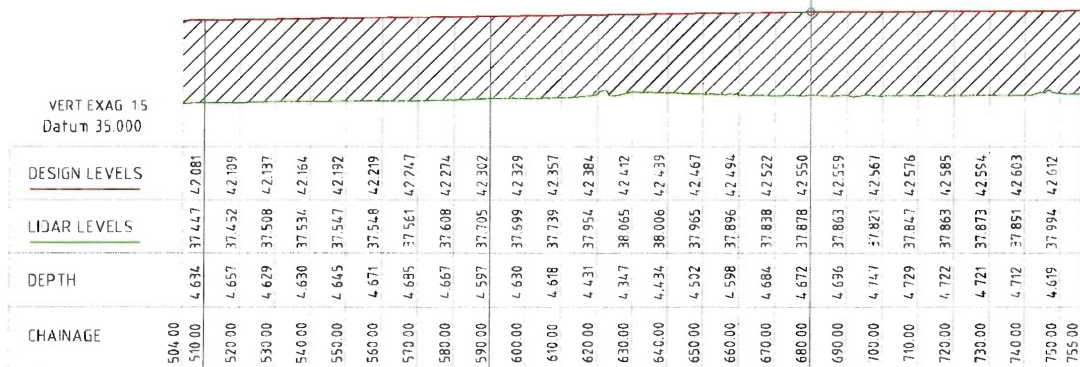
SURVEYED	OPS CREW	=
DRAWN	P. R. AUGER (OPS)	10/20/88
CHECKED	J. R. FROM (ODD)	10/20/88

No.	Revista/Ano	Col.
-----	-------------	------



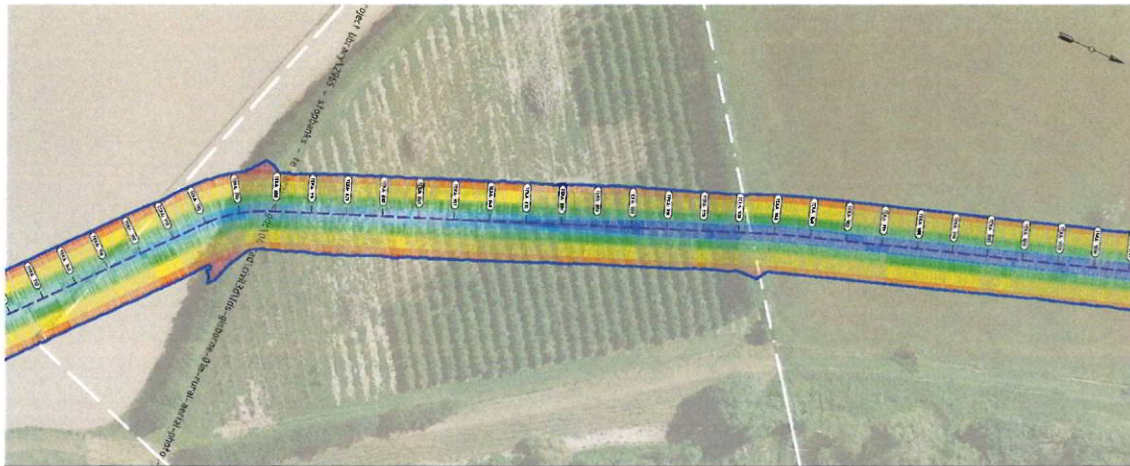
Project Name and Address
WAIPAOA RIVER
TE KARAKA TOWNSHIP
EASTERN SIDE STOPBANK
CROSS SECTIONS

Project WAIPIAOA RIVER	Sheet
Date 11.10.2025	11
Scale 1:500 @ A3	



EASTERN ALIGNMENT - LONG SECTION

General Notes										
Maps										
 0m 100m	Datum:									
 Boundary Lines	 Fence Lines									
 Gates	 Culverts									
Alignment / Drainage (Interpolated) To Natural Flowing										
TDA 195										
Coordinate System in form of NZ79 2000 Vertical Datum in form of MEVD 2000										
EVAL PROJECT SUBMITTALS										
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Submitted by:</td> <td style="width: 40%;">B. LABRUTH-OPS</td> <td style="width: 30%;">12/2025</td> </tr> <tr> <td>Drawn by:</td> <td>P.F. LAUGERIE</td> <td>12/2025</td> </tr> <tr> <td>Checked by:</td> <td>LEIGH-DEAN [SIC]</td> <td>12/2025</td> </tr> </table>		Submitted by:	B. LABRUTH-OPS	12/2025	Drawn by:	P.F. LAUGERIE	12/2025	Checked by:	LEIGH-DEAN [SIC]	12/2025
Submitted by:	B. LABRUTH-OPS	12/2025								
Drawn by:	P.F. LAUGERIE	12/2025								
Checked by:	LEIGH-DEAN [SIC]	12/2025								
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">1</td> <td style="width: 40%;">New 1/2026 2025</td> <td style="width: 30%;">12/2025</td> </tr> <tr> <td>Rev:</td> <td>Revisions/Notes</td> <td>Date</td> </tr> </table>		1	New 1/2026 2025	12/2025	Rev:	Revisions/Notes	Date			
1	New 1/2026 2025	12/2025								
Rev:	Revisions/Notes	Date								
 GISBORNE DISTRICT COUNCIL 200 Kaitiaki Avenue, Te Kaitiaki  CPS Land Project Solutions										
 WAPADA RIVER TE KARAKARA TOWNSHIP EASTERN SIDE STOPBANK FIELD SECTION										
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;"> Project Sheet WAPADA RIVER 11.10.2025 13000 B A3 </td> <td style="width: 40%; text-align: center; font-size: 2em; font-weight: bold;">3</td> </tr> </table>		Project Sheet WAPADA RIVER 11.10.2025 13000 B A3	3							
Project Sheet WAPADA RIVER 11.10.2025 13000 B A3	3									



VERT EXAC 15 Datum 35.000		0.1%	
DESIGN LEVELS			
LIDAR LEVELS			
DEPTH			
CHAINAGE			
756.00	4.715	37.903	42.618
760.00	4.767	37.915	42.621
770.00	4.727	37.903	42.630
780.00	4.615	38.024	42.639
790.00	5.976	36.672	42.648
800.00	4.401	38.256	42.657
810.00	4.579	38.087	42.666
820.00	4.762	37.913	42.675
830.00	4.633	38.051	42.684
840.00	4.637	38.056	42.693
850.00	4.658	38.043	42.702
860.00	4.656	38.055	42.711
870.00	4.619	38.101	42.720
880.00	4.545	38.183	42.729
890.00	4.578	38.159	42.738
900.00	4.580	38.167	42.747
910.00	4.580	38.176	42.756
920.00	4.425	38.340	42.765
930.00	5.359	37.414	42.774
940.00	4.527	38.255	42.782
950.00	4.481	38.310	42.791
960.00	4.494	38.306	42.800
970.00	4.497	38.312	42.809
980.00	4.486	38.333	42.818
990.00	4.453	38.374	42.827
1000.00	4.390	38.447	42.836
1008.00			

EASTERN ALIGNMENT - LONG SECTION

Source Notes
Keys
Banks
Boundary lines
Fence lines
Ditches
Culverts
Alignment / Change
Throughput
to Road Forming

Coordinate System in form of: NZM 2000
Vertical Datum in form of: MEVD 2000

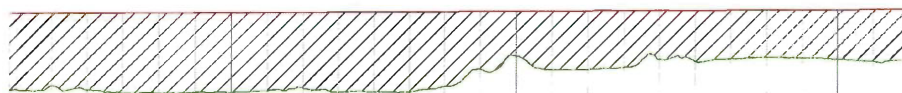
CIVIL PROJECT SOLUTIONS
Surveyed by: B. KAPITIYER
Drawn by: P. LAURENCE
Checked by: J. LAURENCE (JCL)

1. New road works
2. Road widening
3. Road improvement

GISBORNE
CPS
CPS
CPS

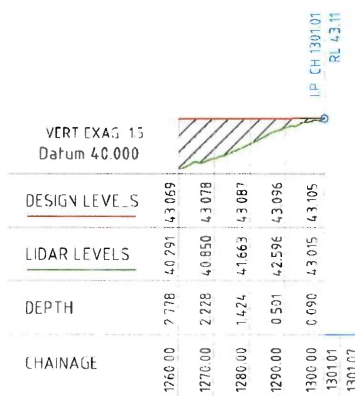
WAPADA RIVER
TE KARAKA TOWNSHIP
EASTERN SIDE STOPBANK
LONG SECTION

WAPADA RIVER
11.10.2025
1:000 @ A3

[illegible]

EASTERN ALIGNMENT - LONG SECTION

[illegible]



EASTERN ALIGNMENT - LONG SECTION

Drawn by: [Signature]

Key:

- Boundary lines
- Fence lines
- [Symbol] Ditches
- [Symbol] Culverts

Alignment / Change
Throughput
To Karara Township

Coordinate System in terms of NZTM 2000
Vertical Datum in terms of NZVD 2016

CIVIL PROJECT SOLUTIONS

Surveyed by: B. CAMPBELL

Drawn by: P. HARRISON 10/10/2025

Checked by: J. HARRISON 10/10/2025

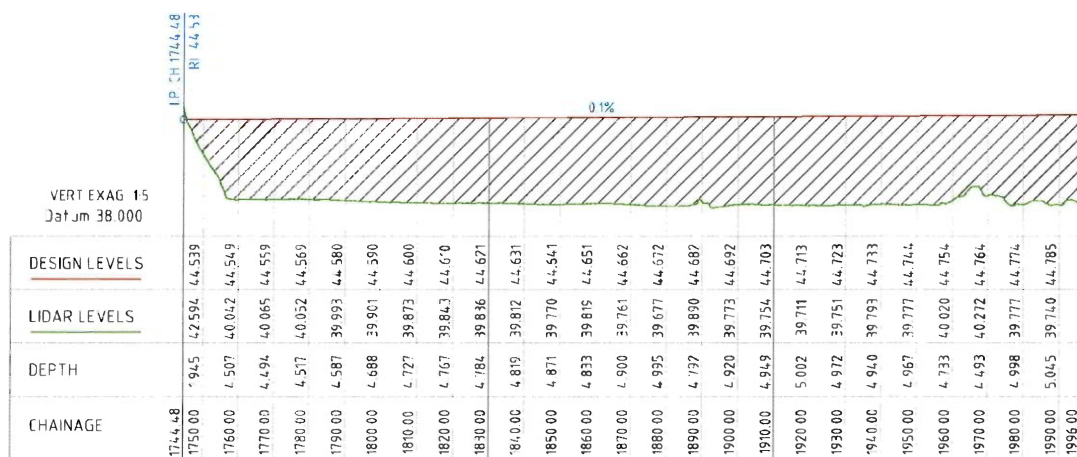
1	New / Alter / Del	10/10/2025
Rev	Revised/Issue	None

GISBORNE DISTRICT COUNCIL
The Environment for Tomorrow

CPS
Civil Project Solutions

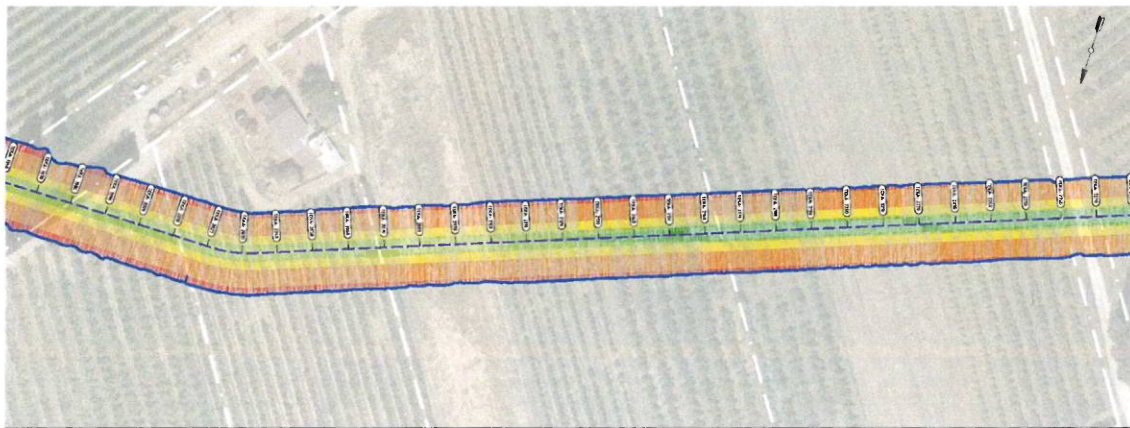
WAPADA RIVER
TE KARARA TOWNSHIP
EASTERN SEE STOPBANK
LONG SECTION

Sheet	WAPADA RIVER	Rev	6
Date	11.10.2025		
Scale	1:1000 @ A3		



WESTERN ALIGNMENT - LONG SECTION

General Notes	
Page	
    	Borens Boundary lines Fence lines Gates Easements
Alignment / Change (to be confirmed)	
To be confirmed	
Coordinate System in terms of: NZ 86 2000 North & East in terms of: NZSD 2000	
CIVIL PROJECT SOLUTIONS	
Surveyed by	B.CAMPBELL
Drawn by	PALASABE
Checked by	SURFORD (JCK)
05/2025	
1 Design Notes to be confirmed 2 After 1st day 3 After 2nd day	
Date	05/2025
To be confirmed To be confirmed	
GISBORNE CENTRAL COUNCIL (Incorporated in the Tararua District)	
CPS CIVIL PROJECT SOLUTIONS	
To be confirmed To be confirmed	
WAKAPAA RIVER WESTERN SIDE STOPBANK LONG SECTION	
1:1000 @ A3	
Date: 13/10/2025	
1	



VERT EXAG 15 Datum 35.000																								
DESIGN LEVELS																								
LIDAR LEVELS																								
DEPTH																								
CHANGE																								

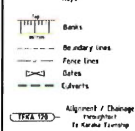
WESTERN ALIGNMENT - LONG SECTION

General Notes	
Key: --- Boundary Lines --- Fence Lines --- Gates --- Culverts --- Alignment / Change --- Proposed --- Existing	
Coordinate System in terms of NZTD 2000 Vertical Datum in terms of NZVD 2000	
CIVIL PROJECT SOLUTIONS Surveyed by: B. CAMPBELL Drawn by: P. J. J. J. J. Checked by: J. J. J. J.	
1	Design Levels to be confirmed
2	New / old data
3	Revisions/Notes
GISBORNE THE Kaitiaki Take Kaitiaki CPS City of Gisborne	
WAPADA RIVER TE KARAKA TOWNSHIP WESTERN SIDE STOPBANK LONG SECTION	
WAPADA RIVER 13.10.2025 1:1000 @ A3	2



General notes

Keys



Coordinate System in form of : NZTM 2000
Vertical Datum in form of : NZVD 2016

CIVIL PROJECT SOLUTIONS

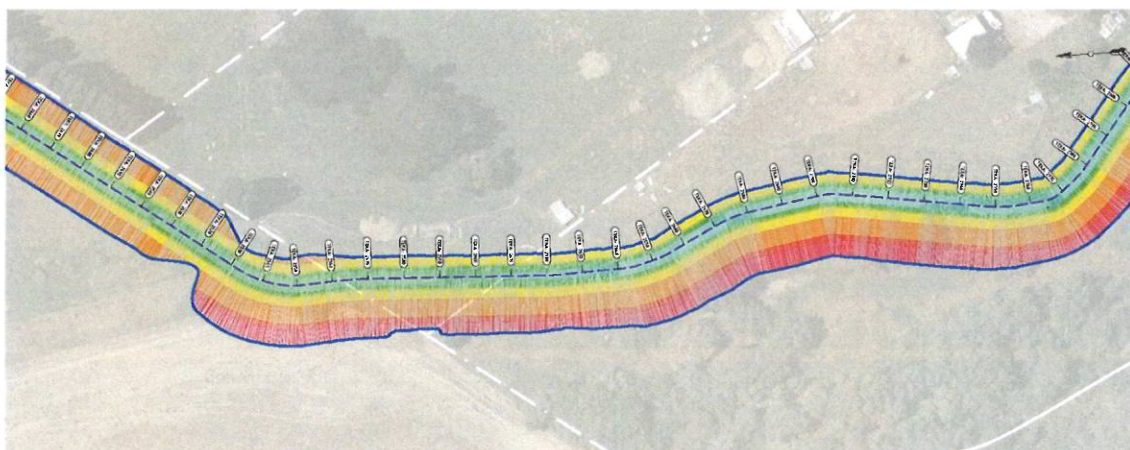
Surveyed by:	B. CARBUTHERS	-
Drawn by:	P. FLAUGERE	07/2025
Checked by:	J. RUPPEL (GEC)	10/2025

2	Design Levels to be confirmed	
1	New Lateral data	96/2
No.	Revision/used	No.



WAIKATO RIVER
TE KARAKA TOWNSHIP
WESTERN SIDE STOPBANK
LONG SECTION

Project WAPACA RIVER	Sheet 3
Date 13.10.2025	
Scale 1:1000 @ A3	



VERT EXAG 15 Datum 38.000		0.1%	
CHAINAGE	DEPTH	LIDAR LEVELS	DESIGN LEVELS
2500.00			
2510.00	4.430	40.888	45.318
2520.00	3.881	41.447	45.328
2530.00	2.774	42.564	45.338
2540.00	6.001	39.347	45.349
2550.00	6.054	39.304	45.359
2560.00	5.715	39.654	45.369
2570.00	5.058	40.321	45.379
2580.00	4.824	40.565	45.390
2590.00	4.828	40.572	45.400
2600.00	4.912	40.498	45.410
2610.00	4.830	40.591	45.420
2620.00	4.880	40.551	45.431
2630.00	4.749	40.692	45.441
2640.00	4.650	40.801	45.451
2650.00	3.925	41.537	45.461
2660.00	3.559	41.912	45.472
2670.00	3.886	41.596	45.482
2680.00	3.421	42.072	45.492
2690.00	4.003	41.499	45.502
2700.00	3.801	41.772	45.513
2710.00	4.070	41.452	45.523
2720.00	4.217	41.317	45.533
2730.00	4.084	41.160	45.543
2740.00	4.021	41.532	45.554
2750.00	3.920	41.644	45.564
2752.00			

WESTERN ALIGNMENT - LONG SECTION

General Notes

Keys

- Boundary lines
- Fence lines
- Gates
- Culverts
- Alignment / Challenge throughout to Karaka Township

Coordinate System in form of NZM 2000
Vertical Datum in form of MEVD 2004

Civil Project Solutions

Drawn by: B. CARLTON
Checked by: J. L. HARRIS
Date: 07/2025

1. Single Levels to be confirmed
2. New Lidar Data
3. No. of Points/Station

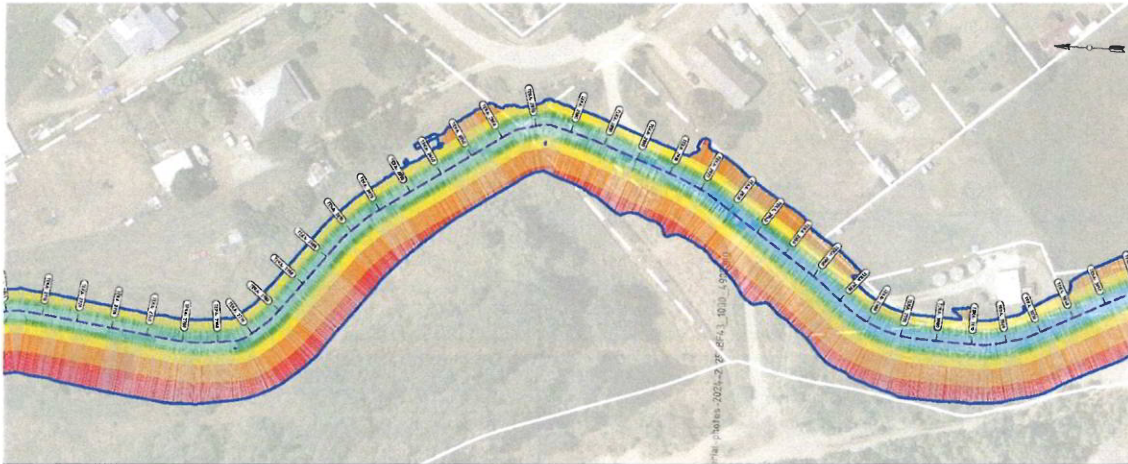
GISBORNE
INTERACT CONSULTING
For Professionals & Trade Builders

CPS
Civil Project Solutions

WAPADA RIVER
TE KARAKA TOWNSHIP
WESTERN STOPBANK
LONG SECTION

WAPADA RIVER
13.10.2025
1:000 @ A3

4



VERT EXAG 15
Datum 38.000

DESIGN LEVELS		LIDAR LEVELS		DEPTH		CHANGAGE	
2752.00	42.119	45.574	3.455	4.251	41.333	45.584	4.333
2760.00	42.119	45.574	3.455	4.251	41.333	45.584	4.333
2770.00	42.119	45.574	3.455	4.251	41.333	45.584	4.333
2780.00	42.119	45.574	3.455	4.251	41.333	45.584	4.333
2790.00	42.119	45.574	3.455	4.251	41.333	45.584	4.333
2800.00	42.119	45.574	3.455	4.251	41.333	45.584	4.333
2810.00	42.119	45.574	3.455	4.251	41.333	45.584	4.333
2820.00	42.119	45.574	3.455	4.251	41.333	45.584	4.333
2830.00	42.119	45.574	3.455	4.251	41.333	45.584	4.333
2840.00	42.119	45.574	3.455	4.251	41.333	45.584	4.333
2850.00	42.119	45.574	3.455	4.251	41.333	45.584	4.333
2860.00	42.119	45.574	3.455	4.251	41.333	45.584	4.333
2870.00	42.119	45.574	3.455	4.251	41.333	45.584	4.333
2880.00	42.119	45.574	3.455	4.251	41.333	45.584	4.333
2890.00	42.119	45.574	3.455	4.251	41.333	45.584	4.333
2900.00	42.119	45.574	3.455	4.251	41.333	45.584	4.333
2910.00	42.119	45.574	3.455	4.251	41.333	45.584	4.333
2920.00	42.119	45.574	3.455	4.251	41.333	45.584	4.333
2930.00	42.119	45.574	3.455	4.251	41.333	45.584	4.333
2940.00	42.119	45.574	3.455	4.251	41.333	45.584	4.333
2950.00	42.119	45.574	3.455	4.251	41.333	45.584	4.333
2960.00	42.119	45.574	3.455	4.251	41.333	45.584	4.333
2970.00	42.119	45.574	3.455	4.251	41.333	45.584	4.333
2980.00	42.119	45.574	3.455	4.251	41.333	45.584	4.333
2990.00	42.119	45.574	3.455	4.251	41.333	45.584	4.333
3000.00	42.119	45.574	3.455	4.251	41.333	45.584	4.333
3004.00	42.119	45.574	3.455	4.251	41.333	45.584	4.333

WESTERN ALIGNMENT - LONG SECTION

General Notes

Key

- Boundary lines
- Fence lines
- Drains
- Alignment / Change through to Karaka Township

Coordinate System in form of NZM 2000
Vertical Datum in form of NZVD 2016

CIVIL PROJECT SOLUTIONS

Surveyed by: B. CAMPBELL

Drawn by: J. CAMPBELL

Checked by: J. CAMPBELL

Design Events to be confirmed

New Local 2016

10/2025

GISBORNE
INTERACTIVE
To Knowledge for Tomorrow

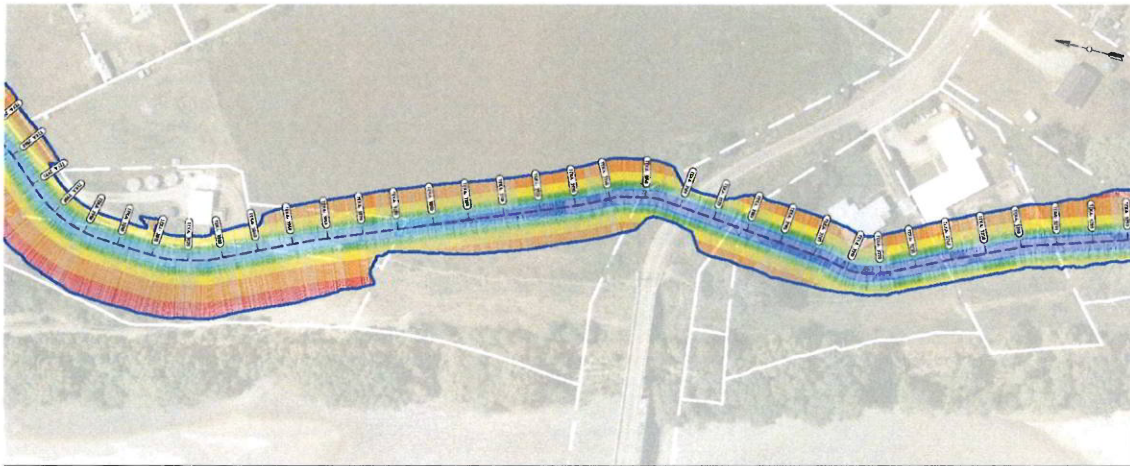
CPS
Civil Project Solutions

WAPADA RIVER
TE KARAKA TOWNSHIP
WESTERN SEE STOPBANK
LONG SECTION

WAPADA RIVER

13.10.2025

5



0.1%

VERT EXAG 15
Datum 38 000

CHAINAGE	DEPTH	LIDAR LEVELS	DESIGN LEVELS
3004.00			
3010.00	4.423	41.408	45.831
3020.00	4.417	41.424	45.841
3030.00	4.323	41.529	45.851
3040.00	4.074	41.787	45.861
3050.00	2.981	42.891	45.872
3060.00	2.188	43.594	45.882
3070.00	3.410	42.482	45.892
3080.00	4.196	41.706	45.902
3090.00	4.431	41.482	45.913
3100.00	4.390	41.533	45.923
3110.00	4.253	41.681	45.933
3120.00	4.150	41.794	45.943
3130.00	4.217	41.737	45.954
3140.00	4.239	41.725	45.964
3150.00	3.982	41.992	45.974
3160.00	1.600	44.384	45.984
3170.00	2.795	43.199	45.995
3180.00	4.042	41.963	46.005
3190.00	4.205	41.811	46.015
3200.00	4.276	41.750	46.025
3210.00	4.485	41.550	46.036
3220.00	4.147	41.899	46.046
3230.00	4.281	41.775	46.056
3240.00	4.536	41.530	46.066
3250.00	4.463	41.514	46.077
3256.00			

WESTERN ALIGNMENT - LONG SECTION

Sheet Name

VP6

Scale

1:1000

North Arrow

Legend

- Proposed Road
- Proposed Footpath
- Proposed Drainage
- Proposed Kerb
- Proposed Boundary
- Proposed Fence
- Proposed Setback
- Proposed Easement

Coordinate System: NZTM 2000
Vertical Datum: NZVD 2000

CIVIL PROJECT SOLUTIONS

Designed by: J. L. J. L. J. L.

Drawn by: J. L. J. L. J. L.

Checked by: J. L. J. L. J. L.

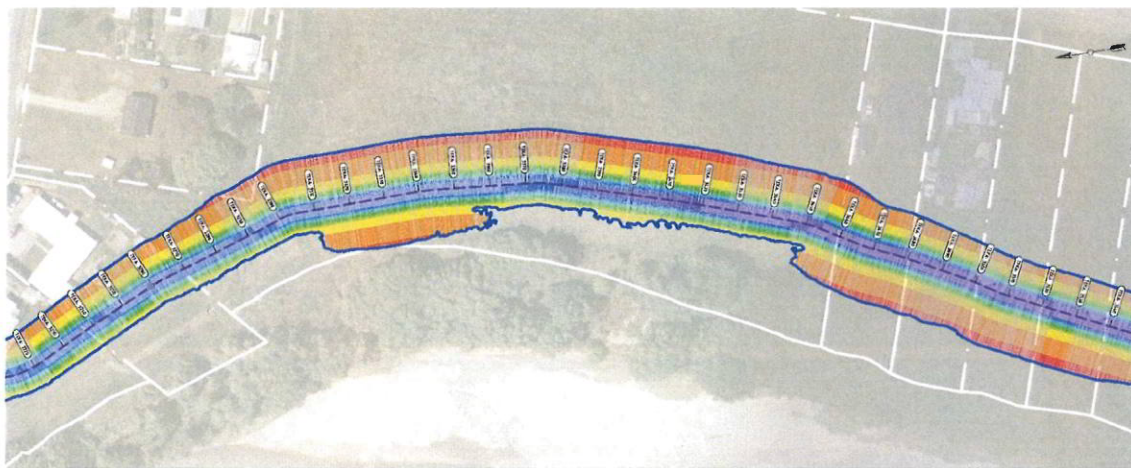
Scale: 1:1000

Project Name: WAIKATO RIVER
TE KARAKA TOWNSHIP
WESTERN SIDE STOPBANK
LONG SECTION

Sheet: 6

Date: 13/10/2025

Scale: 1:1000 @ A3



0.1%

VERT EXAG 15
Datum 38.000

DESIGN LEVELS	4.6087	4.6097	4.6107	4.6118	4.6128	4.6138	4.6148	4.6159	4.6169	4.6179	4.6189	4.6199	4.6209	4.6219	4.6229	4.6239	4.6249	4.6259	4.6269	4.6279	4.6289	4.6299	4.6309	4.6319	4.6329	4.6339	
LIDAR LEVELS	4.1764	4.2035	4.1975	4.1910	4.2686	4.2204	4.2402	4.2371	4.2354	4.2457	4.2388	4.2324	4.2334	4.2387	4.2367	4.2391	4.2230	4.2213	4.2346	4.2537	4.3107	4.3957	4.4223	4.4496	4.3990	4.6333	
DEPTH	4.323	4.062	4.413	4.208	3.441	3.934	3.747	3.783	3.815	3.722	3.801	3.877	3.969	3.849	4.021	4.048	3.925	3.744	3.185	2.345	2.090	2.126	2.343	2.343	2.343	2.343	
CHAINAGE	3256+00	3260+00	3270+00	3280+00	3290+00	3300+00	3310+00	3320+00	3330+00	3340+00	3350+00	3360+00	3370+00	3380+00	3390+00	3400+00	3410+00	3420+00	3430+00	3440+00	3450+00	3460+00	3470+00	3480+00	3490+00	3500+00	3508+00

WESTERN ALIGNMENT - LONG SECTION

Source Notes

Keys

- Boundary Lines
- Proposed Lines
- Setback
- Easements
- Alignment / Obstacle

Coordinate System: NZM2000
Vertical Datum: NZVD2000

CIVIL PROJECT SOLUTIONS

Surveyed by: B. CARRUTHERS
Drawn by: P. J. ALGERE
Checked by: J. B. HICKS

Change Levels to be confirmed
New LIDAR DATA
Revised/Issued

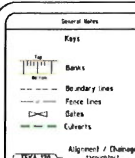
13/10/2025

7



VERT EXAG 15 Datum 38.000	
DESIGN LEVELS	
LIDAR LEVELS	
DEPTH	
CHAINAGE	

WESTERN ALIGNMENT - LONG SECTION



Coordinate System in terms of : NZTM 2000
Vertical Datum in terms of : NZVD 2016

CIVIL PROJECT SOLUTIONS

Surveyed by :	B. CARRUTHERS	-
Drawn by :	P. FLAUGERE	07/2025
Flashed by :	J. RUDOLPH [SOL]	10/2025

2	Design levels to be confirmed	
1	Flow 1.05M 0312	04/2
2	Bandwidth 0.5 L/s	04/2



WAIKAPA RIVER
TE KARAKA TOWNSHIP
WESTERN SIDE STOPBANK
LONG SECTION

WAPADA RIVER	8
13.10.2025	
1.1000 B A3	

Chainage 880.000
Datum: 35.000

Total Volume of Station 8-880.00	
Cut Vol	0.00
Fill Vol	1895.39

PROPOSED LEVELS	38.038	42.779	38.723	38.169
EXISTING LEVELS	38.038	38.183	38.163	38.169
LEVEL DIFFERENCE	0.000	4.546	0.560	0.000
OFFSETS	-11.283	0.000	9.971	11.071

Chainage 920.000
Datum: 35.000

Total Volume of Station 8-920.00	
Cut Vol	0.00
Fill Vol	1156.18

PROPOSED LEVELS	38.295	42.765	38.353	38.353
EXISTING LEVELS	38.295	38.310	38.353	38.353
LEVEL DIFFERENCE	0.000	4.425	0.000	0.000
OFFSETS	-10.810	0.000	10.724	0.000

Chainage 900.000
Datum: 35.000

Total Volume of Station 8-900.00	
Cut Vol	0.00
Fill Vol	1184.79

PROPOSED LEVELS	38.022	42.717	38.260	38.260
EXISTING LEVELS	38.021	38.079	38.260	38.260
LEVEL DIFFERENCE	0.000	4.590	0.000	0.000
OFFSETS	-11.832	0.000	10.871	0.000

Chainage 940.000
Datum: 35.000

Total Volume of Station 8-940.00	
Cut Vol	0.00
Fill Vol	1145.82

PROPOSED LEVELS	38.275	42.783	38.384	38.384
EXISTING LEVELS	38.275	38.286	38.355	38.384
LEVEL DIFFERENCE	0.000	4.527	0.837	0.000
OFFSETS	-10.815	0.000	9.872	10.698

General Notes

Keys

- Banks
- Boundary lines
- Fences
- Culverts
- Alignment / Chainage throughout Te Karaka Township

TYPICAL CROSS SECTION

Coordinate System in form of NZTM 2011
Vertical Datum in form of NZVD 2016

SURVEYED	CPS CREW	-
DRAWN	M. R. LAUGHLIN (CPS)	10/08/18
CHECKED	J. H. HARRIS (CPS)	10/08/18

No.	Revisions/Notes	Date
-----	-----------------	------



Project Name and Address
WAIKAPA RIVER
TE KARAKA TOWNSHIP
EASTERN SIDE STOPBANK
CROSS SECTIONS

Sheet	12
Date	11.10.2025
Scale	1:500 @ A3

Chainage 960.000
Datum: 35.000

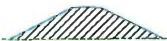
Total Volume at Station 6+960.00
Cut Vol 0.00
Fill Vol 118.69

PROPOSED LEVELS	38.214	42.801	40.554	38.378
EXISTING LEVELS	38.214	38.306	38.386	38.378
LEVEL DIFFERENCE	0.000	4.494	2.168	0.000
OFFSETS	-10.972	0.000	6.393	10.746

Chainage 1000.000
Datum: 35.000

Total Volume at Station 6+1000.00
Cut Vol 0.00
Fill Vol 118.69

PROPOSED LEVELS	38.338	41.070	42.836	38.578
EXISTING LEVELS	38.338	38.432	38.447	38.578
LEVEL DIFFERENCE	0.000	2.637	4.390	0.000
OFFSETS	-10.896	-5.634	0.000	10.496

Chainage 980.000
Datum: 35.000

Total Volume at Station 6+980.00
Cut Vol 6.00
Fill Vol 104.19

PROPOSED LEVELS	38.292	42.815	38.415
EXISTING LEVELS	38.292	38.333	38.421
LEVEL DIFFERENCE	0.000	4.482	0.000
OFFSETS	-10.952	0.000	10.699

Chainage 1020.000
Datum: 35.000

Total Volume at Station 6+1020.00
Cut Vol 3.80
Fill Vol 107.19

PROPOSED LEVELS	38.372	42.854	38.716
EXISTING LEVELS	38.364	38.381	38.576
LEVEL DIFFERENCE	0.008	4.474	0.140
OFFSETS	-10.881	0.000	10.975

General Notes		
Keys 		
CRES 120 Alignment / Chainage through Te Karaka Township		
TYPICAL CROSS SECTION 40' WIDE STOPBANK (TOP) 		
Coordinates System in term of NZTM 2000 Vertical Datum in term of MVD 2018		
SURVEYED CPM CREW 2022-2024	DESIGNED P. RANGIERE (CPS) 08/2024	CHECKED J. H. HICK (CPS) 08/2024
No.	Revisions/Notes	Date
Project Name and Address GISBORNE DISTRICT COUNCIL Te Karaka Township CPS Civil Engineering		
Project Name and Address WAIAPAOA RIVER TE KARAKA TOWNSHIP EASTERN SIDE STOPBANK CROSS SECTIONS		
WAIAPAOA RIVER Date 11.10.2025 Scale 1:500 @ A3	Sheet 13	

Chainage 1040.000
Datum: 35.000

Total Volume at Station 1040.00	
Cut Vol	0.00
Fill Vol	3888.10

PROPOSED LEVELS	38.348	42.872	39.064	38.518
EXISTING LEVELS	38.348	38.367	38.535	38.518
LEVEL DIFFERENCE	0.000	4.505	1.279	0.000
OFFSETS	-10.944	0.000	8.036	10.608

Chainage 1080.000
Datum: 35.000

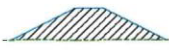
Total Volume at Station 1080.00	
Cut Vol	0.00
Fill Vol	1123.81

PROPOSED LEVELS	38.345	42.908	40.263	38.569
EXISTING LEVELS	38.345	38.509	38.694	38.569
LEVEL DIFFERENCE	0.000	4.399	1.649	0.000
OFFSETS	-16.825	0.000	7.189	10.579

Chainage 1060.000
Datum: 35.000

Total Volume at Station 1060.00	
Cut Vol	0.00
Fill Vol	1032.83

PROPOSED LEVELS	38.372	42.899	40.313	38.453
EXISTING LEVELS	38.372	38.446	38.593	38.453
LEVEL DIFFERENCE	0.000	4.453	1.880	0.000
OFFSETS	-11.656	0.000	7.654	10.776

Chainage 1100.000
Datum: 35.000

Total Volume at Station 1100.00	
Cut Vol	0.00
Fill Vol	1121.38

PROPOSED LEVELS	38.448	42.926	39.877	38.575
EXISTING LEVELS	38.448	38.434	38.564	38.575
LEVEL DIFFERENCE	0.000	4.492	1.373	0.000
OFFSETS	-10.857	0.000	7.590	10.723

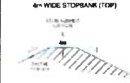
General Notes

Keys

- Banks
- Boundary line
- Fences line
- Chain
- Culverts
- Alignment / Chainage throughout Te Karaka Township

CITEA 120

TYPICAL CROSS SECTION

Coordinates Station in form of: NCTM 2000
Vertical Datum in form of: NZVD 2016

SUPPLIED	CPS CREW	2025 - 2024
DRAWN	P. RANGIERI (CPS)	880008
CHECKED	J. R. HARRIS (CPS)	880008

No.	Revisions/Notes	Date
-----	-----------------	------



Project Name and Address
WAIKATO RIVER
TE KARAKA TOWNSHIP
EASTERN SIDE STOPBANK
CROSS SECTIONS

Sheet	WAIKATO RIVER	14
Date	11.10.2025	
Scale	1:500 @ A3	

Chainage 1120.000
Datum: 35.000

Total Volume of Station 1-120.00	
Cut Vol	0.00
Fill Vol	1073.17

PROPOSED LEVELS				
	38.610	40.889	42.944	38.611
EXISTING LEVELS	38.610	38.615	38.444	38.611
LEVEL DIFFERENCE	0.000	2.274	4.500	0.000
OFFSETS	-10.548	-6.090	0.000	10.546

Chainage 1160.000
Datum: 35.000

Total Volume of Station 1-160.00	
Cut Vol	0.00
Fill Vol	434.95

PROPOSED LEVELS				
	44.454	42.979	39.619	
EXISTING LEVELS	44.454	39.698	39.619	
LEVEL DIFFERENCE	0.000	3.282	0.000	
OFFSETS	-6.952	0.000	8.621	

Chainage 1140.000
Datum: 35.000

Total Volume of Station 1-140.00	
Cut Vol	0.00
Fill Vol	888.44

PROPOSED LEVELS				
	39.471	42.942	40.443	
EXISTING LEVELS	39.471	39.726	40.443	
LEVEL DIFFERENCE	0.000	3.216	0.000	
OFFSETS	-8.883	0.000	6.896	

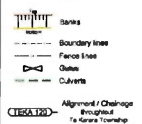
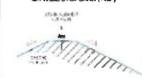
Chainage 1180.000
Datum: 35.000

Total Volume of Station 1-180.00	
Cut Vol	0.00
Fill Vol	993.43

PROPOSED LEVELS				
	40.939	42.998	39.833	
EXISTING LEVELS	40.939	39.826	39.833	
LEVEL DIFFERENCE	0.000	3.172	0.000	
OFFSETS	-4.018	0.000	8.228	

General Notes

Keys

TYPICAL CROSS SECTION
4m WIDE STOPBANK (TOP)Coordinate System: In terms of NZTM 2000
Vertical Datum: In terms of MVD 2014

SURVEYED	CPS CREW	2020 - 2021
DRAWN	D. PLANGIERE (CPS)	06/2020
CHECKED	J. R. HOOK (CPS)	06/2020

No.	Revisions/Issues	Date
-----	------------------	------



WAIPAPOA RIVER
TE KARAKA TOWNSHIP
EASTERN SIDE STOPBANK
CROSS SECTIONS

Project: WAIPAPOA RIVER	Sheet: 15
Date: 11.10.2025	
Scale: 1:500 @ A3	

Chainage 1200.000
Datum: 35.000

PROPOSED LEVELS				
EXISTING LEVELS	4.6144	4.6151	4.6155	4.6162
LEVEL DIFFERENCE	0.000	2.864	0.000	0.000
OFFSETS	-7.643	0.000	7.657	

Total Volume at Station 1200.00
Cut Vol 0.00
Fill Vol 151.32

Chainage 1240.000
Datum: 35.000

PROPOSED LEVELS				
EXISTING LEVELS	39.889	43.869	43.851	40.896
LEVEL DIFFERENCE	0.000	0.860	0.000	0.481
OFFSETS	-8.223	-5.944	0.000	7.153

Total Volume at Station 1240.00
Cut Vol 0.00
Fill Vol 504.53

Chainage 1220.000
Datum: 35.000

PROPOSED LEVELS				
EXISTING LEVELS	4.6306	4.6327	4.6339	4.6350
LEVEL DIFFERENCE	0.000	2.653	0.000	0.000
OFFSETS	-7.307	-5.895	0.000	7.875

Total Volume at Station 1220.00
Cut Vol 0.00
Fill Vol 500.38

Chainage 1260.000
Datum: 35.000

PROPOSED LEVELS				
EXISTING LEVELS	39.895	39.895	40.391	40.051
LEVEL DIFFERENCE	0.000	0.000	0.000	0.000
OFFSETS	-10.081	-9.951	0.000	6.137

Total Volume at Station 1260.00
Cut Vol 0.00
Fill Vol 973.18

General Notes

Keys

- Boundary lines
- Force lines
- Qualls
- Culverts

Alignment / Chainage throughout Te Karaka Township

TYPICAL CROSS SECTION 4m WIDE STOPBANK (TOP)

Coordinate System in terms of NZTM 2000
Horizontal Datum: 1984 of NZVD 2016

SURVEYED	CPS CREW	2020 - 2021
DRAWN	W. PANGLOSS (CPS)	08/08/2020
CHECKED	J. H. HARRIS (CPS)	08/08/2020

No.	Revisions/Notes	Date
-----	-----------------	------

Project Name and Address

WAIKAPAOA RIVER
TE KARAKA TOWNSHIP
EASTERN SIDE STOPBANK
CROSS SECTIONS

WAIKAPAOA RIVER

Date: 11.10.2025

Scale: 1:500 @ A3

16

Chainage 1280.000
Datum: 40.000

PROPOSED LEVELS		48,946	48,946
EXISTING LEVELS		48,946	4,307
LEVEL DIFFERENCE		0.000	4.1772
OFFSETS		-6.934	4.531

Total Volume at Station 1+280.00	
Cut Vol	0.00
Fill Vol	400.92

Chainage 1300.000
Datum: 40.000

PROPOSED LEVELS		
	43,108	43,105
EXISTING LEVELS	43,108	42,976
SEE ABOVE, EXISTING LEVELS		
LEVEL DIFFERENCE	0.000	0.000
	0.000	0.000
OFFSETS	-2.127	2.157

Total Volume at Station 1+203.00	
Cut Vol	3.40
Fill Vol	111.89

General Notes										
Keys  Station Station										
--- Boundary line --- Fence line --- Culvert --- Culverts Alignment / Change in Grade / Topography										
TEA 102										
TYPICAL CROSS SECTION at WIDE STOPBANK (TOP) 										
Coordinate System is North at NUTM 2010 Vertical Datum is base of NVD 2010										
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;">SURVEYED</th> <th style="width: 30%;">CPS CREW</th> <th style="width: 40%;">DATE</th> </tr> </thead> <tbody> <tr> <td>DIAMON</td> <td>PAULUS/JOHN (CPS)</td> <td>10/05/18</td> </tr> <tr> <td>CHENGBO</td> <td>JIA/HUO (CPS)</td> <td>10/05/18</td> </tr> </tbody> </table>		SURVEYED	CPS CREW	DATE	DIAMON	PAULUS/JOHN (CPS)	10/05/18	CHENGBO	JIA/HUO (CPS)	10/05/18
SURVEYED	CPS CREW	DATE								
DIAMON	PAULUS/JOHN (CPS)	10/05/18								
CHENGBO	JIA/HUO (CPS)	10/05/18								
No. Revisions/notes Date										
Plan, Section and Elevation  GISBORNE DISTRICT COUNCIL Ta Raupunga o Te Taumutu CPS Countryside Professionals										
Project Name and Address WAIPAQA RIVER TE KAPAPA TOWNSHIP EASTERN SIDE STOPBANK CROSS SECTIONS										
Scale 1:500 @ A3 Date 11. 10. 2025										

Chainage 1744.482
Datum: 40.000

PROPOSED LEVELS				
EXISTING LEVELS				
LEVEL DIFFERENCE				
OFFSETS				

Total Volume at Station 1744.48
Cut Vol: 0.00
Fill Vol: 0.00

Chainage 1780.000
Datum: 35.000

PROPOSED LEVELS				
EXISTING LEVELS				
LEVEL DIFFERENCE				
OFFSETS				

Total Volume at Station 1780.00
Cut Vol: 0.00
Fill Vol: 193.34

Chainage 1760.000
Datum: 35.000

PROPOSED LEVELS				
EXISTING LEVELS				
LEVEL DIFFERENCE				
OFFSETS				

Total Volume at Station 1760.00
Cut Vol: 100.71
Fill Vol: 118.50

Chainage 1800.000
Datum: 35.000

PROPOSED LEVELS				
EXISTING LEVELS				
LEVEL DIFFERENCE				
OFFSETS				

Total Volume at Station 1800.00
Cut Vol: 0.00
Fill Vol: 193.64

General Notes		
Keys 		
WATER Alignment / Chainage TEAR Alignment / Chainage TEAR Alignment / Chainage TEAR Alignment / Chainage		
TYPICAL CROSS SECTION 		
Coordinate System in form of NZTM 2011 Vertical Datum in form of NZVD 2016		
SURVEYED	CPS CREW	-
DESIGNED	IN ELAUG/RE (CPS)	10/06/20
CHECKED	J. H. H. (CPS)	10/06/20
No. Repetition/Version Date		
Project Name and Address WAIAPAOA RIVER TE KARAKA TOWNSHIP WESTERN SIDE STOPBANK CROSS SECTIONS		
Date 13.10.2025		Sheet 1
Scale 1:500 @ A3		

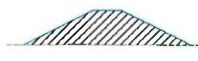
Chainage 1820.000
Datum: 35.000



Total Volume at Station 1820.00
Cut Vol: 0.00
Fill Vol: 1245.00

PROPOSED LEVELS	39.883	44.688	
EXISTING LEVELS	39.883	39.843	42.459
LEVEL DIFFERENCE	0.000	4.764	2.197
OFFSETS	-11.350	0.000	11.678

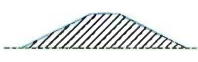
Chainage 1860.000
Datum: 35.000



Total Volume at Station 1860.00
Cut Vol: 300
Fill Vol: 519.44

PROPOSED LEVELS	39.880	44.649	41.531
EXISTING LEVELS	39.880	39.817	39.758
LEVEL DIFFERENCE	0.000	4.830	1.764
OFFSETS	-11.538	-8.889	0.000

Chainage 1840.000
Datum: 35.000



Total Volume at Station 1840.00
Cut Vol: 0.00
Fill Vol: 1288.94

PROPOSED LEVELS	39.790	44.628	39.759
EXISTING LEVELS	39.790	39.802	39.795
LEVEL DIFFERENCE	0.000	4.816	0.000
OFFSETS	-11.516	0.000	11.558

Chainage 1880.000
Datum: 35.000

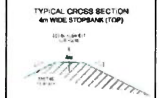


Total Volume at Station 1880.00
Cut Vol: 0.00
Fill Vol: 1315.58

PROPOSED LEVELS	39.752	44.669	39.727
EXISTING LEVELS	39.752	39.705	39.677
LEVEL DIFFERENCE	0.000	4.992	0.000
OFFSETS	-11.734	-9.984	0.000

General Notes

- Keys
- Boundary lines
 - Proposed / Existing
 - Alignment / Chainage
 - Proposed / Existing
 - Alignment / Chainage
 - Proposed / Existing



Coordinate System in terms of NZTM 2000
Vertical Datum in terms of MVD 2016

APPROVED: CPS CHW 2025 - 2024

DRAWN: P. PALAUSIS (CPS) 202508

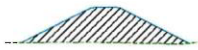
CHECKED: J. PALAUSIS (CPS) 202508

No. Revision/Issue Date



Project Name and Address
WAIAPAOA RIVER
TE KARAKA TOWNSHIP
WESTERN SIDE STOPBANK
CROSS SECTIONS

WAIAPAOA RIVER
Date: 13.10.2025
Scale: 1:500 @ A3

Chainage 1900.000
Datum: 35.000

Total Volume at Station 1-900.00	
Cut Vol	8.50
Fill Vol	1365.11

PROPOSED LEVELS	39.756	39.756	41.379	
EXISTING LEVELS	39.756	39.756	39.768	39.678
LEVEL DIFFERENCE	0.000	1.611	0.000	0.000
OFFSETS	-11.746	0.000	4.977	11.924

Chainage 1920.000
Datum: 35.000

Total Volume at Station 1-900.00	
Cut Vol	9.70
Fill Vol	1368.98

PROPOSED LEVELS	39.746	39.746	42.897	
EXISTING LEVELS	39.746	39.770	39.768	39.698
LEVEL DIFFERENCE	0.000	0.537	0.000	0.000
OFFSETS	-11.829	0.000	4.999	11.925

Chainage 1940.000
Datum: 35.000

Total Volume at Station 1-940.00	
Cut Vol	0.58
Fill Vol	1369.27

PROPOSED LEVELS	39.727	39.727	44.731	
EXISTING LEVELS	39.727	39.793	39.731	39.716
LEVEL DIFFERENCE	0.000	4.938	0.000	0.000
OFFSETS	-11.968	0.000	9.559	11.938

Chainage 1960.000
Datum: 35.000

Total Volume at Station 1-960.00	
Cut Vol	8.28
Fill Vol	1368.14

PROPOSED LEVELS	39.718	39.718	44.751	
EXISTING LEVELS	39.718	40.020	40.666	40.453
LEVEL DIFFERENCE	0.000	4.731	2.432	0.000
OFFSETS	-11.867	0.000	5.286	10.516

General Notes

Keys



WAL 1213 - Alignment / Chainage
stopbank near right side

TE 2010 - Alignment / Chainage
to new stream

TYPICAL CROSS SECTION
4m WIDE STOPBANK (110%)

Coordinate System in terms of NZTM 2011

Vertical Datum - Mean of MGD 2011

SURVEYED BY: CPM CREW DATE: 2021

DRAWN BY: P. PLACETTE (CPM) DATE: 2021

CHECKED BY: J. H. FROCK (CPS) DATE: 2021

No. Revision/Issue Date



Project Name and Address
WAIPOA RIVER
TE KARAKA TOWNSHIP
WESTERN SIDE STOPBANK
CROSS SECTIONS

Sheet
13.10.2025
1:500 @ A3

3

Chainage 1980.000
Datum: 35.000

Total Volume at Station 1980.000
Cut Vol 0.00
Fill Vol 153.88

PROPOSED LEVELS	40.434	40.432	44.772	39.924	39.884
EXISTING LEVELS	40.434	40.432	39.777	39.875	39.884
LEVEL DIFFERENCE	0.000	0.002	4.995	0.049	0.000
OFFSETS	-10.576	-10.525	0.000	11.556	11.076

Chainage 2020.000
Datum: 35.000

Total Volume at Station 2020.000
Cut Vol 0.50
Fill Vol 128.15

PROPOSED LEVELS	39.975	39.975	44.803	44.813	39.929
EXISTING LEVELS	39.975	39.975	40.950	40.842	39.929
LEVEL DIFFERENCE	0.000	0.000	1.753	4.071	0.000
OFFSETS	-11.576	-7.979	0.000	11.667	11.667

Chainage 2000.000
Datum: 35.000

Total Volume at Station 2000.000
Cut Vol 2.00
Fill Vol 129.24

PROPOSED LEVELS	40.009	40.009	44.792	39.905	39.905
EXISTING LEVELS	40.009	40.009	39.988	39.905	39.905
LEVEL DIFFERENCE	0.000	0.000	4.805	0.000	0.000
OFFSETS	-11.467	-9.817	0.000	11.675	11.675

Chainage 2040.000
Datum: 35.000

Total Volume at Station 2040.000
Cut Vol 8.00
Fill Vol 127.55

PROPOSED LEVELS	42.193	42.193	44.833	42.135	39.967
EXISTING LEVELS	42.193	42.235	40.865	39.951	39.967
LEVEL DIFFERENCE	0.000	0.740	4.768	0.083	0.000
OFFSETS	-11.182	-9.817	0.000	11.298	11.633

General Notes

Keys

- Station
- Boundary lines
- Fence lines
- Drains
- Columns

WALPORA Alignment / Chainage
Waipora River right side
TE KARAKA Alignment / Chainage
Te Karaka right side

TYPICAL CROSS SECTION
4m WIDE STOPBANK (TOP)

Coordinate System in terms of NZTM 2000
Vertical Datum is level of MVD 2016.

SURVEYED	CPS CREW	2020 - 2021
DRAWN	P. PLANGGARE (CPS)	2020/08
CHECKED	J. R. HICK (CPS)	2020/08

No.	Revision/Issued	Date

Plan Name and Address

GISBORNE
INTERACT ENGINEERS
Te Karaka Road 10 Te Karaka Hill

CPS
Civil Project Solutions

Project Name and Address

WAIPOA RIVER
TE KARAKA TOWNSHIP
WESTERN SIDE STOPBANK
CROSS SECTIONS

Project Name	WAIPOA RIVER	Sheet	4
Date	13.10.2025		
Scale	1:500 @ A3		

Chainage 2060.000
Datum: 35.000

PROPOSED LEVELS	44.069	44.064	41.264	40.072
EXISTING LEVELS	44.069	40.113	40.000	40.072
LEVEL DIFFERENCE	0.000	4.741	1.264	0.000
OFFSETS	-11.278	0.000	9.000	11.465

Total Volume at Station 2+060.00	
Cut Vol	0.00
Fill Vol	1342.19

Chainage 2100.000
Datum: 35.000

PROPOSED LEVELS	44.095	44.089	44.895	43.387
EXISTING LEVELS	40.000	40.025	40.225	40.387
LEVEL DIFFERENCE	0.000	0.944	4.670	0.000
OFFSETS	-11.004	-9.555	0.000	10.515

Total Volume at Station 2+100.00	
Cut Vol	0.00
Fill Vol	1021.55

Chainage 2080.000
Datum: 35.000

PROPOSED LEVELS	40.153	44.875	41.328	40.193
EXISTING LEVELS	40.153	40.221	40.225	40.193
LEVEL DIFFERENCE	0.000	4.654	1.103	0.000
OFFSETS	-11.342	0.000	8.993	11.763

Total Volume at Station 2+080.00	
Cut Vol	0.00
Fill Vol	1249.44

Chainage 2120.000
Datum: 35.000

PROPOSED LEVELS	40.185	41.178	44.516	40.131
EXISTING LEVELS	40.000	40.185	40.167	40.131
LEVEL DIFFERENCE	0.000	1.004	4.349	0.000
OFFSETS	-11.381	-9.376	0.000	11.449

Total Volume at Station 2+120.00	
Cut Vol	0.00
Fill Vol	1034.87

General Notes

Keys

- Boundary line
- Fence line
- Chain
- Chain

Alignment / Chainage

Offset / Chainage

TYPICAL CROSS SECTION

Coordinate System in form of: NZMS 2000

Vertical Datum in form of: NZVD 2016

SURVEYED	CPS CHW	2020 - 2021
DRAWN	PA BLAKELEY (CPS)	08/2020
CHECKED	PA BLAKELEY (CPS)	08/2020

No.	Revision/Notes	Date
-----	----------------	------

For Name and Address

GISBORNE
CITY COUNCIL
Te Taumata o Te Taumata

CPS
Civil Planning Services

Project Name and Address

WAIAPAOA RIVER
TE KARAKA TOWNSHIP
WESTERN SIDE STOPBANK
CROSS SECTIONS

Project
WAIAPAOA RIVER

Date
13.10.2025

Scale
1:500 @ A3

Sheet
5

Chainage 2140.000
Datum: 35.000

PROPOSED LEVELS	49.243	49.994	44.936	49.236
EXISTING LEVELS	49.243	49.231	49.191	49.236
LEVEL DIFFERENCE	0.000	1.763	6.745	0.000
OFFSETS	-11.286	-7.784	0.000	11.380

Total Volume of Station 2-164.50	
Cut Vol	0.00
Fill Vol	1951.50

Chainage 2180.000
Datum: 35.000

PROPOSED LEVELS	49.329	49.441	44.977	49.297
EXISTING LEVELS	49.329	49.379	49.309	49.297
LEVEL DIFFERENCE	0.000	0.112	4.669	0.000
OFFSETS	-11.997	-8.972	0.000	11.261

Total Volume of Station 2-180.00	
Cut Vol	0.00
Fill Vol	1021.38

Chainage 2160.000
Datum: 35.000

PROPOSED LEVELS	49.293	49.405	44.957	49.311
EXISTING LEVELS	49.293	49.281	49.304	49.311
LEVEL DIFFERENCE	0.000	1.124	4.653	0.000
OFFSETS	-11.228	-9.002	0.000	11.922

Total Volume of Station 2-160.50	
Cut Vol	0.00
Fill Vol	1732.84

Chainage 2200.000
Datum: 35.000

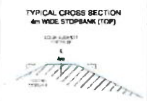
PROPOSED LEVELS	49.363	49.274	44.988	49.372
EXISTING LEVELS	49.363	49.385	49.411	49.387
LEVEL DIFFERENCE	0.000	1.089	4.587	0.000
OFFSETS	-11.969	-7.348	0.000	11.821

Total Volume of Station 2-200.00	
Cut Vol	0.00
Fill Vol	878.48

General Notes

Keys

- Boundary line
- Parcel line
- Quota
- C.J.verts
- CRK120.00 - Alignment / Chainage
- CRK200.00 - Alignment / Chainage

Coordinate System in terms of NZTM 2000
Vertical Datum in terms of MVD 2016

SURVEYED	CPS CREW	2020 - 2021
DRAWN	P. ALAUGERE (CPS)	2020/2021
CHECKED	J. H. HICK (CPS)	2020/2021

No.	Revision/Issue	Date
-----	----------------	------



Project Name and Address
WAIKAPAO RIVER
TE KARAKA TOWNSHIP
WESTERN SIDE STOPBANK
CROSS SECTIONS

Client	WAIKAPAO RIVER	Date	19.10.2025	6
Scale	1:500 @ A3			

Chainage 2220.000
Datum: 35.000

PROPOSED LEVELS	40.440	40.440	40.440	40.440
EXISTING LEVELS	40.438	40.435	40.435	40.435
LEVEL DIFFERENCE	0.002	0.005	0.005	0.005
OFFSETS	-11.037	-10.580	0.000	10.767

Total Volume at Station Z=35.000
Cut Vol 0.00
Fill Vol 195.15

Chainage 2260.000
Datum: 35.000

PROPOSED LEVELS	40.912	40.912	40.912	40.912
EXISTING LEVELS	40.912	40.912	40.912	40.912
LEVEL DIFFERENCE	0.000	0.000	0.000	0.000
OFFSETS	-10.195	-6.855	0.000	11.027

Total Volume at Station Z=35.000
Cut Vol 0.00
Fill Vol 193.34

Chainage 2240.000
Datum: 35.000

PROPOSED LEVELS	40.549	40.549	40.549	40.549
EXISTING LEVELS	40.550	40.550	40.550	40.550
LEVEL DIFFERENCE	0.001	0.001	0.001	0.001
OFFSETS	-10.880	-6.865	0.000	10.340

Total Volume at Station Z=35.000
Cut Vol 0.00
Fill Vol 197.19

Chainage 2280.000
Datum: 35.000

PROPOSED LEVELS	40.693	40.693	40.693	40.693
EXISTING LEVELS	40.693	40.693	40.693	40.693
LEVEL DIFFERENCE	0.000	0.000	0.000	0.000
OFFSETS	-10.653	0.000	6.686	10.917

Total Volume at Station Z=35.000
Cut Vol 0.00
Fill Vol 192.18

General Notes								
Keys --- Station --- Boundary line --- Fence line --- Quail --- Culvert								
Alignment / Chainage Waypoint near right side Alignment / Chainage To New Stream								
TYPICAL CROSS SECTION 4m WIDE STOPBANK (100%)								
Coordinate System in terms of NZTM 2000 Vertical Datum in terms of MVD 2016								
SURVEYED	CPS CREW	2020 - 2021						
DRAWN	P. FLAUGHER (CPS)	2020/08						
CHECKED	J. FLAUGHER (CPS)	2020/08						
<table border="1"> <tr> <th>No.</th> <th>Revision/Notes</th> <th>Date</th> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </table>			No.	Revision/Notes	Date			
No.	Revision/Notes	Date						
Prepared by and for: GISBORNE DISTRICT COUNCIL Te Kaitiaki o Te Taupōhau CPS Civil Project Solutions								
Project Name and Address WAIPOA RIVER TE KARAKA TOWNSHIP WESTERN SIDE STOPBANK CROSS SECTIONS								
Project: WAIPOA RIVER Date: 13.10.2025 Scale: 1:500 @ A3		Sheet: 7						

Chainage 2300.000
Datum: 35.000

PROPOSED LEVELS	40.858	40.800	45.300	40.582
EXISTING LEVELS	40.858	40.821	40.586	40.582
LEVEL DIFFERENCE	0.000	0.079	4.714	0.000
OFFSETS	-10.765	-9.592	0.000	10.058

Total Volume at Station 2-300.00	
Cut Vol	0.00
Fill Vol	196.9

Chainage 2340.000
Datum: 35.000

PROPOSED LEVELS	44.765	45.142	43.474	40.657
EXISTING LEVELS	44.765	44.696	40.622	40.657
LEVEL DIFFERENCE	0.000	4.446	2.852	0.000
OFFSETS	-10.653	0.000	5.236	10.864

Total Volume at Station 2-340.00	
Cut Vol	0.00
Fill Vol	198.14

Chainage 2320.000
Datum: 35.000

PROPOSED LEVELS	44.457	45.721	42.890	40.639
EXISTING LEVELS	44.457	40.526	40.574	40.639
LEVEL DIFFERENCE	0.000	4.595	2.316	0.000
OFFSETS	-11.228	0.000	6.363	-10.863

Total Volume at Station 2-320.00	
Cut Vol	0.00
Fill Vol	196.10

Chainage 2360.000
Datum: 35.000

PROPOSED LEVELS	44.721	45.162	44.810
EXISTING LEVELS	44.721	44.753	44.810
LEVEL DIFFERENCE	0.000	4.409	0.000
OFFSETS	-10.782	0.000	10.863

Total Volume at Station 2-360.00	
Cut Vol	0.00
Fill Vol	192.21

General Notes

Keys

- Stakes
- Boundary lines
- Fence lines
- Contours
- Contours

Alignment / Chainage
Proposed new right of way
Alignment / Chainage
To New Section

TYPICAL CROSS SECTION
at WEST STOPBANK (TOP)

Coordinate System in terms of NZTM 2011
Vertical Datum is based on NZVD 2016

SURVEYED	CPS CREW	2020 - 2021
DRAWN	P. HALLGREN (CPS)	2020
CHECKED	J. HALLGREN (CPS)	2020

No.	Revision/Notes	Date

Prepared by and issued to:
WAIPAPOA RIVER
TE KARAKA TOWNSHIP
WESTERN SIDE STOPBANK
CROSS SECTIONS

Project: WAIPAPOA RIVER
Date: 13.10.2025
Scale: 1:500 @ A3
Sheet: 8

General Notes		
Keys		
	Notes	
	Notes	
	Notes	
	Notes	
	Notes	
	Notes	
	Notes	
	Notes	
	Notes	
	Notes	
	Notes	
	Notes	
	Notes	
	Notes	
	Notes	
	Notes	
	Notes	
	Notes	
	Notes	
	Notes	
	Notes	
	Notes	
	Notes	
	Notes	
	Notes	
	Notes	
	Notes	
	Notes	
	Notes	

Chainage 2460.000
Datum: 35.000

PROPOSED LEVELS	40.439	41.955	45.265	43.346	40.544
EXISTING LEVELS	40.433	40.401	40.545	40.516	40.544
LEVEL DIFFERENCE	0.006	1.553	4.720	2.832	0.000
OFFSETS	-11.944	-8.500	0.000	5.138	11.347

Total Volume of Strap 2+460.00	
Cut Vol	0.00
Fill Vol	1295.99

Chainage 2500.000
Datum: 35.000

PROPOSED LEVELS	40.643	40.891	45.306	41.916	40.780
EXISTING LEVELS	40.643	40.847	40.773	40.718	40.780
LEVEL DIFFERENCE	0.000	0.044	4.533	1.198	0.000
OFFSETS	-11.925	-8.779	0.000	8.540	10.992

Total Volume of Strap 2+500.00	
Cut Vol	0.00
Fill Vol	1516.99

Chainage 2480.000
Datum: 35.000

PROPOSED LEVELS	40.512	45.285	41.884	40.604
EXISTING LEVELS	40.512	40.582	40.623	40.604
LEVEL DIFFERENCE	0.000	4.704	1.261	0.000
OFFSETS	-11.447	0.000	8.703	11.263

Total Volume of Strap 2+480.00	
Cut Vol	0.00
Fill Vol	1258.99

Chainage 2520.000
Datum: 35.000

PROPOSED LEVELS	40.899	45.326	43.191
EXISTING LEVELS	40.899	41.447	43.191
LEVEL DIFFERENCE	0.000	3.879	0.000
OFFSETS	-10.754	0.000	4.171

Total Volume of Strap 2+520.00	
Cut Vol	0.00
Fill Vol	906.99

General Notes

Keys

- Boundary line
- Fence line
- Offset
- Offset
- Offset

Alignment / Chainage
offsets from right side

Alignment / Chainage
from left side

TYPICAL CROSS SECTION
4m WIDE STOPBANK (1:1)

Coordinate System in terms of NZTM 2000
Vertical Datum is based on: NZVD 2016

SURVEYED	CPS CREW	2020 - 2021
DRAWN	PAUL ALLEN (CPS)	08/2020
CHECKED	JULIA HICK (CPS)	08/2020

No.	Revision/Notes	Date
-----	----------------	------

GISBORNE
CPS
For Kaitiaki Take Kaitiaki

Project Name and Address
WAIAPAOA RIVER
TE KARAKA TOWNSHIP
WESTERN SIDE STOPBANK
CROSS SECTIONS

Sheet
13.10.2025
1:500 @ A3

10

Chainage 2540.000
Datum: 35.000



Total Volume at Station 2+540.00	
Cut Vol	0.00
Fill Vol	1322.00

PROPOSED LEVELS	42,764 43,752	45,347	37,797
EXISTING LEVELS	42,744 41,716	39,344	37,797
LEVEL DIFFERENCE	0.000 2.038	6.003	0.000
OFFSETS	-7.109 -5.094	0.000	17.173

Chainage 2580.000
Datum: 35.000



Total Volume at Station 2+50.00	
Cut Vol	0.00
Fill Vol	1626.60

PROPOSED LEVELS	43,758	43,380	45,388	43,247	38,969
EXISTING LEVELS	43,758	43,284	40,565	39,346	38,969
LEVEL DIFFERENCE	0.000	0.096	4.823	2.901	0.000
OFFSETS	-4.859	-5.016	0.000	8.182	16.739

Chainage 2560.000
Datum: 35.000



Total Volume at Station 2.542.00	
Cut Vol	300
Fill Vol	7849.81

PROPOSED LEVELS	13,689	43,150	45,367	41,856	37,983
EXISTING LEVELS	42,698	42,222	39,655	38,338	37,983
LEVEL DIFFERENCE	0.000	0.928	5.712	3.519	0.000
OFFSETS	-27.336	-6.325	0.000	8.923	16.659

Chainage 2600.000
Datum: 35.000



Total Volume at Station 2+600.00	
Cut Vol	0.00
Fill Vol	1218.98

PROPOSED LEVELS	42,368	42,368	42,368
EXISTING LEVELS	42,360	42,458	45,105
LEVEL DIFFERENCE	0.008	6.911	2,737
OFFSETS	-5,997	0.000	16,158

General Notes

Case



- | | |
|---|---------------|
|  | Boundary line |
| | Fence line |
|  | Gutter |
| | Culverts |

WA 120 R Alignment / Chainage
Wapaca over Right side

CIE 200 R Alignment / Chainage
To New Stream

TYPICAL CROSS SECTION



Coordinate System in term of : NADTM 2000
Vertical Datum in term of : NAVD 2011

SURVEYED	CPS CREW	2020 - 2021
D-UAWH	P FLAUGERE (CPS)	08/2020
CHECHGO	J RU FARK (GDC)	08/2020

No.	Revision/Date	Date
-----	---------------	------



Project Name and Address
WAI PAOA RIVER
TE KARAKA TOWNSHIP
WESTERN SIDE STOPBANK
CROSS SECTIONS

Project	WAIPIAOA RIVER
Date	13.10.2025
Scale	1:500 @ A3

11

Chainage 2620.000
Datum: 35.000



Total Volume at Station 2+620.00
Cut Vol 350
Fill Vol 199.83

PROPOSED LEVELS	43.364	45.729	39.04	38.65
EXISTING LEVELS	43.364	44.548	38.555	38.555
LEVEL DIFFERENCE	0.000	1.181	0.555	0.000
OFFSETS	-6.031	0.000	14.558	15.529

Chainage 2660.000
Datum: 35.000



Total Volume at Station 2+660.00
Cut Vol 0.00
Fill Vol 156.43

PROPOSED LEVELS	43.427	45.470	43.074	37.777
EXISTING LEVELS	43.427	43.912	38.917	37.777
LEVEL DIFFERENCE	0.000	1.558	4.157	0.000
OFFSETS	-5.967	0.000	6.993	17.386

Chainage 2640.000
Datum: 35.000



Total Volume at Station 2+640.00
Cut Vol 0.00
Fill Vol 145.11

PROPOSED LEVELS	43.449	45.450	38.262	38.262
EXISTING LEVELS	43.449	40.801	38.262	38.262
LEVEL DIFFERENCE	0.000	4.648	0.000	0.000
OFFSETS	-5.970	0.000	16.275	16.275

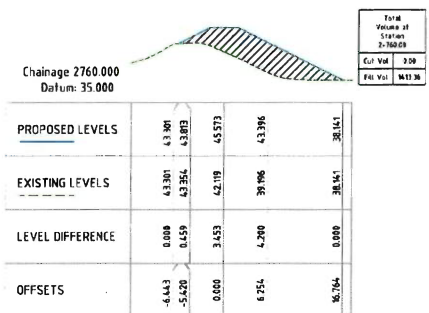
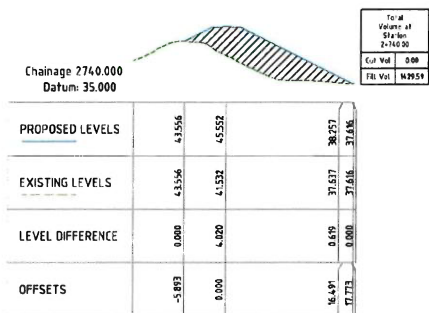
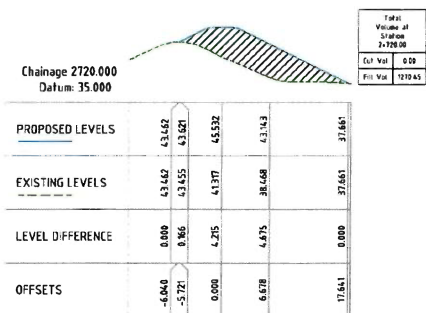
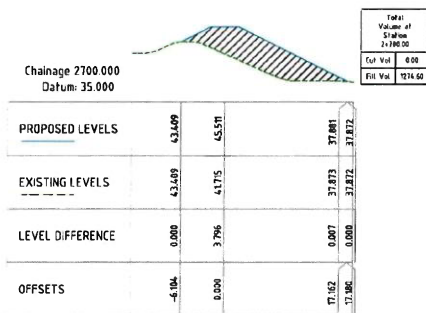
Chainage 2680.000
Datum: 35.000



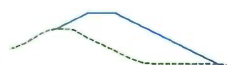
Total Volume at Station 2+680.00
Cut Vol 0.00
Fill Vol 128.49

PROPOSED LEVELS	43.472	43.706	45.491	40.278	37.738
EXISTING LEVELS	43.472	43.432	42.072	38.003	37.738
LEVEL DIFFERENCE	0.000	0.274	3.419	2.225	0.000
OFFSETS	-5.938	-5.970	0.000	12.416	17.445

General Notes		
Keys --- Station --- Boundary line --- Fence line --- Quail --- Culvert --- Alignment / Chainage --- Roadway / Road Right of Way --- Alignment / Chainage --- To New Stream		
WAL 1200 TE 2000		
TYPICAL CROSS SECTION 4m WIDE STOPBANK (TOP)		
Coordinate System in terms of NZTM 2000 Vertical Datum = Mean of NZVD 2016		
Drawn by	CPS/CPW	10/10/2021
Checked	CPW/CPW	10/10/2021
Reviewed	J.P. / J.P.	10/10/2021
For: Revision/Notes Date		
GISBORNE DISTRICT COUNCIL For: Engineering and Planning		
Project Name and Address WAIKAPAOA RIVER TE KARAKA TOWNSHIP WESTERN SIDE STOPBANK CROSS SECTIONS		
WAIKAPAOA RIVER	Date	12
13.10.2025		
1:500 @ A3		

[illegible]

Chainage 2780.000
Datum: 35.000



Total Volume at Station 2780.00
Cut Vol 0.00
Fill Vol 74.12

PROPOSED LEVELS				
	43.333	43.333	45.593	39.420
EXISTING LEVELS				
	43.333	43.333	41.271	38.419
LEVEL DIFFERENCE				
	0.000	0.000	4.302	0.000
OFFSETS				
	-6.422	0.000	0.000	16.548

Chainage 2820.000
Datum: 35.000



Total Volume at Station 2820.00
Cut Vol 0.00
Fill Vol 1010.07

PROPOSED LEVELS				
	43.327	43.327	45.634	44.424
EXISTING LEVELS				
	43.327	43.327	44.879	39.163
LEVEL DIFFERENCE				
	0.000	0.000	0.755	0.000
OFFSETS				
	-6.526	0.000	0.000	12.322

Chainage 2800.000
Datum: 35.000



Total Volume at Station 2800.00
Cut Vol 0.00
Fill Vol 618.28

PROPOSED LEVELS				
	43.426	43.426	45.614	42.323
EXISTING LEVELS				
	43.426	43.426	41.301	38.648
LEVEL DIFFERENCE				
	0.000	0.000	4.313	0.000
OFFSETS				
	-6.276	0.000	0.000	16.196

Chainage 2840.000
Datum: 35.000



Total Volume at Station 2840.00
Cut Vol 0.00
Fill Vol 1240.83

PROPOSED LEVELS				
	41.226	43.197	45.655	43.857
EXISTING LEVELS				
	41.226	43.197	40.852	40.206
LEVEL DIFFERENCE				
	0.000	0.000	4.803	0.000
OFFSETS				
	-10.759	-4.817	0.000	7.695

Survey Notes								
Keys								
	Boundary line							
	Fence line							
	Chain							
	Culvert							
CH 2780.00 Alignment / Chainage CH 2820.00 Alignment / Chainage CH 2800.00 Alignment / Chainage CH 2840.00 Alignment / Chainage								
TYPICAL CROSS SECTION as per 1:1000 scale (1:1000)								
Coordinate System: NZTM 2011 Vertical Datum: NZVD 2016								
SURVEYED	CPS CREW	2021 - 2021						
DRAWN	JP PLAKKEHE (CPS)	08/08/2021						
CHECKED	J RU FROK (CPS)	08/08/2021						
<table border="1"> <tr> <th>No.</th> <th>Revision/Issue</th> <th>Date</th> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </table>			No.	Revision/Issue	Date			
No.	Revision/Issue	Date						
Project Name and Address GISBORNE CITY COUNCIL Te Kaitiaki o te Tairāwhiti CPS Civil Project Solutions								
Project Name and Address WAIAPAOA RIVER TE KARAKA TOWNSHIP WESTERN SIDE STOPBANK CROSS SECTIONS								
Sheet WAIAPAOA RIVER Date 13.10.2025 Scale 1:500 @ A3		14						

Chainage 2860.000
Datum: 35.000



Total Volume at Station 2+860.00	
Cut Vol	0.00
Fill Vol	1051.21

PROPOSED LEVELS	4,1639		
EXISTING LEVELS	4,1639	4,1468	4,5676
LEVEL DIFFERENCE	0.000	4.216	
OFFSETS	-9.972	0.000	10.151
			12.700
			40.275

Chainage 2900.000
Datum: 35.000



Total Volume at Station 2+900.00	
Cut Vol	0.00
Fill Vol	842.82

PROPOSED LEVELS	43,387	43,777	38,683
EXISTING LEVELS	43,387	43,417	38,483
LEVEL DIFFERENCE	0.000	2.300	0.000
OFFSETS	-0.000	0.000	-5.966

Chainage 2880.000
Datum: 35.000



Total Volume at Station 2+838.00	
Cut Vol	0.00
Fill Vol	893.56

PROPOSED LEVELS		4,344.2	4,589.6	4,882	5,055
EXISTING LEVELS		4,344.2	4,684	4,854	4,956
LEVEL DIFFERENCE		0.000	3.848	2.738	0.099
OFFSETS		-6.407	0.000	5.629	13.181

Chainage 2920.000
Datum: 35.000



Total Volume at Station 2+920.00	
Cut Vol	0.00
Fill Vol	163.30

PROPOSED LEVELS	4.1009	4.3975	4.5737	4.6778	39.457
EXISTING LEVELS	4.000	4.3401	4.2706	39.548	39.457
LEVEL DIFFERENCE	0.000	0.0575	0.3031	0.010	0.009
OFFSETS	-13.966	-5.423	0.000	13.024	16.464

General Notes											
Keys											
	Name										
Boundary line											
Fence 1:50											
Datum											
Contours											
WA 1001	Alignment / Chaisage stoppage here right on										
TE 1002	Alignment / Chaisage to be broken										
TYPICAL CROSS SECTION 4m WIDE STOPBANK (1:1 GP)											
											
Coordinate System in terms of NZTM 2000 Vertical Datum is based on MVDN 2011											
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%; padding: 2px;">SURVEYED</td> <td style="width: 33%; padding: 2px;">CPS CREW</td> <td style="width: 33%; padding: 2px;">2020 - 2021</td> </tr> <tr> <td style="padding: 2px;">DRAWN</td> <td style="padding: 2px;">IN CHARGE (CPS)</td> <td style="padding: 2px;">06/05/20</td> </tr> <tr> <td style="padding: 2px;">CHECKED</td> <td style="padding: 2px;">JLM / HRC (CPS)</td> <td style="padding: 2px;">06/05/20</td> </tr> </table>			SURVEYED	CPS CREW	2020 - 2021	DRAWN	IN CHARGE (CPS)	06/05/20	CHECKED	JLM / HRC (CPS)	06/05/20
SURVEYED	CPS CREW	2020 - 2021									
DRAWN	IN CHARGE (CPS)	06/05/20									
CHECKED	JLM / HRC (CPS)	06/05/20									
No.	Description/notes	Date									
 GISBORNE DISTRICT COUNCIL Te Kaitiaki o Te Taupōhiri  CPS Soil Preparation											
Project Name and address: WAIAPAOA RIVER TE KARAHA TOWNSHIP WESTERN SIDE STOPBANK CROSS SECTIONS											
Date: 13.10.2025	Page: 15										
Scale: 1:500 @ A3											

Chainage 2940.000
Datum: 35.000

PROPOSED LEVELS	41.240	45.759	39.616
EXISTING LEVELS	41.240	42.032	39.616
LEVEL DIFFERENCE	0.000	3.726	0.000
OFFSETS	-10.936	0.000	16.086

Total Volume at Station 2+940.00
Cut Vol 0.00
Fill Vol 1010.59

Chainage 2980.000
Datum: 35.000

PROPOSED LEVELS	43.172	45.799	40.585	38.987
EXISTING LEVELS	43.172	43.614	40.607	38.987
LEVEL DIFFERENCE	0.000	0.372	5.192	0.000
OFFSETS	-6.554	-5.985	0.000	12.328

Total Volume at Station 2+980.00
Cut Vol 0.00
Fill Vol 1101.77

Chainage 2960.000
Datum: 35.000

PROPOSED LEVELS	41.714	43.689	45.778	39.493
EXISTING LEVELS	41.714	43.361	42.612	39.493
LEVEL DIFFERENCE	0.000	0.328	3.166	0.000
OFFSETS	-10.827	-6.078	0.000	14.470

Total Volume at Station 2+960.00
Cut Vol 0.00
Fill Vol 1003.64

Chainage 3000.000
Datum: 35.000

PROPOSED LEVELS	43.422	44.177	45.815	44.143	38.404
EXISTING LEVELS	43.422	43.645	41.119	39.173	38.404
LEVEL DIFFERENCE	0.000	0.532	4.700	4.970	0.000
OFFSETS	-6.695	-5.985	0.000	5.253	16.731

Total Volume at Station 3+000.00
Cut Vol 0.00
Fill Vol 916.15

General Notes							
Keys Boundary line Fence line Culvert Alignment / Chainage Proposed / Chainage							
TYPICAL CROSS SECTION 4m WIDE STOPBANK (100%)							
Coordinate System in terms of NZTM 2000 Vertical Datum in terms of MVD 2016							
SURVEYED	CPS CREW						
DRAWN	P. BALANCE (CPS)						
CHECKED	J. BALANCE (CPS)						
Revisions/Notes <table border="1"> <tr> <th>No.</th> <th>Revisions/Notes</th> <th>Date</th> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </table>		No.	Revisions/Notes	Date			
No.	Revisions/Notes	Date					
GIBBORNE CPS Civil Engineering & Surveying							
Project Name and Address WAIPAQA RIVER TE KARAKA TOWNSHIP WESTERN SIDE STOPBANK CROSS SECTIONS							
Project WAIPAQA RIVER Date 13.10.2025 Scale 1:500 @ A3	Sheet 16						

Chainage 3020.000
Datum: 35.000

Total Volume at Station 3+020.00
Cut Vol 0.00
Fill Vol 14.7317

PROPOSED LEVELS	43.626	43.543	45.840	44.745	38.675
EXISTING LEVELS	43.626	43.442	41.626	38.792	38.675
LEVEL DIFFERENCE	0.000	0.102	4.214	1.953	0.000
OFFSETS	-6.732	-6.473	0.000	12.051	16.280

Chainage 3060.000
Datum: 35.000

Total Volume at Station 3+060.00
Cut Vol 0.00
Fill Vol 10.117

PROPOSED LEVELS	41.486	43.560	45.881	41.116	39.209
EXISTING LEVELS	41.486	43.631	43.694	39.560	39.209
LEVEL DIFFERENCE	0.000	1.929	2.187	1.515	0.000
OFFSETS	-10.689	-6.542	0.000	11.433	15.245

Chainage 3040.000
Datum: 35.000

Total Volume at Station 3+040.00
Cut Vol 0.00
Fill Vol 13.0819

PROPOSED LEVELS	43.384	45.860	42.798	38.779
EXISTING LEVELS	43.384	41.787	39.354	38.779
LEVEL DIFFERENCE	0.000	4.073	3.444	0.000
OFFSETS	-7.193	0.000	8.074	16.864

Chainage 3080.000
Datum: 35.000

Total Volume at Station 3+080.00
Cut Vol 0.00
Fill Vol 943.88

PROPOSED LEVELS	41.272	44.919	45.901	43.673
EXISTING LEVELS	41.272	41.502	41.706	43.673
LEVEL DIFFERENCE	0.000	2.517	4.195	0.000
OFFSETS	-11.159	-5.666	0.000	6.358

Survey Notes		
Keys		
	Boundary line	
	Fence line	
	Culvert	
(H/L 1:20) Alignment / Chainage Waipaoa river right side (H/L 1:20) Alignment / Chainage Te Karaka left side		
TYPICAL CROSS SECTION at VICE STOPBANK (TOP)		
Coordinate System in terms of NZTM 2011 Vertical Datum in terms of MVD 2011		
SURVEYED	CPS CREW	2020-2021
DRAWN	H. LAUSCHER (CPS)	08/08/20
CHECKED	J. H. HICK (CPS)	08/08/20
No.	Revision/Issue	Date
Project Name and Address GISBORNE DISTRICT COUNCIL Te Kaitiaki o Te Taiohaki CPS Civil Engineering		
Project Name and Address WAIPAOIA RIVER TE KARAKA TOWNSHIP WESTERN SIDE STOPBANK CROSS SECTIONS		
Project WAIPAOIA RIVER Date 13.10.2025 Scale 1:500 @ A3		Sheet 17

Chainage 3100.000
Datum: 40.000

PROPOSED LEVELS		41.543	43.276	45.922	42.657
EXISTING LEVELS	41.543	41.543	43.276	45.922	42.657
LEVEL DIFFERENCE	0.000	1.851	4.289	0.000	0.000
OFFSETS	-10.657	-7.192	0.000	9.679	0.000

Cut Volume at Station 3+100.00	0.00
Fill Volume	395.31

Chainage 3140.000
Datum: 40.000

PROPOSED LEVELS		41.547	44.608	45.963	42.191	41.877
EXISTING LEVELS	41.547	41.547	44.608	45.963	42.191	41.877
LEVEL DIFFERENCE	0.000	2.778	4.228	0.000	0.000	0.000
OFFSETS	-10.732	-5.911	0.000	8.443	10.073	0.000

Total Volume at Station 3+140.00	0.00
Fill Volume	1022.43

Chainage 3120.000
Datum: 40.000

PROPOSED LEVELS		41.821	45.943	41.814
EXISTING LEVELS	41.821	41.821	45.943	41.814
LEVEL DIFFERENCE	0.000	4.149	0.000	0.000
OFFSETS	-10.142	0.000	10.157	0.000

Total Volume at Station 3+120.00	0.00
Fill Volume	1041.13

Chainage 3160.000
Datum: 40.000

PROPOSED LEVELS		44.976	45.984	44.532
EXISTING LEVELS	44.976	44.976	45.984	44.532
LEVEL DIFFERENCE	0.000	1.600	0.000	0.000
OFFSETS	-5.715	0.000	4.805	0.000

Total Volume at Station 3+160.00	0.00
Fill Volume	448.71

General Notes

Keys

- Boundary line
- Proposed line
- Offset
- Offset

CH 120.00 Alignment / Chainage
CH 200.00 Alignment / Chainage

TYPICAL CROSS SECTION
4m WIDE STOPBANK (TOP)

Construction System in form of: NUTM 2000
Vertical Datum: Base of: NZVD 2016

SURVEYED	CPS CREW	2021-2021
DRAWN	P. PLACERRE (CPS)	06/2020
CHECKED	J. H. HARRIS (CPS)	06/2020

No.	Revisions/Notes	Date
-----	-----------------	------

GISBORNE
CPS
Civil Engineering

WAIPAPOA RIVER
TE KARAKA TOWNSHIP
WESTERN SIDE STOPBANK
CROSS SECTIONS

Project Name: WAIPAPOA RIVER
Date: 13.10.2025
Scale: 1:500 @ A3

18

Chainage 3180.000
Datum: 40.000

PROPOSED LEVELS	41.905	42.849	46.804	42.955
EXISTING LEVELS	41.905	41.973	41.983	42.055
LEVEL DIFFERENCE	0.000	0.876	4.821	0.900
OFFSETS	-0.076	-8.726	0.000	9.799

Total Volume at Station 3180.00
Cut Vol 0.00
Fill Vol 587.11

Chainage 3220.000
Datum: 40.000

PROPOSED LEVELS	41.742	46.045	44.278	43.965
EXISTING LEVELS	41.742	41.901	43.993	43.965
LEVEL DIFFERENCE	0.000	4.144	0.285	0.000
OFFSETS	-10.509	0.000	5.434	6.059

Total Volume at Station 3220.00
Cut Vol 0.00
Fill Vol 995.84

Chainage 3200.000
Datum: 40.000

PROPOSED LEVELS	41.733	43.559	46.005	42.544
EXISTING LEVELS	41.733	41.782	41.750	42.544
LEVEL DIFFERENCE	0.000	1.777	4.255	0.000
OFFSETS	-9.483	-6.832	0.000	6.886

Total Volume at Station 3200.00
Cut Vol 0.00
Fill Vol 994.63

Chainage 3240.000
Datum: 40.000

PROPOSED LEVELS	41.591	43.924	46.065	44.380
EXISTING LEVELS	41.591	41.448	41.529	43.882
LEVEL DIFFERENCE	0.000	2.476	4.536	0.554
OFFSETS	-11.029	-6.183	0.000	5.272

Total Volume at Station 3240.00
Cut Vol 0.00
Fill Vol 958.18

General Notes

Keys

- Alignment / Chainage
- Boundary line
- Fence line
- Channel
- Channel

CHAL 2003 - Alignment / Chainage
CHAL 2003 - Alignment / Chainage

TYPICAL CROSS SECTION
4m WIDE STOPBANK (10%)

Coordinate System in terms of NZTM 2000
Vertical Datum is based on NZOD 2016

SURVEYED	CPS CREW	2020 - 2021
DRAWN	P. RAUSCHER (CPS)	202008
CHECKED	J. H. HOK (CPS)	202008

No.	Revision/Issue	Date
-----	----------------	------

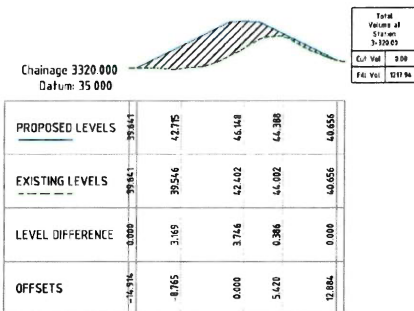
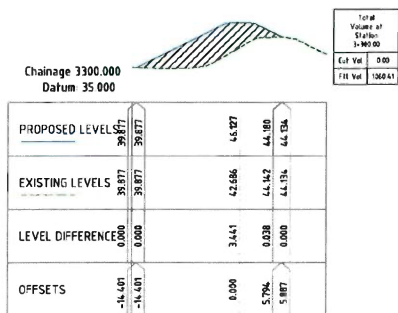
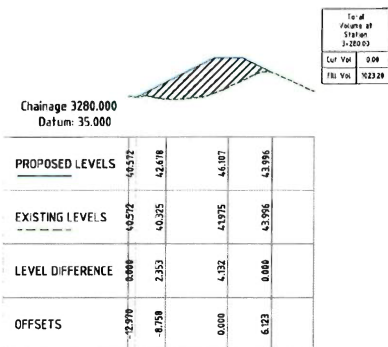
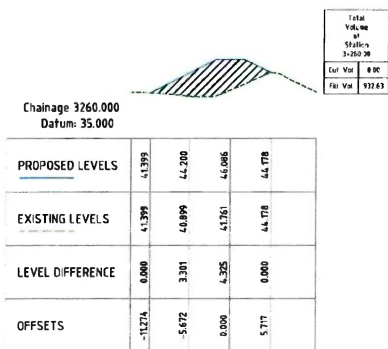
GISBORNE
City of Gisborne
Te Kaitiaki o Te Taiohanga

CPS
Civil Planning Solutions

Waipapa River
TE KARAKA TOWNSHIP
WESTERN SIDE STOPBANK
CROSS SECTIONS

Sheet
13.10.2025
1:500 @ A3

19

[illegible]

Chainage 3340.000
Datum: 35.000



Total Volume at Station 3+340.00	
Cut Vol	0.00
Fill Vol	1205.14

PROPOSED LEVELS	39,636	46,848	46,809	46,813
EXISTING LEVELS	39,536	42,354	43,789	46,413
LEVEL DIFFERENCE	0.000	3.814	0.279	0.000
OFFSETS	-0.004	0.000	6.770	13.413

Chainage 3360.000
Datum: 35.000



Total Volume at Station 3+760.00	
Cut Vol	0.00
Fill Vol	1202.60

PROPOSED LEVELS	219.93	666.93	679.14	42.033
EXISTING LEVELS	39.93	666.23	141.14	42.033
LEVEL DIFFERENCE	0.00	100.8	0.00	0.00
OFFSETS	566.94	005.0	565.5	10.272

Chainage 3380.000
Datum: 35.000



Total Volume at Station 3+380.00	
Cut Vol	0.00
Fill Vol	1239.00

PROPOSED LEVELS	39,603	44,294	46,210	44,039
EXISTING LEVELS	39,603	39,970	42,181	44,997
LEVEL DIFFERENCE	0.000	4.377	4.029	0.991
OFFSETS	-6.143	-5.171	0.000	6.941

Chainage 3400.000
Datum: 35.000



Total Volume at Station 3+4.90 00	
Cut Vol	0 00
Fill Vol	1252 40

PROPOSED LEVELS	395.573	462.230
EXISTING LEVELS - - - - -	396.577	433.548
LEVEL DIFFERENCE	0.004	42.762
		3.948
OFFSETS	-15.207	7.845
		0.095
		9.099
		0.062
		42.611

General Notes Keys —•—•—•— Boundary lines —•—•—•— France's E-line —•—•—•— Chute —•—•—•— C.verts		
WVA 200 (2) Alignment / Chair-sage Waypoint near right side WVE 200 (2) Alignment / Chair-sage To the West		
TYPICAL CROSS SECTION 4m WIDE / TOPBANK / TYP		
Cartographic System is set at: NZTM 2000 Vertical Datum is based on: MGD 1955		
SURVEYED 11/04/06 (CH-0028)	CPS CODED IF PLANNING (CH-0028)	2021 - 2021 MODIFIED MODIFIED
No.	Revision/Notes	Date
Part Name and Address GISBORNE CITY COUNCIL (Te Kaitiaki o te Taupōwhiri) CPS CONSULTING PARTNERS		
Project Name and Address WAIPOA RIVER TE KARAKA TOWNSHIP WESTERN SIDE STOPBANK CROSS SECTIONS		
WAIPOA RIVER Date: 13.10.2025 At: 1:500 @ A3		21

Chainage 3420.000
Datum: 35.000



Total Volume at Station 3+420.00	
Cut Vol	0.00
Fill Vol	1754.92

PROPOSED LEVELS	38.435		42.251	44.270
EXISTING LEVELS	38.435		42.230	44.220
LEVEL DIFFERENCE	0.000		0.021	0.050
OFFSETS	-8.531	0.000	5.960	

Chainage 3460.000
Datum: 35.000



Total Volume at Station 3+460.00	
Cut Vol	0.00
Fill Vol	1266.82

PROPOSED LEVELS	40.242	42.768	44.292	46.119
EXISTING LEVELS	39.991	39.781	42.107	46.119
LEVEL DIFFERENCE	0.251	2.987	2.185	0.000
OFFSETS	-14.000	-8.948	0.000	14.245

Chainage 3440.000
Datum: 35.000



Total Volume at Station 3+440.00	
Cut Vol	3.00
Fill Vol	1240.31

PROPOSED LEVELS	39.871	42.237	44.271	46.100
EXISTING LEVELS	39.871	39.651	42.345	44.100
LEVEL DIFFERENCE	0.000	2.586	1.925	0.000
OFFSETS	-14.807	-9.968	0.000	6.776

Chainage 3480.000
Datum: 35.000



Total Volume at Station 3+480.00	
Cut Vol	0.00
Fill Vol	1152.28

PROPOSED LEVELS	41.099	42.814	44.372	46.110
EXISTING LEVELS	41.099	40.773	44.223	39.814
LEVEL DIFFERENCE	0.000	2.041	0.149	6.296
OFFSETS	-12.326	-8.897	0.000	14.304

General Notes

Keys

- Alignment / Chainage
- Right of Way
- Boundary lines
- Proposed / Chainage
- Left of Way
- Contours

CHA 1000

CHA 2000

TYPICAL CROSS SECTION

Coordinate System in terms of NZTM 2000

Version Datum 1/1/2011

DATE: 13.10.2025

SCALE: 1:500 @ A3

22

Chainage 3500.000
Datum: 35.000



Total Volume at Station 3+500.00	
Cut Vol	0.00
Fill Vol	107150

	PROPOSED LEVELS			
EXISTING LEVELS	4.1875	4.1875	4.1875	4.1875
LEVEL DIFFERENCE	0.000	0.001	-0.001	0.000
OFFSETS	-10.814	-10.814	0.000	9.733

Chainage 3520.000
Datum: 35.000



Total Volume at Station 3+520.00	
Cut Vol	0.00
Fill Vol	921189

PROPOSED LEVELS	4,186.2	46,353	39,427
EXISTING LEVELS	4,186.2	42,897	39,427
LEVEL DIFFERENCE	0.000	2,451	0.000
OFFSETS	-10.862	0.000	15.753

Chainage 3540.000
Datum: 35.000



Total Volume at Station 3+540.09	
Cut Vol	0.00
Fill Vol	1066.94

PROPOSED LEVELS	4,185.6	46,374	4,159.3
EXISTING LEVELS	4,196.6	43,874	46,055
LEVEL DIFFERENCE	0.000	2,500	0.000
OFFSETS	-10.936	0.000	11.462

Chainage 3560.000
Datum: 35.000



Total Volume at Station 3+560.00	
Cur Vol	0.00
Fill Vol	980.29

PROPOSED LEVELS	41932	41932	41932	41932	41932
EXISTING LEVELS	41932	41994	41994	43302	41466
LEVEL DIFFERENCE	0.000	2.445	2.445	3.062	17.460
OFFSETS	-10.825	-5.811	0.000	0.000	8.272

[illegible]

Chainage 3580.000
Datum: 40.000



Total Volume at Station 3580.00
Cut Vol 0.00
Fill Vol 99.63

PROPOSED LEVELS	41.965	44.759		41.733
EXISTING LEVELS	41.965	42.038		41.733
LEVEL DIFFERENCE	0.000	2.721		0.000
OFFSETS	-16.571	-5.213	0.000	11.263

Chainage 3620.000
Datum: 40.000



Total Volume at Station 3620.00
Cut Vol 0.00
Fill Vol 37.54

PROPOSED LEVELS	42.300	44.556		43.969
EXISTING LEVELS	42.108	42.745		43.969
LEVEL DIFFERENCE	0.000	4.211		0.000
OFFSETS	-10.452	0.000	6.873	0.000

Chainage 3600.000
Datum: 40.000



Total Volume at Station 3600.00
Cut Vol 0.00
Fill Vol 776.72

PROPOSED LEVELS	42.083	46.435		
EXISTING LEVELS	42.083	43.362	44.440	43.879
LEVEL DIFFERENCE	0.000	3.074	0.425	0.000
OFFSETS	-10.605	0.000	5.891	7.012

Chainage 3640.000
Datum: 40.000



Total Volume at Station 3640.00
Cut Vol 0.00
Fill Vol 813.13

PROPOSED LEVELS	42.092	44.598	44.477	44.100
EXISTING LEVELS	42.092	42.278	42.269	44.052
LEVEL DIFFERENCE	0.000	2.320	4.207	0.048
OFFSETS	-10.870	-5.008	0.000	6.654

General Notes

Keys

- Boundary lines
- Fence lines
- Drains
- Culverts

Alignment / Chainage
 WA 12013 - Alignment / Chainage
 CIE 2001 - Alignment / Chainage

TYPICAL CROSS SECTION
 4m WIDE STOPBANK (100%)

Coordinates System in terms of NZTM 2011
 Vertical Datum in terms of MVD 2011

DATE	DESCRIPTION
13.10.2025	1:500 @ A3

Waipaoa River
 Te Karaka Township
 Western Side Stopbank
 Cross Sections

24

[illegible]

Chainage 3740.000
Datum: 40.000

Total Volume at Station 3740.00	
Cut Vol	8.60
Fill Vol	187.28

PROPOSED LEVELS	42.426	43.312	44.579	44.999	44.013
EXISTING LEVELS	42.426	42.427	42.593	44.274	44.013
LEVEL DIFFERENCE	0.000	0.885	4.076	0.775	0.000
OFFSETS	-10.287	-8.425	0.000	5.049	7.033

Chainage 3780.000
Datum: 40.000

Total Volume at Station 3780.00	
Cut Vol	0.00
Fill Vol	93.03

PROPOSED LEVELS	42.416	43.332	44.628	44.131	
EXISTING LEVELS	42.416	42.453	42.620	44.131	
LEVEL DIFFERENCE	0.000	0.879	4.000	0.000	
OFFSETS	-10.388	-8.478	0.000	6.875	

Chainage 3760.000
Datum: 40.000

Total Volume at Station 3760.00	
Cut Vol	8.00
Fill Vol	168.25

PROPOSED LEVELS	42.385		44.610	44.193	
EXISTING LEVELS	42.385		42.555	44.193	
LEVEL DIFFERENCE	0.000		4.054	0.000	
OFFSETS	-10.310		0.000	6.893	

Chainage 3800.000
Datum: 40.000

Total Volume at Station 3800.00	
Cut Vol	0.00
Fill Vol	95.27

PROPOSED LEVELS	42.497		44.541	44.341	
EXISTING LEVELS	42.497		42.726	44.341	
LEVEL DIFFERENCE	0.000		3.814	0.000	
OFFSETS	-10.185		0.000	6.506	

General Notes		
Keys 		
WAIPAOA - Alignment / Chainage Te Karaka River Right of Way CIE 200R - Alignment / Chainage Te Karaka River		
TYPICAL CROSS SECTION 4m WIDE STOPBANK (TOP) 		
Coordinate System in terms of NZTM 2000 Vertical Datum in terms of NZVD 2016		
SURVEYED	CPS CREW	2022-2023
DRAWN	P. PLACERON (CPS)	08/2024
CHECKED	J. ALI HOOK (CPS)	08/2024
No. Revision/Issue Date		
 Te Kaitiaki o te Tairāwhiti		
 Civil Project Solutions		
Project Name and Address WAIPAOA RIVER TE KARAKA TOWNSHIP WESTERN SIDE STOPBANK CROSS SECTIONS		
WAIPAOA RIVER Date: 13.10.2025 Scale: 1:500 @ A3		26

Chainage 3820.000
Datum: 40.000

PROPOSED LEVELS	42.825	43.330	44.661	43.953	40.859
EXISTING LEVELS	42.825	42.850	42.514	43.986	40.855
LEVEL DIFFERENCE	0.000	0.080	4.147	0.017	0.000
OFFSETS	-5.573	-8.263	0.000	7.377	13.505

Total Volume at Station 3-820.00	
Cut Vol	0.00
Fill Vol	765.81

Chainage 3860.000
Datum: 40.000

PROPOSED LEVELS	43.949	44.702	44.377	
EXISTING LEVELS	43.949	43.379	44.377	
LEVEL DIFFERENCE	0.000	3.332	0.000	
OFFSETS	-8.916	0.000	6.551	

Total Volume at Station 3-860.00	
Cut Vol	0.00
Fill Vol	822.87

Chainage 3840.000
Datum: 40.000

PROPOSED LEVELS	42.931	44.682	44.005	
EXISTING LEVELS	42.933	42.917	44.009	
LEVEL DIFFERENCE	0.000	3.765	0.000	
OFFSETS	-8.397	0.000	7.246	

Total Volume at Station 3-840.00	
Cut Vol	0.00
Fill Vol	596.67

Chainage 3871.206
Datum: 40.000

PROPOSED LEVELS	43.623	43.823	44.714	43.325	43.377
EXISTING LEVELS	43.623	43.623	44.495	43.325	43.375
LEVEL DIFFERENCE	-0.000	0.000	2.219	0.000	-0.008
OFFSETS	-8.684	-8.082	0.000	6.578	6.688

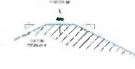
Total Volume at Station 3-871.21	
Cut Vol	0.00
Fill Vol	371.25

General Notes

Keys

	Boundary line
	Fence line
	Quail
	Culvert

	Alignment / Chainage
	Alignment / Chainage

TYPICAL CROSS SECTION
4m WIDE STOPBANK (TOP)Coordinate System in terms of NZTM 2000
Vertical Datum in terms of MVD 2016

SURVEYOR	CPS CREW	2020-2021
DRAWN	J. P. LANGRISH (CPS)	2020/08
CHECKED	J. P. LANGRISH (CPS)	2020/08

No.	Revisions/Notes	Date
-----	-----------------	------



Project Name and Address
WAIKAPA RIVER
 TE KARAKA TOWNSHIP
 WESTERN SIDE STOPBANK
 CROSS SECTIONS

WAIKAPA RIVER	Sheet
13.10.2025	27
1:500 @ A3	

Appendix B

GDC existing Geotechnical Investigations

AUGER / SCALA PENETROMETER TEST REPORT



Project : TeKaraka Soil Investigations
Location : Kanakanaia Rd X: 2024661.86 Y: 5732087.32
Client : Gisborne District Council
Contractor : N/A
Test number : HA01
Shear vane number : N/A
Shear vane correction : N/A
Water level : N/A
Reduced level : N/A

Project No : 2-GISLB.D6
Lab Ref No : GS2951-1
Client Ref No : Dean

Scala Penetrometer		Test Results	
Depth (m)	Blows / 50mm	Shear Strength (kPa)	Soil Description
0.00			Clay Silt Sand Blue/Grey Firm Moist Moderately Plastic
0.20			Clayey, SILT minor sand Brown/Tan Firm, Moist, Plastic
0.40			Clayey SILT trace of sand Tan Soft/Firm Drier than above
0.60			Silty CLAY Trace of sand (coarse grains visible) Firm, Moist Highly Plastic
0.80			as above sand grains larger Orange Fleck
1.00			Silty CLAY Trace of sand (coarse grains visible) Tan with Grey Fleck Firm, Moist Highly Plastic
1.20			
1.40			
1.60			
1.80			
2.00			No Change END Sample taken encompasses entire depth

Test Methods	
Determination of Penetration Resistance of a Soil, NZS 4402:1988, Test 6.5.2	Field Descriptions of Soils and Rocks by
Shear Strength using a Hand Held Shear Vane: NZ Geotechnical Soc Inc 8/2001	NZ Geotechnical Society Dec 2005, Scala over 1.5m
Inferred CBR values taken from Austroads Pavement Design Manual 2004	and Inferred CBR values are not IANZ accredited

Date tested :

Date reported : 21/05/25

This report may only be reproduced in full

Approved Richard Page

Designation : Laboratory Manager

Date : 21/05/25

AUGER / SCALA PENETROMETER TEST REPORT



Project : TeKaraka Soil Investigations
 Location : Morris Rd X: 2024449.66 Y: 5731987.83
 Client : Gisborne District Council
 Contractor : N/A
 Test number : HA02
 Shear vane number : N/A
 Shear vane correction : N/A
 Water level : N/A
 Reduced level : N/A

Project No : 2-GISLB.D6
 Lab Ref No : GS2951-2
 Client Ref No : Dean

Scala Penetrometer		Test Results	
Blows / 50mm	Depth (m)	Shear Strength (kPa)	Soil Description
0 1 2 3 4 5 6 7 8	0.00		Weeds, Rootlets, (Sparse) Clay, SILT m Inor Sand, Brown Firm, Moist Moderately Plastic
	0.20		
	0.40		Clay SILT trace of sand Tan Firm, Moist, Plastic
	0.60		
	0.80		Silty, CLAY, Trace of Sand (coarse visible) Firm, Moist Highly Plastic
	1.00		
	1.20		
	1.40		
	1.60		
	1.80		
	2.00		
0 4 8 12 16 22 28 34 38			
Inferred CBR %			
	400.00		
	800.00		
	1200.00		
	1300.00		
	1400.00		As above with orange fleck m Inor
	1800.00		As Above Grey fleck now as well m Inor
	2000.00		No change END

Test Methods	
Determination of Penetration Resistance of a Soil, NZS 4402 : 1988, Test 6.5.2	Field Descriptions of Soils and Rocks by
Shear Strength using a Hand Held Shear Vane: NZ Geotechnical Soc Inc 8/2001	NZ Geotechnical Society Dec 2005, Scala over 1.5m
Inferred CBR values taken from Austroads Pavement Design Manual 2004	and Inferred CBR values are not IANZ accredited

Date tested : 16/05/25
 Date reported : 21/05/25

This report may only be reproduced in full

Approved Richard Page

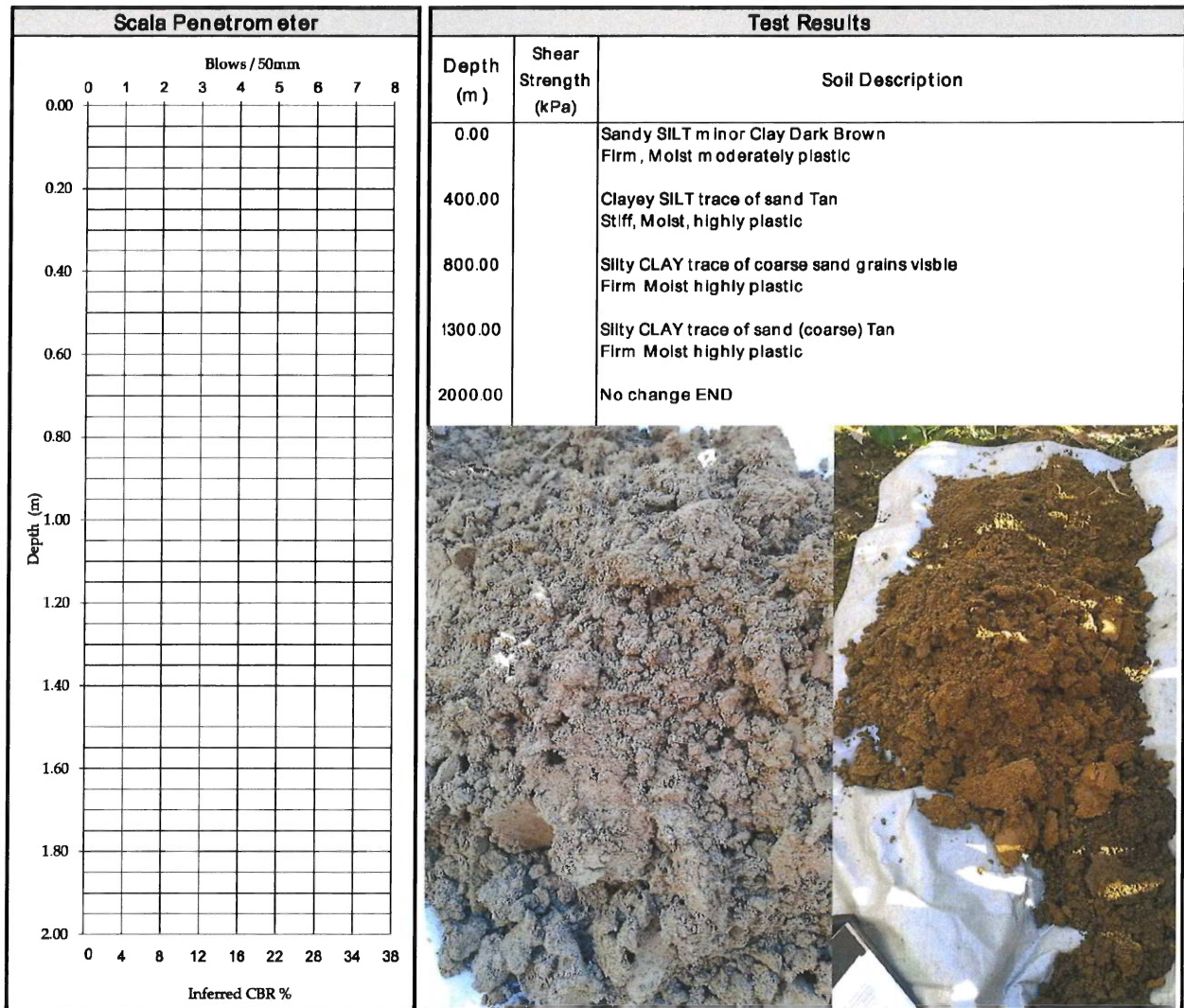
Designation : Laboratory Manager
 Date : 21/05/25

AUGER / SCALA PENETROMETER TEST REPORT



Project : TeKaraka Soil Investigations
Location : Morris Rd X: 2024300.44 Y: 5731926.98
Client : Gisborne District Council
Contractor : N/A
Test number : HA03
Shear vane number : N/A
Shear vane correction : N/A
Water level : N/A
Reduced level : N/A

Project No : 2-GISLB.D6
Lab Ref No : GS2951-3
Client Ref No : Dean



Test Methods	
Determination of Penetration Resistance of a Soil, NZS 4402: 1988, Test 6.5.2	Field Descriptions of Soils and Rocks by
Shear Strength using a Hand Held Shear Vane: NZ Geotechnical Soc Inc 8/2001	NZ Geotechnical Society Dec 2005, Scala over 1.5m
Inferred CBR values taken from Austroads Pavement Design Manual 2004	and Inferred CBR values are not IANZ accredited

Date tested : 16/05/25
Date reported : 21/05/25

This report may only be reproduced in full

Approved **Richard Page**

Designation : *Laboratory Manager*
Date : 21/05/25

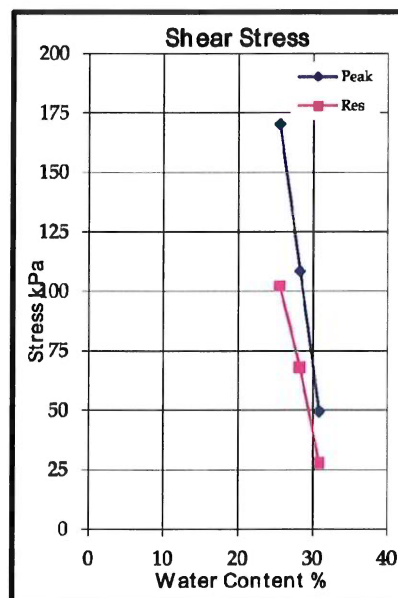
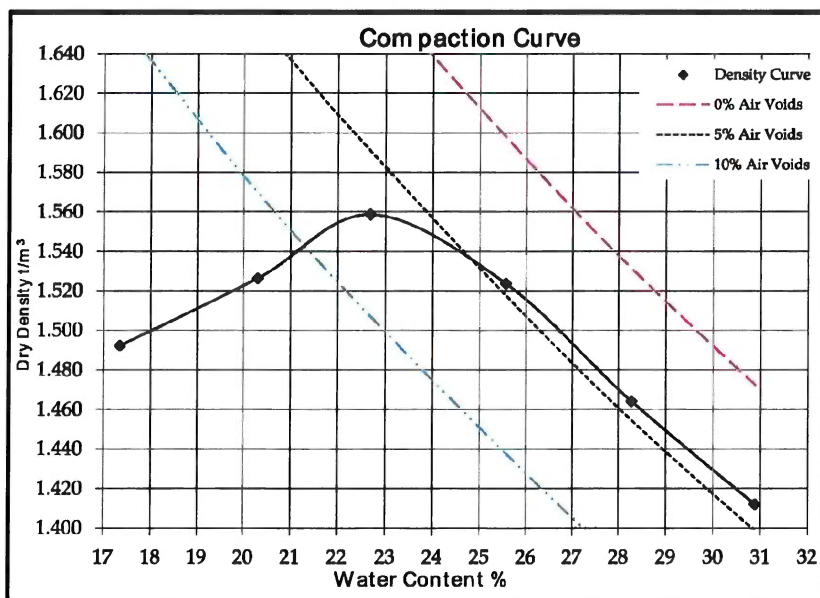
**DRY DENSITY / WATER CONTENT RELATIONSHIP
STANDARD COMPACTION**



Project : Te Karaka Soil Investigations
 Location : Kanakanaia Rd HA01
 Client : Gisborne District Council
 Contractor : N/A
 Sampled by : WSP Gisborne Lab RSP/EAN
 Date sampled : 16/05/25
 Sampling method : Hand Auger
 Sample description : Silty CLAY trace of Sand
 Sample condition : Moist
 Solid density : 2.70 t/m³ (Assumed)
 Source : HA01

Project No : 2-GISLB.D6
 Lab Ref No : GS2951/1B
 Client Ref No : Dean

Test Results							
Maximum dry density	1.56	t/m ³	Natural water content		28.0	%	
Optimum water content	22	%	Fraction tested		Whole Soil		
Sample ID	-200	-150	-100	-50	0	+50	
Bulk density t/m ³	1.751	1.836	1.912	1.913	1.878	1.848	
Water content %	17.3	20.3	22.7	25.6	28.3	30.9	
Dry density t/m ³	1.492	1.526	1.559	1.524	1.464	1.412	
Sample condition	Very Stiff Moist/Dry	Very Stiff Moist/Dry	Stiff Moist	Firm Moist	firm Moist	Soft Moist	
Peak stress kPa	UTP	UTP	UTP	170	108	50	
Remoulded stress kPa	-	-	-	102	68	28	



Test Methods	Notes
Compaction NZS 4402:1986 Test 4.1.1 (Standard)	
Shear Strength using a Hand Held Shear Vane, NZ Geotechnical Soc Inc 8/2001	

Date tested : 21/05/25
 Date reported : 27/05/25

Sampling is not covered by IANZ Accreditation. Results apply only to sample tested.
 This report may only be reproduced in full

Approved Sign: Richard Page

Designation : Laboratory Manager
 Date : 27/05/25



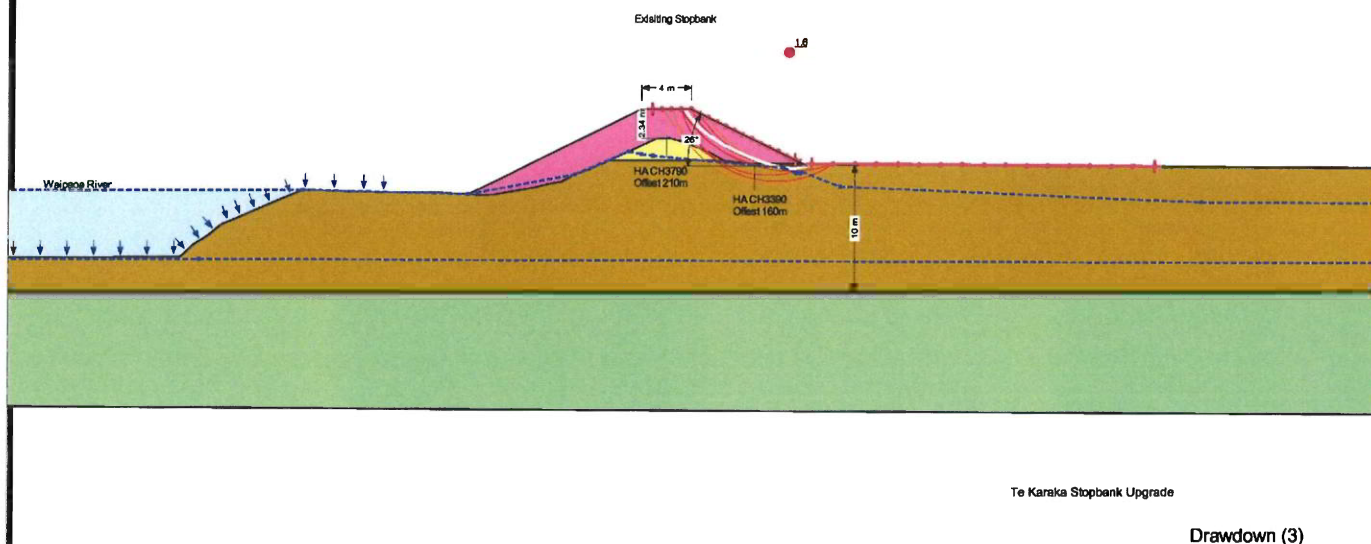
Test results indicated as not accredited are outside the scope of the laboratory's accreditation

**PROPOSED BACKFILL
INVESTIGATIONS AND MDD TEST RESULTS**

Appendix C

Slope Stability Analysis

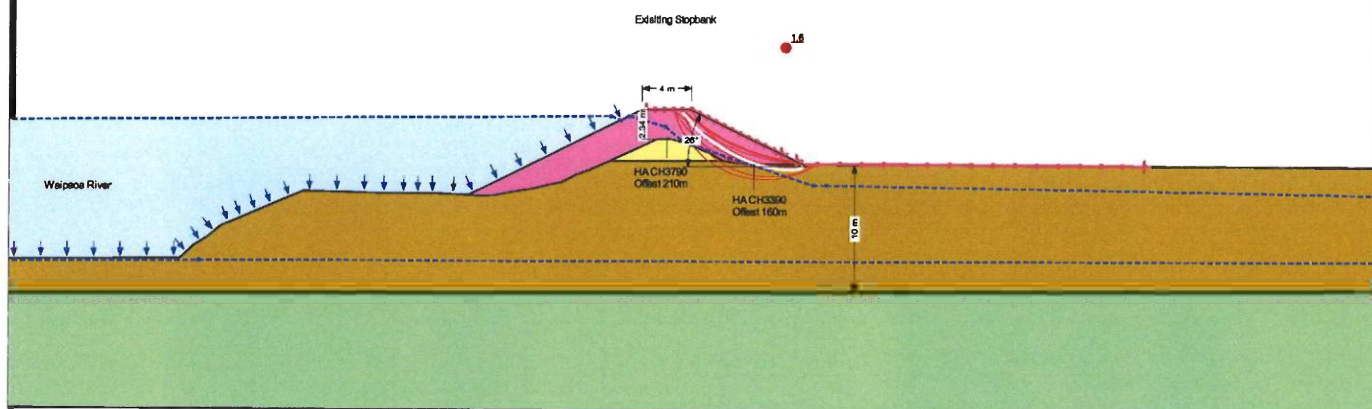
Color	Name	Slope Stability Material Model	Unit Weight (kN/m³)	Effective Cohesion (kPa)	Effective Friction Angle (°)	Phi-DB (°)	Permeability Surface
	Engineered FR - Proposed stopbank	Moyn- Coulomb	18	2	30	0	2
	Fill / subsoil sand (FLL)	Moyn- Coulomb	18	0	32	0	2
	Fill / Sandy sil. (H.O. OCENE) DEPOSITS	Moyn- Coulomb	18	2	28	0	2
	Fill / to stream (GRAVEL) (H.O. OCENE) DEPOSITS	Moyn- Coulomb	20	0	40	0	2



							Project		Te Karaka Stopbank Upgrade		
							Title		Scale 1:400		
							Drawing No.		Revision 0		
A		PR		03/17/2026							
Rev		Revision Description		Drawn		Checked		Date			



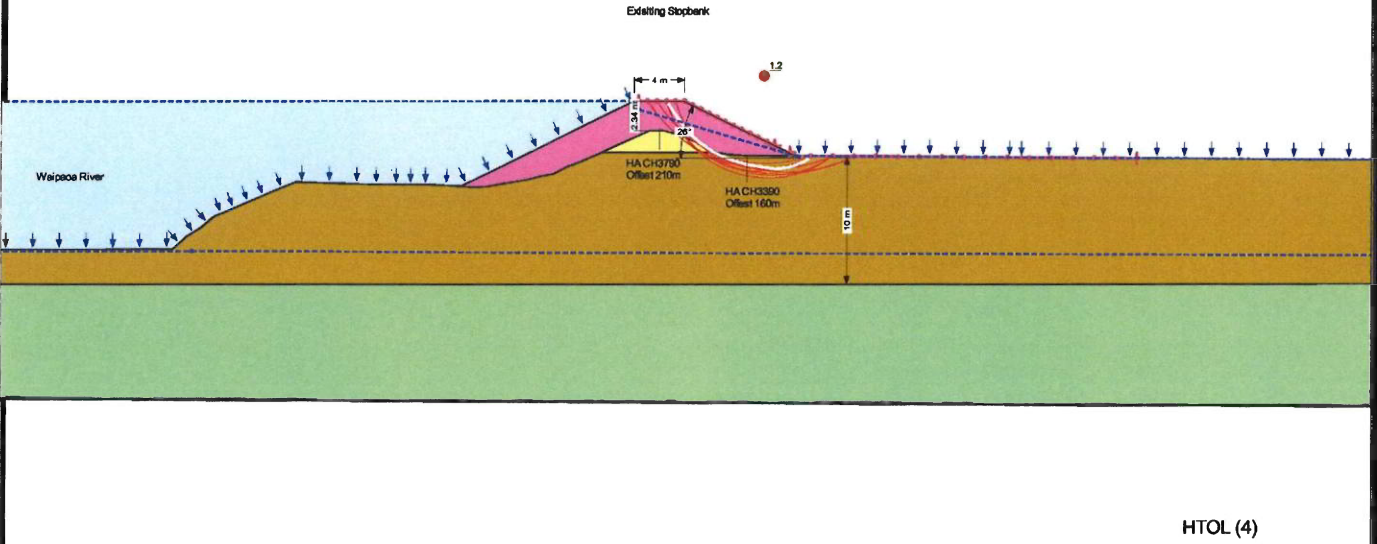
Color	Name	Slope Stability Material (Soil)	Unit Weight (kN/m³)	Cohesive (kPa)	Internal Friction Angle (°)	Phi (°)	Permeability (m/s)
[Pink Box]	[1] Engineered Fill - Proposed stopbank	Mtvy Coulomb	18	2	30	0	2
[Yellow Box]	[2] Alluvial sand (FILL)	Mtvy Coulomb	18	0	32	0	2
[Brown Box]	[3] Silty Sand (FILL) (HOLocene DEPOSITS)	Mtvy Coulomb	18	2	28	0	2
[Green Box]	[4] Fine to coarse (GRAVEL) (HOLocene DEPOSITS)	Mtvy Coulomb	20	0	40	0	2



DWSE -Landside (2)

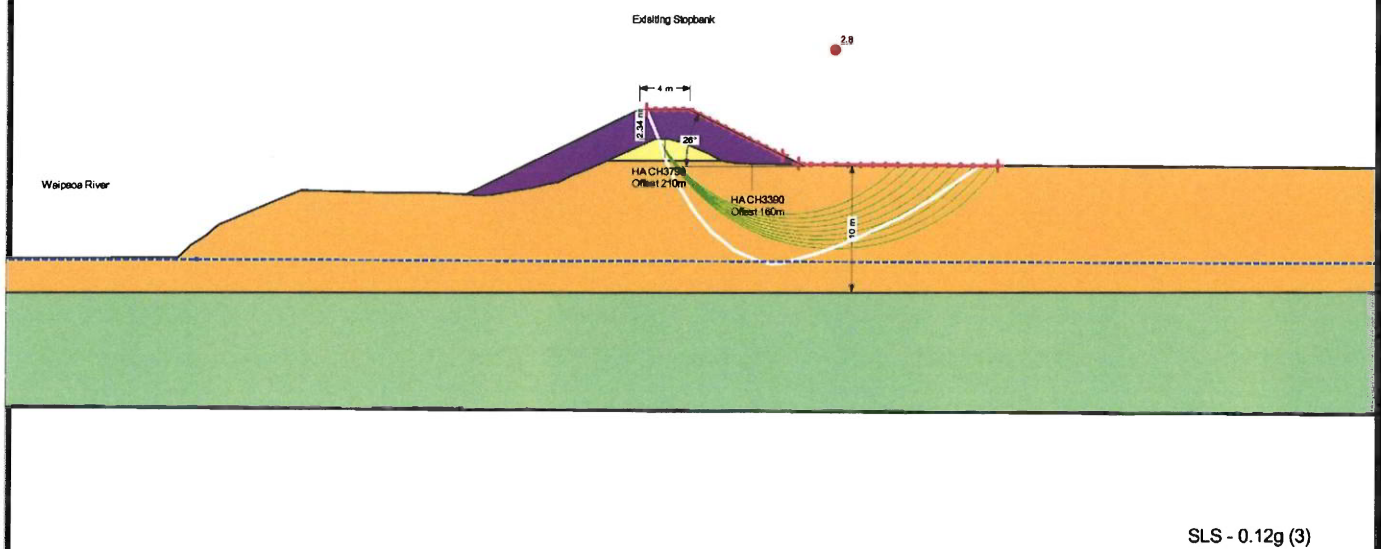
						Project		Te Karaka Stopbank Upgrade	
Rev	Revision Description	Drawn	Checked			Title	Scale	Drawing No.	Revision
A		PR		03/17/2026			1:400		0

Color	Name	Slope Stability Material Used	Unit Weight (kN/m³)	Effective Cohesion (kPa)	Effective Friction Angle (°)	Phi/B (%)	Remarks
[Pink Box]	[1] Engraved IR - Proposed stopbank	Mohr Coulomb	18	2	30	0	2
[Yellow Box]	[1] Silty fine sand (SLL)	Mohr Coulomb	18	0	32	0	2
[Brown Box]	[2] Silty Sandy Sh. (H.O. OC 19M DEPOSITS)	Mohr Coulomb	15	2	28	0	2
[Green Box]	[3] Fine to coarse GRAVEL (H.O. OC 19M DEPOSITS)	Mohr Coulomb	20	0	40	0	2



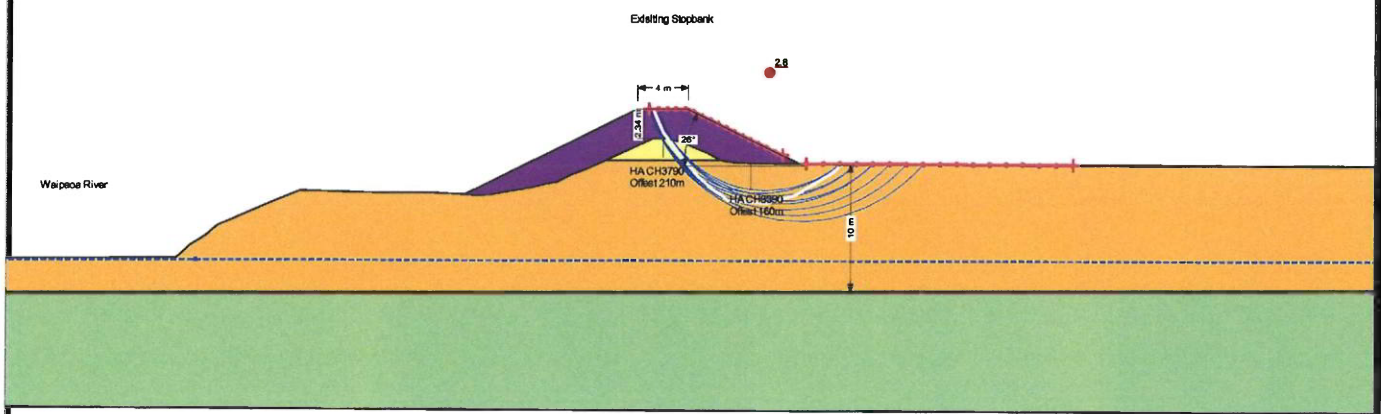
						Project		Te Karaka Stopbank Upgrade		Scale	1:400	Drawing No.	Revision
A		PR	03/17/2026			Title							
Rev	Revision Description	Drawn	Checked	Date									0

Color	Name	Slope Stability Material Model	Unit Weight (kN/m ³)	Effective Cohesion (kPa)	Effective Friction Angle (°)	PH ₂ O (%)	Remoulded Shear Strength (kPa)	Undrained Shear Strength (kPa)
■	(1) Proposed Fill - Proposed stopbank - Undrained	Undrained (P=0)	18			1		120
■	(1) 15% Fills some sand (FLL)	Mo-Coulomb	18	0	32	0	1	
■	(2) 15% Sands SL - Undrained (KLOCCOM DEPOSITS)	Undrained (P=0)	18			1		80
■	(3) Fine coarse GRAVEL (KLOCCOM DEPOSITS)	Mo-Coulomb	20	0	40	0	1	



						Project Te Karaka Stopbank Upgrade	
						Title	Scale 1:400
						Drawing No.	Revision 0
A		PR		03/17/2026			
Rev	Revision Description	Drawn	Checked	Date			

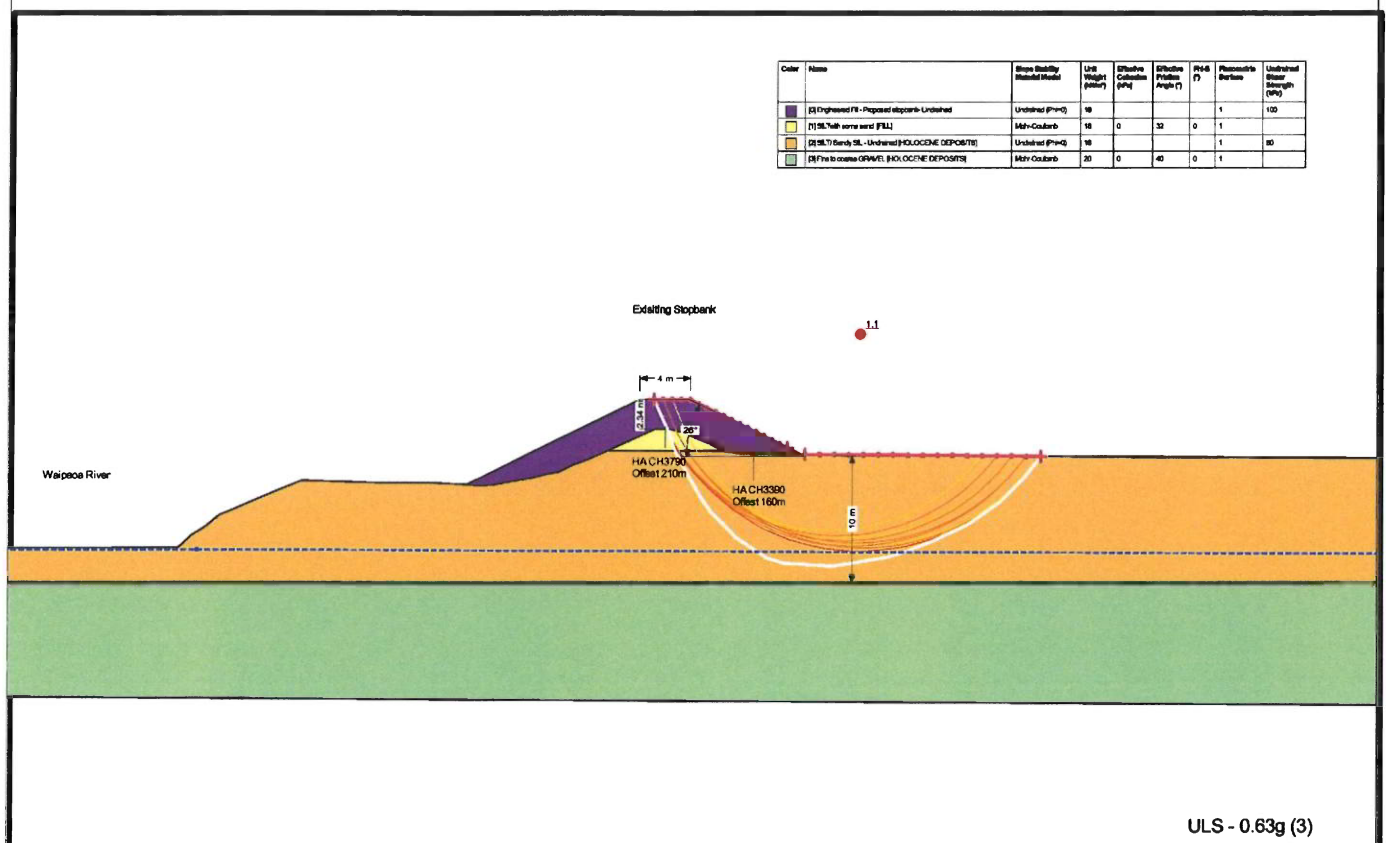
Color	Name	Slope Stability Method Model	Unit Weight (kN/m ³)	Effective Cohesion (kPa)	Effective Friction Angle (°)	Phi δ (°)	Permeability Coefficient	Undrained Shear Strength (kPa)
Blue	[1] Proposed FR - Proposed stopbank - Undrained	Undrained (Phi=0)	18				1	120
Yellow	[1] Subsoil - sand (FLL)	Mohr-Coulomb	18	0	30	0	1	
Orange	[2] Subsoil - Sand - Undrained POLYGENIC DEPOSITS	Undrained (Phi=0)	18				1	30
Green	[3] Fine to coarse GRAVEL - POLYGENIC DEPOSITS	Mohr-Coulomb	20	0	40	0	1	



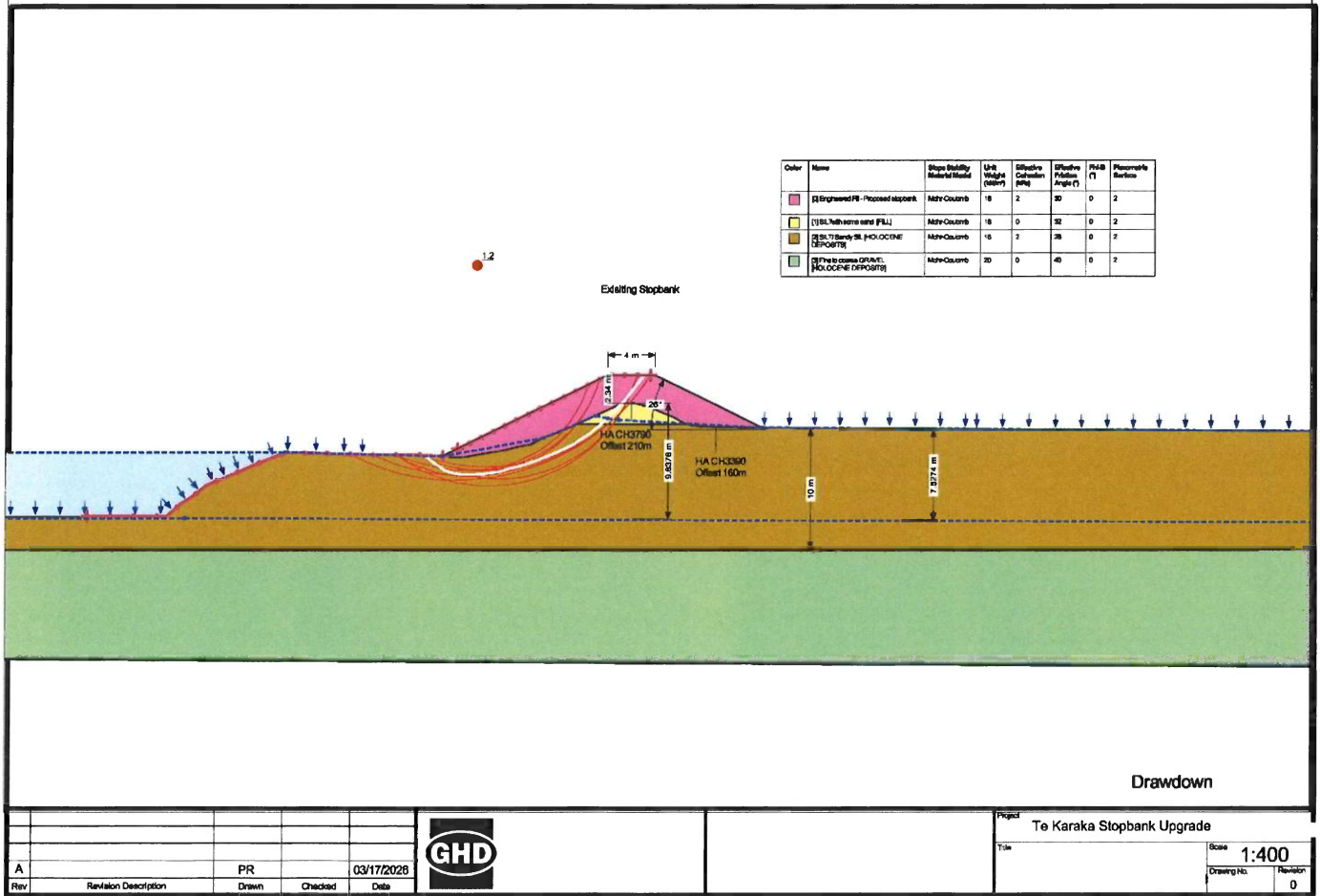
Static - Stopbank (3)

						Project: Te Karaka Stopbank Upgrade			
						Title: _____			
						Scale: 1:400			
A		PR		03/17/2026				Drawing No. _____	Revision 0
Rev	Revision Description	Drawn	Checked	Date					

Color	Name	Slope Stability Shear Stress Ratio	Unit Weight (kN/m ³)	Effective Cohesion (kPa)	Effective Friction Angle (°)	Remoulded Cohesion (kPa)	Remoulded Friction Angle (°)	Undrained Shear Strength (kPa)
Blue	[5] Drilled Fill - Proposed stopbank-Undrained	Undrained (Pre-Q)	18			1		100
Yellow	[7] SLT/silt some sand (FILL)	Mohr-Coulomb	18	0	32	0	1	
Orange	[2] SLT/sandy SL - Undrained (HOLOCENE DEPOSITS)	Undrained (Pre-Q)	18			1		80
Green	[6] Fine to coarse GRAVEL (HOLOCENE DEPOSITS)	Mohr-Coulomb	20	0	40	0	1	



						Project: Te Karaka Stopbank Upgrade		Scale: 1:400	
Rev	Revision Description	Drawn	Checked			Title	Drawing No.	Revision	0
A		PR		03/17/2028					

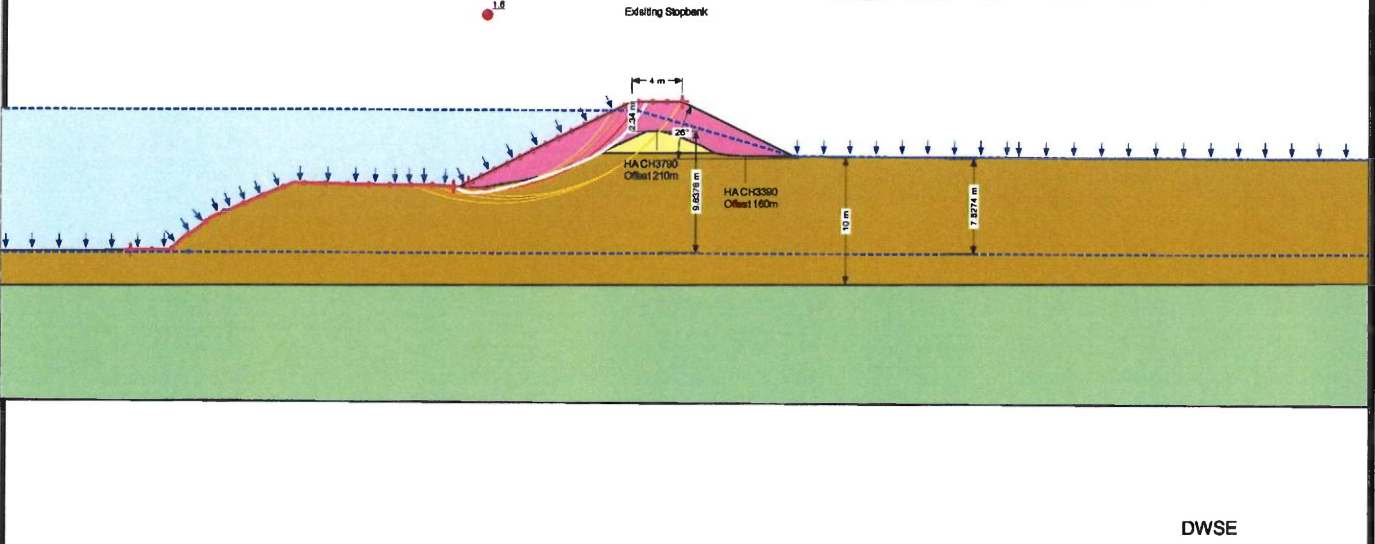


A	Revision Description	PR	Drawn	Checked	Date

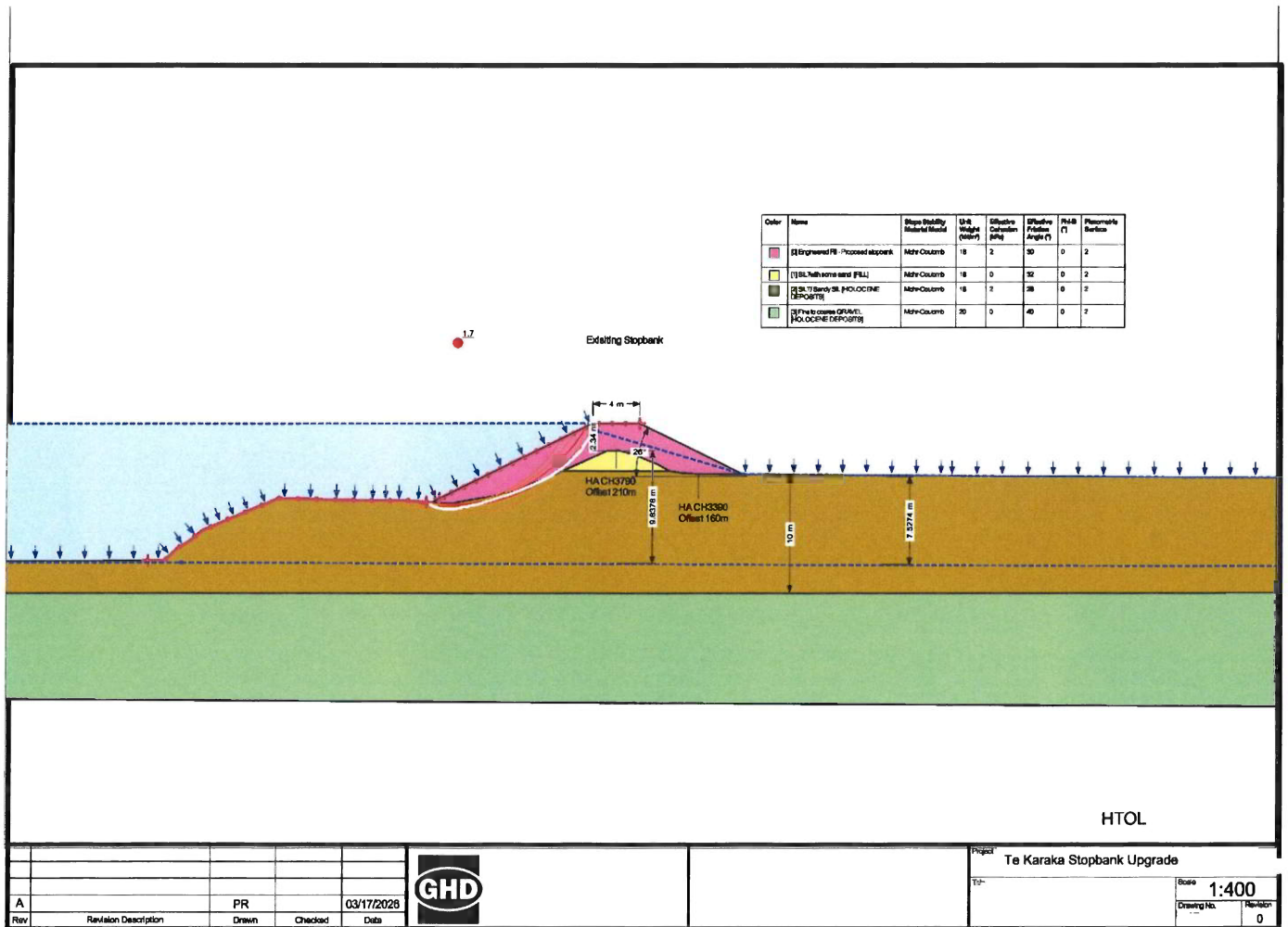


Project		Te Karaka Stopbank Upgrade	
Title		Scale 1:400	
Drawing No.		Revision 0	

Color	Name	Slope Stability Material Name	Unit Weight (kN/m³)	Effective Cohesion (kPa)	Effective Friction Angle (°)	Phi-8 Surface	Phi-8 Surface
	Engineered Fill - Proposed stopbank	Mohr-Coulomb	18	2	30	0	2
	15% Moisture and FILL	Mohr-Coulomb	18	0	35	0	2
	25% to 75% Boulders (HOLLOCAUST DEPOSITS)	Mohr-Coulomb	16	2	28	0	2
	25% to 75% Boulders (HOLLOCAUST DEPOSITS)	Mohr-Coulomb	20	0	40	0	2



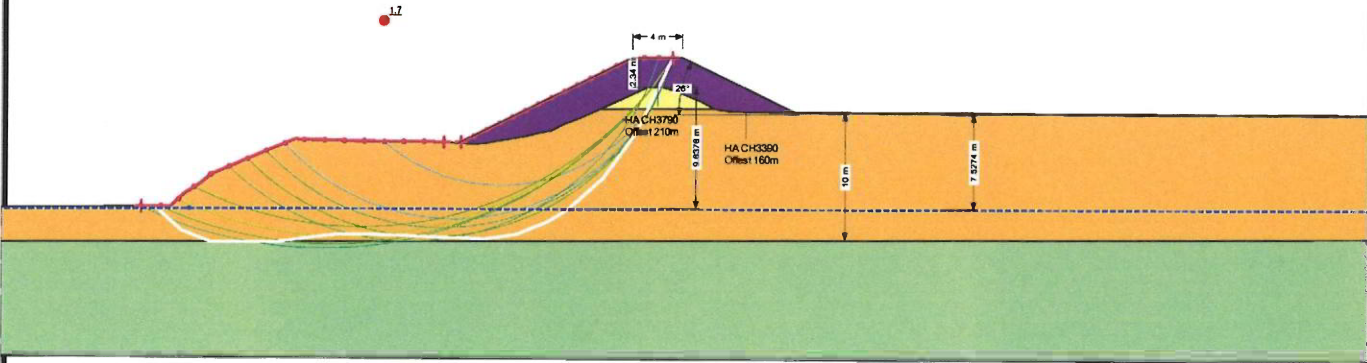
							Project		Te Karaka Stopbank Upgrade	
							Title		Scale	
									1:400	
A			PR		03/17/2026			Drawing No.		Revision
Rev	Revision Description		Drawn	Checked	Date			0		



					Project		Te Karaka Stopbank Upgrade	
					Scale		1:400	
					Drawing No.		Revision	
							0	

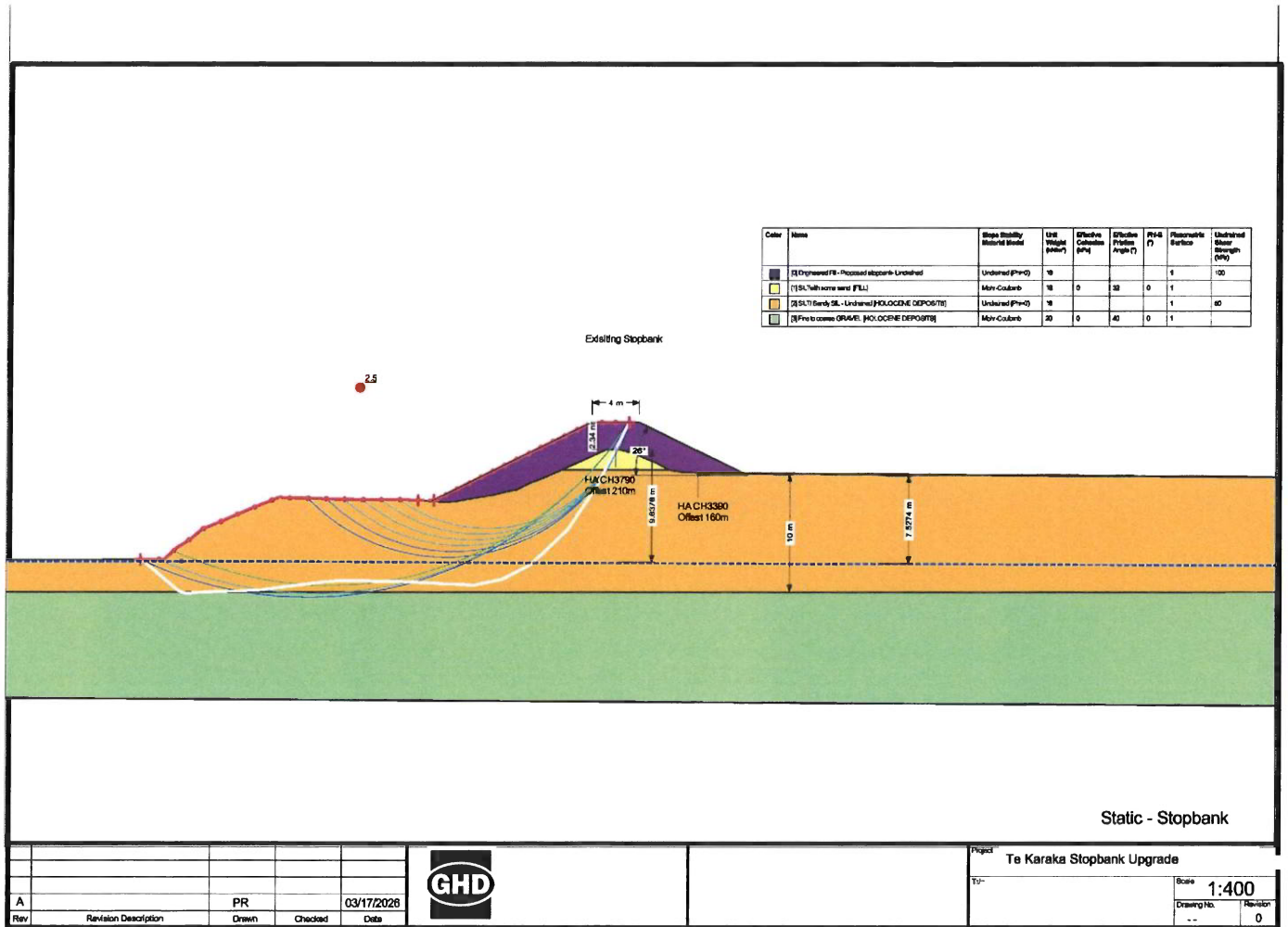
Color	Name	Slope Stability Material Model	Unit Weight (kN/m³)	Effective Cohesion (kPa)	Effective Friction Angle (°)	Phi-0 (°)	Reasonable Surface	Undrained Shear Strength (kPa)
Dark Purple	[3] Engineered Fill - Proposed stopbank - Undrained	Undrained (Phi=0)	18				1	125
Yellow	[1] Soft to medium sand (FLL)	Moist Cohesive	18	0	32	0	1	
Orange	[2] Slightly Silty Sand - Undrained (HOLOCENE DEPOSITS)	Undrained (Phi=0)	18				1	80
Grey	[3] Fine to coarse GRAVEL (HOLOCENE DEPOSITS)	Moist Cohesive	20	0	40	0	1	

Existing Stopbank

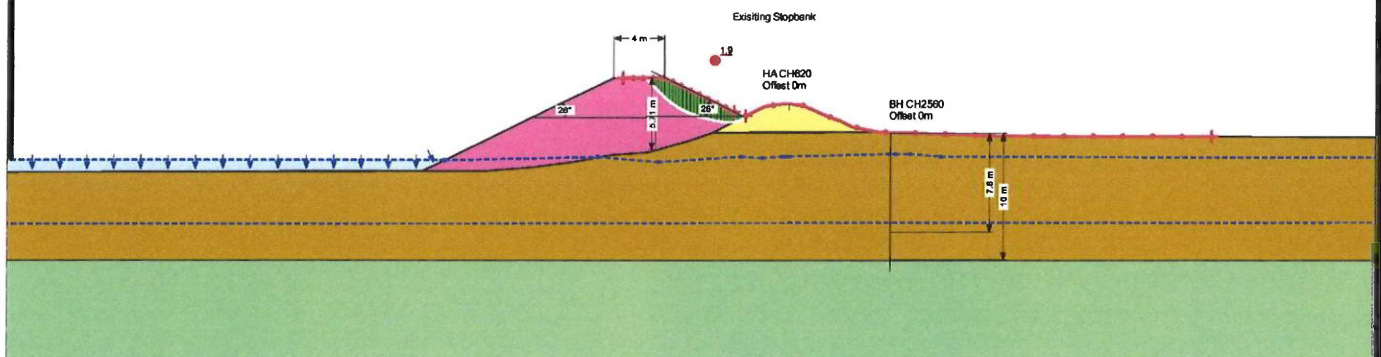


SLS - 0.12g

						Project		Te Karaka Stopbank Upgrade	
Rev	Revision Description	Drawn	Checked	Date		Title		Scale	Revision
A		PR		03/17/2026				1:400	0



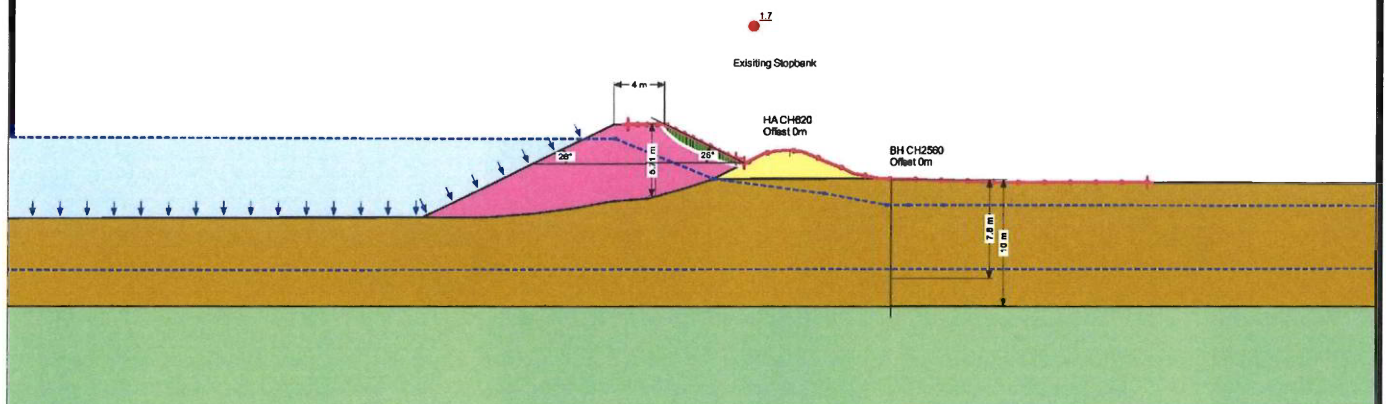
Color	Name	Slope Stability Standard/Model	Unit Weight (kN/m³)	Effective Cohesion c(kPa)	Effective Friction Angle (°)	FS-0 (%)	Remarks Surface
[Red]	[1] Engineered Fill Proposed stopbank	Mohr-Coulomb	18	2	30	0	2
[Yellow]	[2] SILT/Soft sand (FILL)	Mohr-Coulomb	18	0	30	0	2
[Orange]	[3] SILT/Soft sand & COLODENE DEPOSITS	Mohr-Coulomb	18	2	28	0	2
[Green]	[4] Fine to coarse GRAVEL (COLODENE DEPOSITS)	Mohr-Coulomb	20	0	40	0	2



Name: Drawdown (2)

						Project Te Karaka Stopbank	
						Title	Scale 1:400
						Drawing No.	Revision 0
A		PR		03/17/2026			
Rev	Revision Description	Drawn	Checked	Date			

Color	Name	Slope Stability Material Model	Unit Weight (kN/m³)	Effective Cohesion (kPa)	Effective Friction Angle (°)	Permeability (m/s)	Remarks
[Red]	[1] Engineered Fill - Proposed stopbank	MoRe-Claybank	16	2	30	0	2
[Yellow]	[11] Silty sand (FLU)	MoRe-Claybank	15	0	30	0	2
[Brown]	[2] Silty Sand & SILTY CLAY DEPOSITS	MoRe-Claybank	15	2	30	0	2
[Green]	[3] Fine to coarse GRAVEL & SILTY CLAY DEPOSITS	MoRe-Claybank	20	0	40	0	2



Name: DWSE (2)

					Project Te Karaka Stopbank	Scale 1:400	Drawing No. 0
Rev	Revision Description	Drawn	Checked				
A		PR		03/17/2028			

Order	Name	Shape Stability Material (S value)	Unit Weight (kN/m ³)	Effective Cohesion (kPa)	Effective Friction Angle (°)	Phi (°)	Plasticity Surface
1	Crushed FR - Proposed slopebank	Moist-Coulomb	18	2	30	0	2
2	SLT/Soft core sand (FLL)	Moist-Coulomb	15	0	32	0	2
3	SLT/Gravel (SLT) COLORED (LPC/STB)	Moist-Coulomb	15	2	28	0	2
4	Free to drain GRAVEL (LPC/STB)	Moist-Coulomb	20	0	40	0	2

Existing Slopebank

HA CH620 Offset 0m

BH CH2500 Offset 0m

4 m

20°

25°

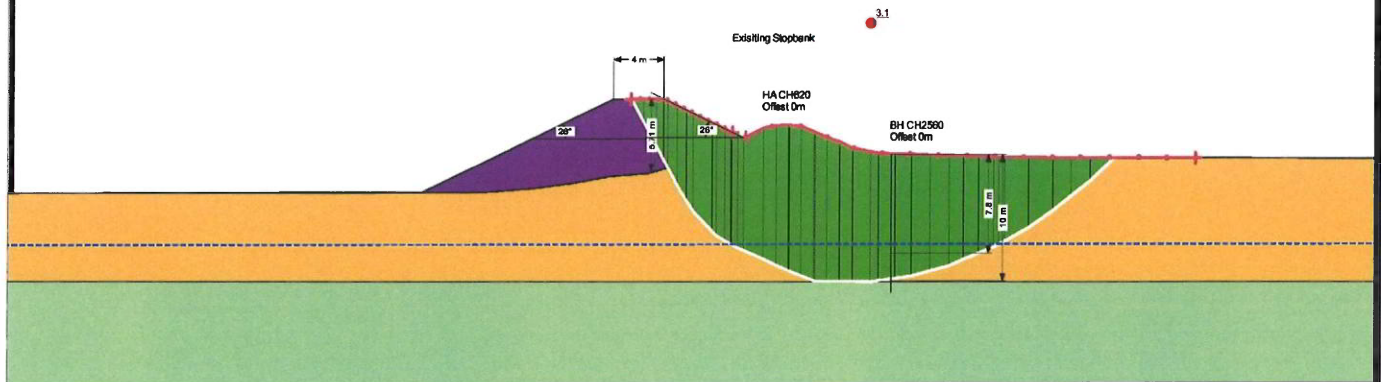
1.9

1.0 m

7.5 m

					Project Te Karaka Stopbank	
					Title 	Scale 1:400
					Drawing No 	Revision 0
A		PR	03/17/2026			
Rev	Revision Description	Drawn	Checked	Date		

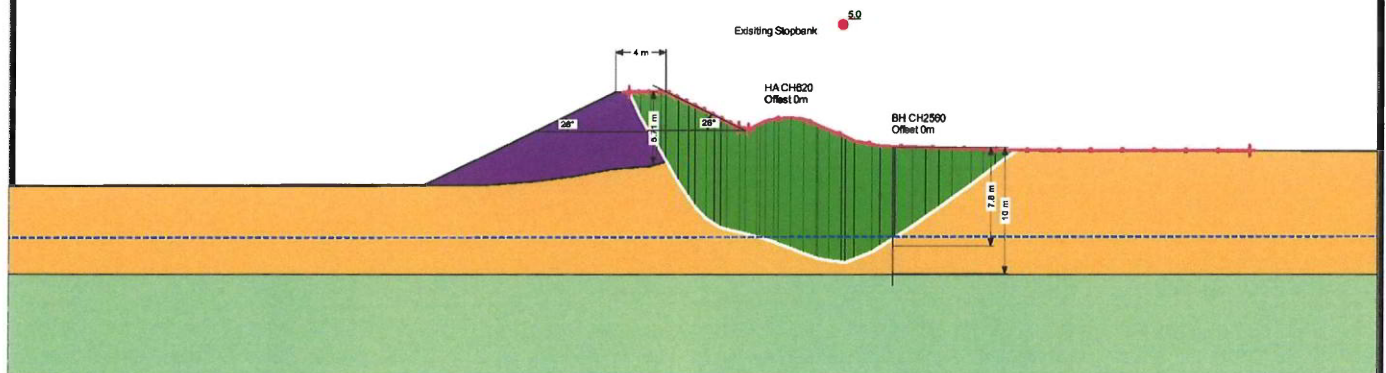
Color	Name	Slope Stability Method Model	Unit Weight (kN/m ³)	Saturated Cohesion (kPa)	Effective Friction Angle (°)	Phi-B (%)	Flowchart Number	Undrained Shear Strength (kPa)
■	(1) Engineered Fill Proposed stopbank - Undrained	Undrained (PH-0)	18				1	100
■	(1) SLT/In-situ sand (FLL)	Multi-Case	18	0	32	0	1	
■	(2) SLT/In-situ SL - Undrained (HOLLODGE DEPOSITS)	Undrained (PH-0)	18				1	10
■	(3) Pre-In-situ GRAVEL (HOLLODGE DEPOSITS)	Multi-Case	20	0	40	0	1	



Name: SLS -0.12g (2)

						Project		To Karaka Stopbank		Scale 1:400	Revision 0
						Title		Drawing No.			
A		PR		03/17/2028							
Rev	Revision Description	Drawn	Checked	Date							

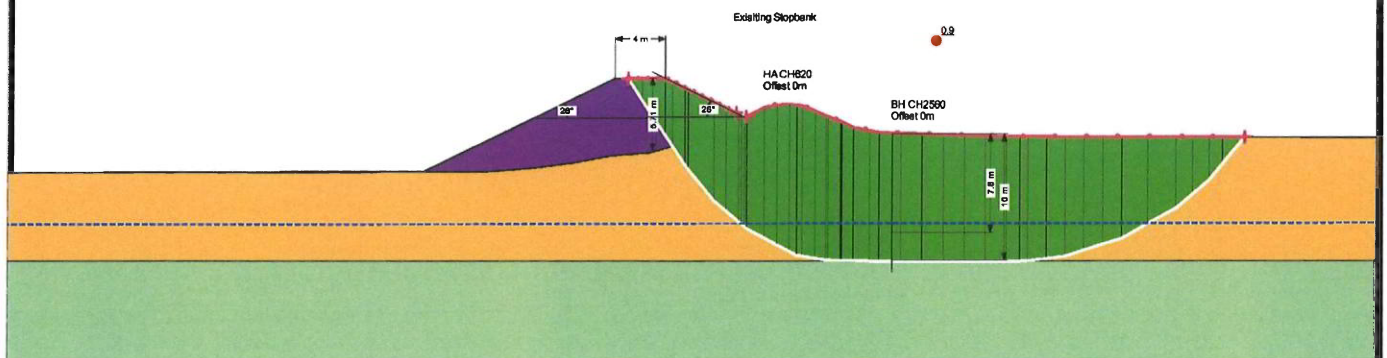
Color	Name	Slope Stability Analysis Model	Unit Weight (kN/m³)	Effective Cohesion (kPa)	Effective Friction Angle (°)	PI-A (°)	Plasticity Surface	Undrained Shear Strength (kPa)
	[1] Engineered Fill - Proposed dykebank - Undrained	Undrained (PH-0)	18				1	100
	[1] SILT with some sand (FLL)	Mohr-Coulomb	18	0	32	0	1	
	[2] SILT/Sand SIL - Undrained PLEISTOCENE DEPOSITS	Undrained (PH-0)	18				1	30
	[3] Prehistoric GRAVEL (Pleistocene DEPOSITS)	Mohr-Coulomb	20	0	40	0	1	



Name: Static - Proposed stopbank (

						Project Te Karaka Stopbank		Scale 1:400	
Rev	Revision Description	Drawn	Checked	Date		Title		Drawn No.	Revision
A		PR		03/17/2026					0

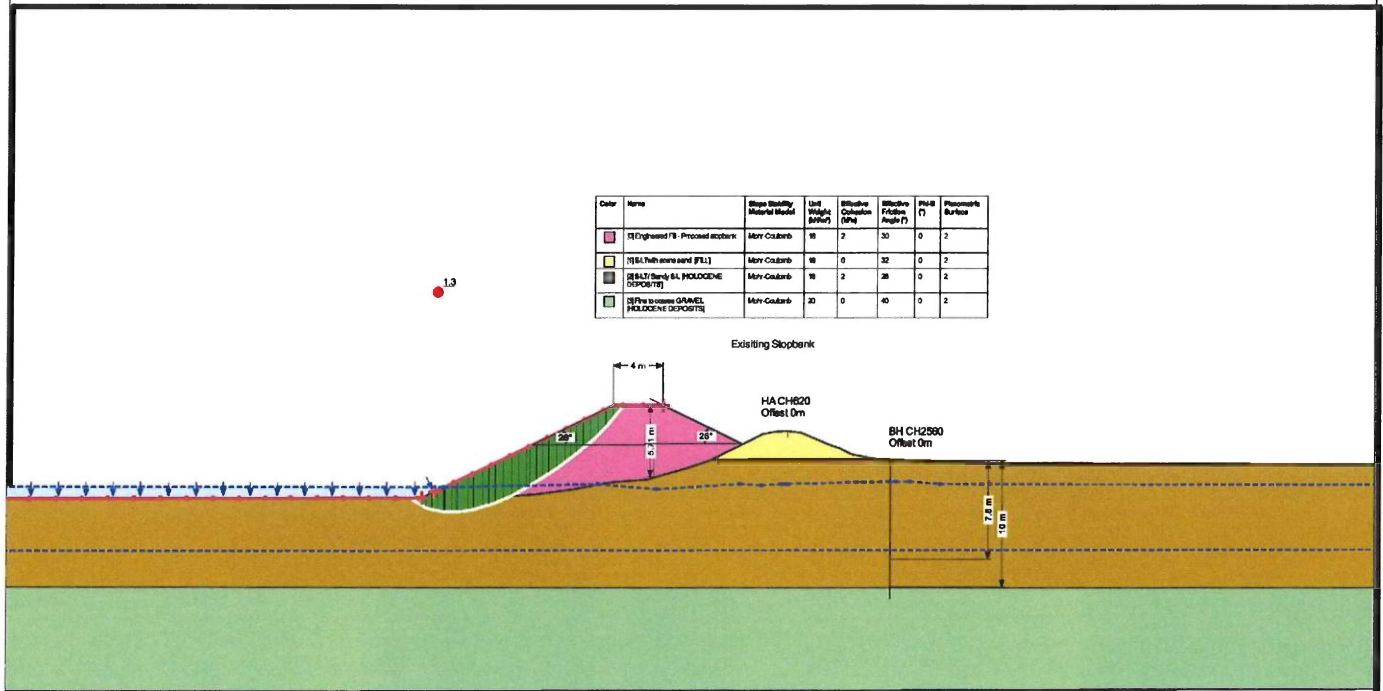
Color	Name	Slope Stability Failure Model	Uls Height (mm)	Effective Cohesion (kPa)	Effective Friction Angle (°)	PAIR (°)	Minimum Factor of Safety	Undrained Shear Strength (kPa)
Blue	(1) Highwater TB Proposed Embankment Undrained	Undrained (PBH)	95				1	100
Yellow	(2) SAT/bedrock SL Undrained (FLL)	Multi-Coulomb	95	0	32	0	1	
Orange	(3) SAT/bedrock SL Undrained (POLOGNE DEPOSITS)	Undrained (PBH)	95				1	30
Green	(4) Prehistoric ORAMS (POLOGNE DEPOSITS)	Multi-Coulomb	20	0	40	0	1	



Name: ULS -0.63g (2)

						Project Te Karaka Stopbank	Scale 1:400	
Rev	Revision Description	Drawn	Checked				Drawing No.	Revision
A		PR		03/17/2028				0

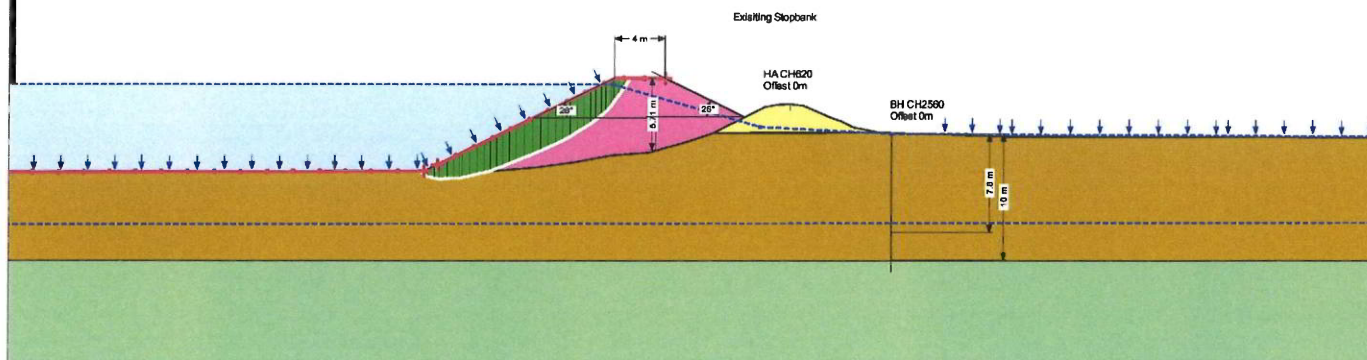
Color	Name	Slope Stability Material Model	Unit Weight (kN/m ³)	Stress Correlation (kPa)	Stress Failure Angle (°)	Stress Failure (°)	Remarks
	[1] Original / Proposed roadbed	Min Clay	18	2	33	0	2
	[2] 6.1m thickness sand (P.L.)	Min Clay	18	0	32	0	2
	[3] 6.1m Sand 6.1m HOLODENE DEPOSIT	Min Clay	18	2	28	0	2
	[4] Fine to coarse GRAVEL HOLODENE DEPOSIT	Min Clay	20	0	40	0	2



Name: Drawdown

						Project Te Karaka Stopbank	Scale 1:400	Drawing No. 	Revision 0
Rev	Revision Description	Drawn	Checked						
A		PR		03/17/2026					

Color	Name	Slope Stability Material Model	Unit Weight (kN/m ³)	Internal Friction (kPa)	Internal Friction Angle (°)	cohesion (kPa)	Preconsolidation Pressure (kPa)
■	[5] Engineered Fill - Proposed section	Morrison	18	2	30	0	2
■	[6] Soft silty sand (FLL)	Morrison	18	0	32	0	2
■	[8] Silty Sand (FLL) - HOLOCENE DEPOSITS	Morrison	18	2	38	0	2
■	[9] Fine to coarse GRAVEL - HOLOCENE DEPOSITS	Morrison	20	0	40	0	2



Name: DWSE

						Project	
						Te Karaka Stopbank	
						Title	Scale 1:400
A	Revision Description	PR	Drawn	Checked	Date	Revision No.	Revision
					03/17/2026		0

Chainage 320.000
Datum: 35.000

Total Volume at Station 0+320.00
Cut Vol 0.00
Fill Vol 871.54

PROPOSED LEVELS		37.444		
EXISTING LEVELS	37.444		37.623	36.526
LEVEL DIFFERENCE	0.000		3.615	0.000
OFFSETS	-9.488	0.000	5.328	

Chainage 360.000
Datum: 35.000

Total Volume at Station 0+360.00
Cut Vol 0.03
Fill Vol 929.77

PROPOSED LEVELS		37.599		41.344	37.660
EXISTING LEVELS	37.599		37.177	37.089	37.064
LEVEL DIFFERENCE	0.000		0.421	4.255	0.000
OFFSETS	-19.246	-5.392	0.000	19.458	

Chainage 340.000
Datum: 35.000

Total Volume at Station 0+340.00
Cut Vol 0.00
Fill Vol 102.05

PROPOSED LEVELS		37.456		4.1291	36.375
EXISTING LEVELS	37.456		37.517	36.875	36.375
LEVEL DIFFERENCE	0.000		3.773	0.000	
OFFSETS	-5.578	0.000	7.731		

Chainage 380.000
Datum: 35.000

Total Volume at Station 0+380.00
Cut Vol 0.00
Fill Vol 116.56

PROPOSED LEVELS		36.787		4.1397	36.816
EXISTING LEVELS	36.787		36.875	36.846	
LEVEL DIFFERENCE	0.000		4.572	0.000	
OFFSETS	-11.119	0.000	11.000		

General Notes

Keys



Alignment / Chainage
Bromfield
Te Karaka Township



Coordinate System in terms of NZTM 2000
Vertical Datum in terms of NZVD 2016

DESIGNED BY	CPS + GDD CREW
CHECKED BY	P. RANGIERE (CPS)
DATE	10/08/20

2	Prepared Notes	2/28
3	Notes to be read with 2023 - 2025	2/28
4	Revisions/Notes	Date



Project Name and Address
WAIPAQA RIVER
TE KARAKA TOWNSHIP
EASTERN SIDE STOPBANK
CROSS SECTIONS

WAIPAQA RIVER	Sheet
19.02.2026	5
1:500 @ A3	

Chainage 400.000
Datum: 35.000

Total Volume of Station 2+143.90
Cut Vol 0.00
Fill Vol 1073.95

PROPOSED LEVELS	37.281	41.449	37.226
EXISTING LEVELS	37.281	37.340	37.226
LEVEL DIFFERENCE	0.000	4.109	0.000
OFFSETS	-10.235	0.000	10.346

Chainage 440.000
Datum: 35.000

Total Volume of Station 2+143.00
Cut Vol 0.00
Fill Vol 924.42

PROPOSED LEVELS	37.536	41.555	37.516
EXISTING LEVELS	37.536	37.634	37.516
LEVEL DIFFERENCE	0.000	3.921	0.000
OFFSETS	-9.930	0.000	9.779

Chainage 420.000
Datum: 35.000

Total Volume of Station 6+439.00
Cut Vol 0.00
Fill Vol 164.57

PROPOSED LEVELS	37.490	41.592	37.495
EXISTING LEVELS	37.490	37.560	37.503
LEVEL DIFFERENCE	0.000	3.933	0.113
OFFSETS	-9.925	0.000	9.674

Chainage 460.000
Datum: 35.000

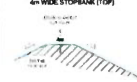
Total Volume of Station 8+436.30
Cut Vol 0.00
Fill Vol 929.38

PROPOSED LEVELS	37.607	41.668	37.704
EXISTING LEVELS	37.607	37.667	37.704
LEVEL DIFFERENCE	0.000	3.941	0.000
OFFSETS	-9.907	0.000	9.708

General Notes

Keys

- Banks
- Boundary lines
- Fence lines
- Ditches
- Culverts

CISAL 120 Alignment / Chainage
Broughton
Te Karaka TownshipTYPICAL CROSS SECTION
4m WIDE STOPBANK (TOP)Coordinate System in terms of NZTM 2000
Elevation Datum = Mean of MVD 2015

SUBMITTED	CPS + DOC CREW	-
DRAWN	P. RAUSCHER (CPS)	10/02/08
CHECKED	G. HODGINS (CPS)	10/02/08

2	Revised/Notes	2018
1	Minor corrections 2017 - 2018	2018
No.	Revision/Notes	Date



Project Name and Address
WAIAPAOA RIVER
 TE KARAKA TOWNSHIP
 EASTERN SIDE STOPBANK
 CROSS SECTIONS

WAIAPAOA RIVER	Sheet
Date: 19.02.2026	6
Scale: 1:500 @ A3	

Chainage 560.000
Datum: 35.000

Total Volume at Station 5-560.00
Cut Vol 0.00
Fill Vol 148.61

PROPOSED LEVELS	37.657		41.872	37.901
EXISTING LEVELS	37.657		37.870	37.901
LEVEL DIFFERENCE	0.000		4.003	0.000
OFFSETS	-9.930		0.000	9.843

Chainage 600.000
Datum: 35.000

Total Volume at Station 6-600.00
Cut Vol 6.68
Fill Vol 916.81

PROPOSED LEVELS	38.001		41.978	38.090
EXISTING LEVELS	38.001		38.055	38.090
LEVEL DIFFERENCE	0.000		3.923	0.000
OFFSETS	-9.854		0.000	9.576

Chainage 580.000
Datum: 35.000

Total Volume at Station 6-580.00
Cut Vol 0.00
Fill Vol 130.81

PROPOSED LEVELS	37.947		41.925	37.997
EXISTING LEVELS	37.947		37.982	37.997
LEVEL DIFFERENCE	0.000		3.943	0.000
OFFSETS	-9.856		0.000	9.756

Chainage 620.000
Datum: 35.000

Total Volume at Station 6-620.00
Cut Vol 0.03
Fill Vol 899.32

PROPOSED LEVELS	38.238		42.031	38.283
EXISTING LEVELS	38.238		38.232	38.283
LEVEL DIFFERENCE	0.000		3.799	0.000
OFFSETS	-5.486		0.000	9.556

General Notes													
Keys													
	Ditches												
	Boundary lines												
	Fence lines												
	Quays												
	Culverts												
CHECKED: Alignment / Chainage throughout Te Karaka Township													
TYPICAL CROSS SECTION at WAIKARE STOPBANK (CP9)													
Coordinates System: in terms of NZTM 2000 Vertical Datum: based on MVD 2016													
SURVEYED	CPS / GDC CREW												
DRAWN	PAULAGRE (CPS)												
CHECKED	DAVIDE (CPS)												
<table border="1"> <tr> <td>1</td> <td>Prepared Scales</td> <td>2020</td> </tr> <tr> <td>1</td> <td>Editor / L1/L2 Set 2023 - 2025</td> <td>2025</td> </tr> <tr> <td>No.</td> <td>Revisions/Issues</td> <td>Date</td> </tr> </table>		1	Prepared Scales	2020	1	Editor / L1/L2 Set 2023 - 2025	2025	No.	Revisions/Issues	Date			
1	Prepared Scales	2020											
1	Editor / L1/L2 Set 2023 - 2025	2025											
No.	Revisions/Issues	Date											
Project Name and address WAIKARE RIVER TE KARAKA TOWNSHIP EASTERN SIDE STOPBANK CROSS SECTIONS													
<table border="1"> <tr> <td>Project</td> <td>WAIKARE RIVER</td> <td>Sheet</td> <td>8</td> </tr> <tr> <td>Date</td> <td>19.02.2026</td> <td></td> <td></td> </tr> <tr> <td>Scale</td> <td>1:500 @ A3</td> <td></td> <td></td> </tr> </table>		Project	WAIKARE RIVER	Sheet	8	Date	19.02.2026			Scale	1:500 @ A3		
Project	WAIKARE RIVER	Sheet	8										
Date	19.02.2026												
Scale	1:500 @ A3												

Chainage 640.000
Datum: 35.000

Total Volume at Station 640.000
Cut Vol 0.00
Fill Vol 458.81

PROPOSED LEVELS	38.278	42.084	38.403
EXISTING LEVELS	38.278	38.301	38.403
LEVEL DIFFERENCE	0.000	3.783	0.000
OFFSETS	-9.511	0.000	9.261

Chainage 680.000
Datum: 35.000

Total Volume at Station 680.000
Cut Vol 0.00
Fill Vol 962.08

PROPOSED LEVELS	38.696	38.724	42.900	38.341	38.227
EXISTING LEVELS	38.696	38.696	38.148	38.225	38.227
LEVEL DIFFERENCE	0.000	0.118	4.042	0.115	0.000
OFFSETS	-10.887	-9.852	0.000	9.598	9.825

Chainage 660.000
Datum: 35.000

Total Volume at Station 660.000
Cut Vol 0.00
Fill Vol 887.68

PROPOSED LEVELS	38.518	42.137	38.272
EXISTING LEVELS	38.130	38.108	38.212
LEVEL DIFFERENCE	0.388	3.939	0.060
OFFSETS	-9.897	0.000	9.769

Chainage 700.000
Datum: 35.000

Total Volume at Station 700.000
Cut Vol 0.00
Fill Vol 478.36

PROPOSED LEVELS	38.112	42.236	38.204
EXISTING LEVELS	38.112	38.121	38.204
LEVEL DIFFERENCE	0.000	4.115	0.000
OFFSETS	-10.947	0.000	9.964

General Notes	
Keys --- Boundary line --- Fence line --- Datum --- Culverts	
Alignment / Chainage --- Proposed --- Existing	
TYPICAL CROSS SECTION 4m WIDE STOPBANK (10%)	
Coordinate System in terms of NZTM 2000 Vertical Datum in terms of NZVD 2016	
SURVEYED: CPS / 6000 CREW DESIGN: P. LAUGHLIN (CPS) CHECKED: S. MOFFITT (CPS)	
Project Name and Address WAI PAOAO RIVER TE KARAKA TOWNSHIP EASTERN SIDE STOPBANK CROSS SECTIONS	
WAI PAOAO RIVER 19.02.2026 1:500 @ A3	
9	

Chainage 720.000
Datum: 35.000

Total Volume at Station 6+720.00	
Cut Vol	0.00
Fill Vol	181.91

PROPOSED LEVELS	38.113	42.254	38.231
EXISTING LEVELS	38.113	38.139	38.231
LEVEL DIFFERENCE	0.000	4.115	0.000
OFFSETS	-10.141	0.000	5.947

Chainage 760.000
Datum: 35.000

Total Volume at Station 6+760.00	
Cut Vol	8.00
Fill Vol	952.91

PROPOSED LEVELS	38.288	42.291	38.231
EXISTING LEVELS	38.288	38.250	38.231
LEVEL DIFFERENCE	0.000	4.040	0.000
OFFSETS	-5.505	0.000	9.019

Chainage 740.000
Datum: 35.000

Total Volume at Station 6+740.00	
Cut Vol	0.00
Fill Vol	666.38

PROPOSED LEVELS	38.198	42.272	38.236
EXISTING LEVELS	38.198	38.264	38.236
LEVEL DIFFERENCE	0.000	4.008	0.000
OFFSETS	-10.048	0.000	5.572

Chainage 780.000
Datum: 35.000

Total Volume at Station 6+780.00	
Cut Vol	0.00
Fill Vol	1082.92

PROPOSED LEVELS	38.365	42.369	37.769
EXISTING LEVELS	38.365	38.337	38.327
LEVEL DIFFERENCE	0.000	4.032	1.726
OFFSETS	-5.829	0.000	11.983

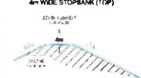
General Notes

Key

	Dashed
	Boundary line
	Fence line
	Quade
	Culverts

CITEA 120 Alignment / Chainage
Broughton
Te Karaka Township

TYPICAL CROSS SECTION

Coordinate System in terms of NZTM 2000
Vertical Datum in terms of MVD 2016

APPROVED	CPS + DCC CREW	-
DRAWN	D. BLANKINSHIP (CPS)	10/02/20
CHECKED	D. KOOHA (DCC)	10/02/20

2	Revised Notes	2020
1	Minor Corrections 2020 - 2025	2020
No.	Revision/Issue	Date

Project Name and Address
WAIKAPA RIVER
TE KARAKA TOWNSHIP
EASTERN SIDE STOPBANK
CROSS SECTIONS

WAIKAPA RIVER	10
Date	19.02.2026
Scale	1:500 @ A3

Chainage 800.000
Datum: 35.000

Total Volume at Station 8+800.00
Cut Vol 0.00
Fill Vol 988.22

PROPOSED LEVELS	38.356	42.327	38.359
EXISTING LEVELS	38.354	38.495	38.359
LEVEL DIFFERENCE	0.000	3.922	0.000
OFFSETS	-2.845	0.000	9.839

Chainage 840.000
Datum: 35.000

Total Volume at Station 8+840.00
Cut Vol 0.00
Fill Vol 973.14

PROPOSED LEVELS	38.273	42.364	38.299
EXISTING LEVELS	38.273	38.264	38.299
LEVEL DIFFERENCE	0.000	4.100	0.000
OFFSETS	-10.082	0.000	10.030

Chainage 820.000
Datum: 35.000

Total Volume at Station 8+820.00
Cut Vol 0.00
Fill Vol 948.08

PROPOSED LEVELS	38.333	42.345	38.226
EXISTING LEVELS	38.333	38.286	38.226
LEVEL DIFFERENCE	0.000	4.652	0.000
OFFSETS	-5.925	0.000	10.119

Chainage 860.000
Datum: 35.000

Total Volume at Station 8+860.00
Cut Vol 0.00
Fill Vol 976.38

PROPOSED LEVELS	38.296	42.382	38.374
EXISTING LEVELS	38.296	38.332	38.374
LEVEL DIFFERENCE	0.000	4.050	0.000
OFFSETS	-10.071	0.000	9.917

General Notes

Keys

- Station
- Boundary lines
- Fence lines
- Clear
- Culverts

TEGA 120 Alignment / Chainage
Brought Road
Te Karaka Township

TYPICAL CROSS SECTION
4m WIDE STOPBANK (TOP)

Coordinate System in terms of NZTM 2000
Vertical Datum of base of MVD 2016

MANUVED	CPS / GDC / CHSW	-
DRAGMAN	P PLANGIERE / CPS	15/05/08
CHICKO	G / HODGINS / GDC	15/05/08

2	Prepared & Issued	25/0
1	Minor (any) Set 2023 - 2025	2025
No.	Revisions/Issues	Date

Project Name and Address

GISBORNE
10 TRIST COOPER
Te Kaitiaki Take Kaitiaki

CPS
Civil Engineering Solutions

Project Name and Address

WAIAPAOA RIVER
TE KARAKA TOWNSHIP
EASTERN SIDE STOPBANK
CROSS SECTIONS

WAIAPAOA RIVER	Sheet
19.02.2026	11
1:500 @ A3	

Chainage 880.000
Datum: 35.000

Total Volume at Station 880.000
Cut Vol 0.00
Fill Vol 152.51

PROPOSED LEVELS	38.372	42.400	38.448
EXISTING LEVELS	38.312	38.408	38.463
LEVEL DIFFERENCE	0.060	4.000	0.000
OFFSETS	-9.076	0.000	9.764

Chainage 920.000
Datum: 35.000

Total Volume at Station 920.000
Cut Vol 0.03
Fill Vol 908.36

PROPOSED LEVELS	38.455	42.437	38.639
EXISTING LEVELS	38.454	38.527	38.639
LEVEL DIFFERENCE	0.000	3.910	0.000
OFFSETS	-9.862	0.000	9.497

Chainage 900.000
Datum: 35.000

Total Volume at Station 900.000
Cut Vol 0.00
Fill Vol 678.53

PROPOSED LEVELS	38.432	42.419	38.564
EXISTING LEVELS	38.432	38.468	38.564
LEVEL DIFFERENCE	0.000	3.931	0.000
OFFSETS	-9.873	0.000	9.608

Chainage 940.000
Datum: 35.000

Total Volume at Station 940.000
Cut Vol 0.03
Fill Vol 609.29

PROPOSED LEVELS	38.472	42.455	38.571
EXISTING LEVELS	38.472	38.528	38.571
LEVEL DIFFERENCE	0.000	3.927	0.000
OFFSETS	-9.866	0.000	9.665

General Notes

Keys

- Boundary lines
- Fence lines
- Quays
- Culverts

Alignment / Chainage

TEKA 100

TYPICAL CROSS SECTION
4m WIDE STOPBANK (TEP)

Coordinate System in terms of NZTM 2000
Vertical Datum is based on NZVD 2016

DESIGNED BY	CPS + DCC GROUP	DATE	15/08/20
DRAWN BY	P. BLANKENHORN (CPS)	DATE	15/08/20
CHECKED BY	D. MOYSE (DCC)	DATE	15/08/20

1	Proposed Section	2020
1	Major revision for 2023 - 2025	2023
Rev.	Revisions/Notes	Date

Prepared by and for:

GISBORNE DISTRICT COUNCIL
For Gisborne District Council

CPS
Civil Engineering

Project Name and Address:

WAIPAOIA RIVER
TE KARAKA TOWNSHIP
EASTERN SIDE STOPBANK
CROSS SECTIONS

Project	WAIPAOIA RIVER	Sheet	12
Date	19.02.2026		
Scale	1:500 @ A3		

Chainage 960.000
Datum: 35.000



Total Volume at Station B-360.00	
Cur Vol	0.00
Fill Vol	907.95

PROPOSED LEVELS	38.537	424.74	38.615
EXISTING LEVELS	38.537	38.576	38.615
LEVEL DIFFERENCE	0.000	3.698	0.000
OFFSETS	-9.772	0.000	9.616

Chainage 1000.000
Datum: 35.000



Total Volume at Station 1-800.00	
Cut Vol	0.00
Fill Vol	884.54

PROPOSED LEVELS	3M 64.3	4.25%0	3M 739
EXISTING LEVELS	3M 64.3	3M 678	3M 739
LEVEL DIFFERENCE	0.000	3.83%	0.000
OFFSETS	-9.634	0.000	2.72%

Chainage 980.000
Datum: 35.000



Total Volume at Station 0+380.00	
Cut Vol	0.00
Fill Vol	898.29

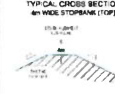
PROPOSED LEVELS		38 584		42 652		38 648
EXISTING LEVELS		38 584		38 610		38 648
LEVEL DIFFERENCE		0 000		3 862		0 000
OFFSETS		- 9 775		0 000		9 588

Chainage 1020.000
Datum: 35.000



Total Volume at Station 1+320.00	
Cut Vol	0.00
Fill Vol	862.13

PROPOSED LEVELS	38,648	42,520	38,799
EXISTING LEVELS	38,668	38,730	38,799
LEVEL DIFFERENCE	0.000	3.799	0.000
OFFSETS	-9.620	0.000	9.359

General Notes			
Keys			
 Fence	 Boundary line		
 Fence line			
 Ditch			
 Culvert			
Alignment / Chainage To Ground / To Property			
CEMA 150			
TYPICAL CROSS SECTION ON WIDE STOPBANK (1:1)			
			
Coordinate System: in terms of NZTM 2000 Vertical Datum: based on NZVD 2016			
Date: 10/01/2023			
Project Name and Address:			
Waipaoa River			
Eastern Side Stopbank			
Cross Sections			
Surveyed: CPS + AUGUST 2022			
Drawn: P. AUGUSTINE (CPS) 10/01/23			
Checked: A. HODGINS (CPS) 10/01/23			
Scale: 1:500			
Project Name and Address:			
Waipaoa River			
Eastern Side Stopbank			
Cross Sections			



Total Volume at Station 1+240.00	
Cut Vol	0.00
Fill Vol	877.83

PROPOSED LEVELS	38.025	42.547	4.74
EXISTING LEVELS	38.675	38.657	4.74
LEVEL DIFFERENCE	0.000	3.890	0.000
OFFSETS	-9.743	0.000	86.975



Total Volume at Station 1+000.00	
Cut Vol	0.03
Fill Vol	829.76

PROPOSED LEVELS		38.661			
EXISTING LEVELS -----		36.661		36.679	42.989
LEVEL DIFFERENCE		0.000		3.995	
OFFSETS		-9.746		0.000	9.577
					38.745



Total Volume at Station 1+303.00	
Cut Vol	0.00
Fill Vol	896.51

PROPOSED LEVELS	38,431		
EXISTING LEVELS	38,631	38,683	38,742
LEVEL DIFFERENCE	0.000	3.342	0.000
OFFSETS	-9.769	0.000	9.546



Total Volume at Station 1=100.00	
Cut Vol	0.03
Fill Vol	898.59

PROPOSED LEVELS	38.707	42.602	38.757
EXISTING LEVELS -----	38.707	38.706	38.757
LEVEL DIFFERENCE	0.000	3.895	0.000
OFFSETS	-9.689	0.000	9.589

[illegible]

Chainage 1120.000
Datum: 35.000



Total Volume at Station 1120.00
Cut Vol 0.00
Fill Vol 273.19

PROPOSED LEVELS	38.873	42.620	38.941
EXISTING LEVELS	38.873	38.842	38.941
LEVEL DIFFERENCE	0.000	3.778	0.000
OFFSETS	-9.575	0.000	9.259

Chainage 1160.000
Datum: 35.000



Total Volume at Station 1160.00
Cut Vol 0.00
Fill Vol 489.37

PROPOSED LEVELS	40.795	42.650	39.969
EXISTING LEVELS	40.795	40.022	39.969
LEVEL DIFFERENCE	0.000	2.518	0.000
OFFSETS	-5.610	0.000	7.262

Chainage 1140.000
Datum: 35.000



Total Volume at Station 1140.00
Cut Vol 0.00
Fill Vol 399.66

PROPOSED LEVELS	39.420	42.638	44.513
EXISTING LEVELS	39.420	39.532	44.513
LEVEL DIFFERENCE	0.000	3.106	0.000
OFFSETS	-8.337	0.000	6.551

Chainage 1180.000
Datum: 35.000



Total Volume at Station 1180.00
Cut Vol 0.00
Fill Vol 399.31

PROPOSED LEVELS	40.617	42.649	40.117
EXISTING LEVELS	40.617	40.240	40.117
LEVEL DIFFERENCE	0.000	2.410	0.000
OFFSETS	-5.965	0.000	6.564

General Notes

Keys

- Boundary lines
- Proposed Level
- Existing Level
- Offsets
- Curvature

TECA 120 Alignment / Chainage
Through Road
Te Karako Township

TYPICAL CROSS SECTION
4m WIDE STOPBANK (TOP)

Coordinate System in terms of NZTM 2000
Vertical Datum in terms of NZVD 2016

DESIGNED BY	CPS - GDC DESIGN	DATE	2024
CHECKED BY	W. HARRISON (GDP)	DATE	10/02/2024
APPROVED BY	W. HARRISON (GDC)	DATE	10/02/2024

Project Information

Project Name: Waipapa River
Project Location: Te Karako Township
Project Description: Eastern Side Stopbank Cross Sections

Waipapa River

Date: 19.02.2026

Scale: 1:500 @ A3

Page: 15

Chainage 1200.000
Datum: 35.000

PROPOSED LEVELS		40.420	42.648	40.428
EXISTING LEVELS		40.420	40.426	40.428
LEVEL DIFFERENCE		0.000	2.222	0.000
OFFSETS	-1.356	0.000	6.341	

Total Volume at Station 1+200.00	
Cut Vol	0.00
Fill Vol	372.91

Chainage 1240.000
Datum: 35.000

PROPOSED LEVELS		40.269	42.647	40.704
EXISTING LEVELS		40.269	40.566	40.704
LEVEL DIFFERENCE		0.000	2.081	0.000
OFFSETS	-4.655	0.000	5.786	

Total Volume at Station 1+240.00	
Cut Vol	0.00
Fill Vol	329.17

Chainage 1220.000
Datum: 35.000

PROPOSED LEVELS		40.532	42.648	40.719
EXISTING LEVELS		40.532	40.609	40.719
LEVEL DIFFERENCE		0.000	2.039	0.000
OFFSETS	-4.130	0.000	5.756	

Total Volume at Station 1+220.00	
Cut Vol	0.00
Fill Vol	342.02

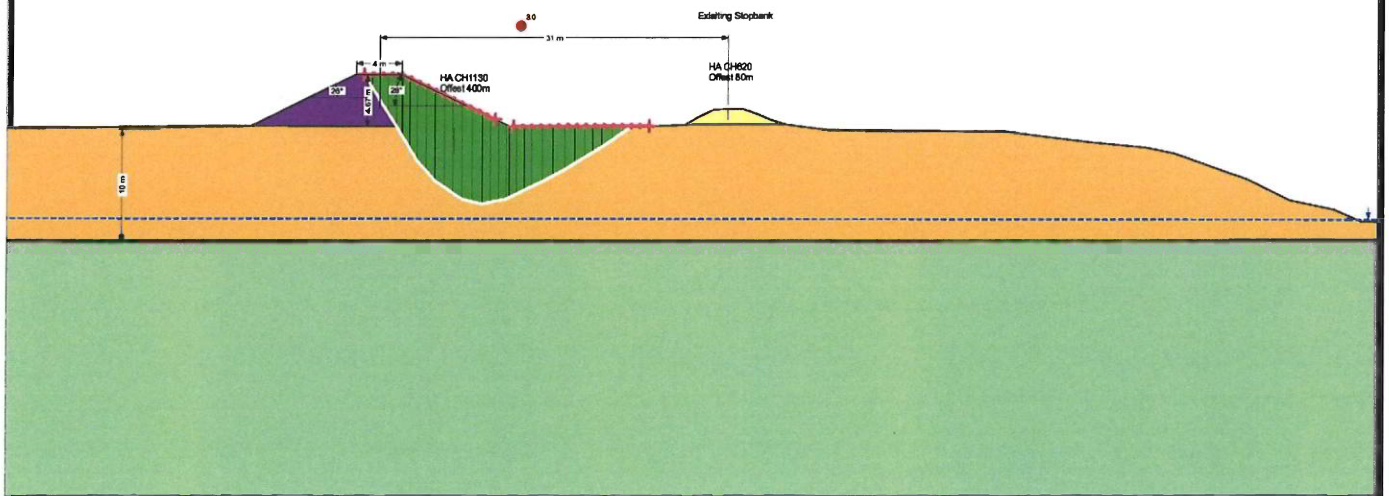
Chainage 1260.000
Datum: 35.000

PROPOSED LEVELS		39.781	42.644	40.887
EXISTING LEVELS		39.781	40.561	40.887
LEVEL DIFFERENCE		0.000	2.083	0.000
OFFSETS	-7.650	0.000	5.418	

Total Volume at Station 1+260.00	
Cut Vol	0.00
Fill Vol	344.92

General Notes	
Key --- Boundary lines --- Fence line --- Datum --- Culverts	
Alignment / Chainage Through Road Te Karaka Township	
TYPICAL CROSS SECTION 4m WIDE STOPBANK (10%)	
Coordinate System in terms of NZTM 2000 Vertical Datum in terms of MVD 2016	
SURVEYED: CPS / DCC CREW CHURN: P. LAUGHLIN (CPS) CHECKED: D. HODGE (DCC)	
2. Proposed Scheme 1. Later work (not 2021 - 2025) No. Revisions/Notes Date	
Prepared by and checked GISBORNE DISTRICT COUNCIL CPS For Auckland Council / Te Karaka Township	
Project Name and address WAI-PAOIA RIVER TE KARAKA TOWNSHIP EASTERN SIDE STOPBANK CROSS SECTIONS	
Project WAI-PAOIA RIVER Date 19.02.2026 Scale 1:500 @ A3	Sheet 16

Order	Name	Slope Stability Material Model	Unit Weight (kN/m ³)	Effective Cohesion (kPa)	Effective Friction Angle (°)	Peak (°)	Parameters Surfaces	Unconfined Shear Strength (kPa)
1	Proposed FILL - Proposed stopbank - Undrained	Undrained (Mohr-Coulomb)	18	0	32	0	1	100
2	Existing FILL - Undrained FILL	More Coulomb	18	0	32	0	1	100
3	BLT Sandy Silty - Undrained FILL	Undrained (Mohr-Coulomb)	18	0	32	0	1	60
4	Preborehole GWA - FILL	More Coulomb	20	0	40	0	1	100



Name: SLS -0.12g

						Project Te Karaka Stopbank	
						Title	Scale 1:450
						Drawn By	Revision 0
A		PR		03/17/2026			
Rev	Revision Description	Drawn	Checked	Date			

Color	Name	Stops Building Material Used	Unit Weight (kN/m ³)	Effective Cohesion (kPa)	Effective Friction Angle (°)	PSD (°)	Permeability Surface	Undrained Shear Strength (kPa)
Dark Grey	[2] Engraved PE - Proposed stopbank - Undrained	Undrained (Pe=0)	18				1	100
Yellow	[1] BLT Subsoil (R.L.)	Moist-Collapsible	18	0	32	0	1	
Orange	[2] BLT Borehole - Undrained (PCLD2000 DEPOSIT)	Undrained (Pe=0)	18				1	60
Green	[2] Pre-borehole GMAAL (PCLD2000 DEPOSIT)	Moist-Collapsible	20	0	40	0	1	

10 m

4 m

31 m

0.8 m

HA CH1130
Offset 450m

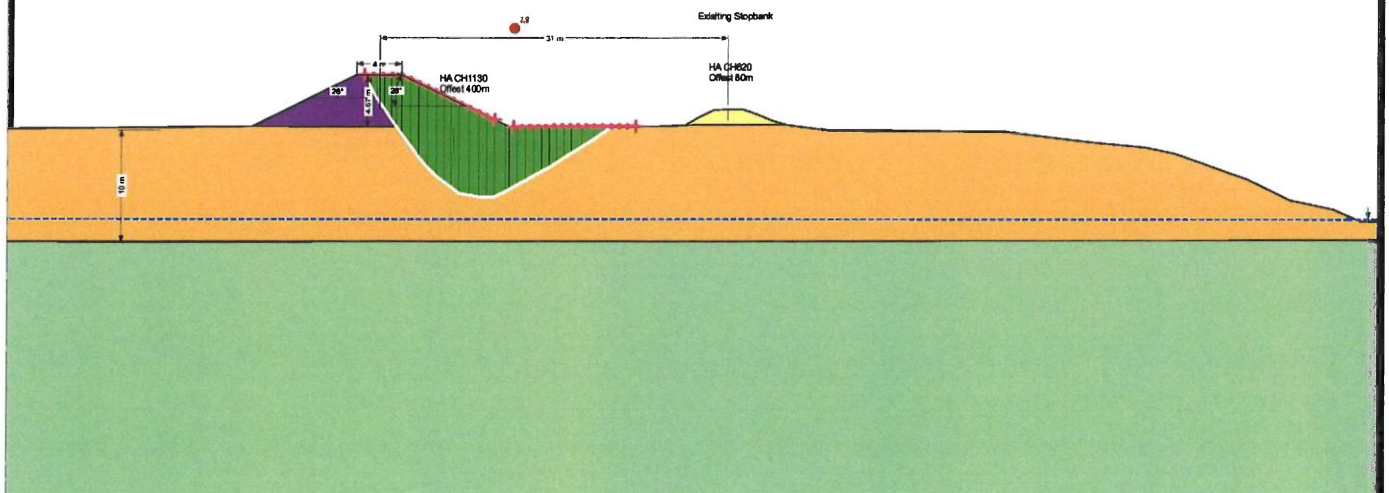
HA CH620
Offset 80m

Existing Stopbank

Name: Static

A		PR	03/17/2028		Project Te Karaka Stopbank Title Scale 1:450 Drawing No. Revision 0
Rev	Revision Description	Drawn	Checked		

Order	Name	Slope Stability Material Model	Unit Weight (kN/m ³)	Effective Cohesion (kPa)	Effective Friction Angle (°)	Phi-d (°)	Permeability Surface	Undrained Shear Strength (kPa)
1	[2] Proposed P4 - Proposed stopbank - Undrained	Undrained (P4-UB)	15				1	100
2	[1] BL Fill material (P4.1)	Moist Clay/B	18	0	30	0	1	
3	[2] BL 1/2 Sandy sil. - Undrained POLYMER DISPERSION	Undrained (P4-UB)	18				1	50
4	[2] The bottom GROUND - POLYMER DISPERSION	Moist Clay/B	20	0	40	0	1	



Name: ULS -0.63g

						Project Te Karaka Stopbank		Scale 1:450	
						Title	Drawing No.	Revision	
								0	
A	PR			03/17/2026					
Rev	Revision Description			Drawn	Checked	Date			

Appendix B

GDC existing Geotechnical Investigations

Appendix C

Slope Stability Analysis

Appendix D

Proposed Stopbank Drawings (Updated)



Tonkin+Taylor

Exceptional thinking together www.tonkin+taylor.co.nz

NOTES Basemap NZ Hybrid Reference Layer: Esri Technology, LINZ, StatsNZ, NIWA, Natural Earth, © OpenStreetMap contributors, LINZ Navigation Map, Esri Technology, LINZ, StatsNZ, NIWA, Natural Earth, © OpenStreetMap contributors, LINZ, Esri Technology, Land Information New Zealand, GIBCO, Community maps contributors, Shapfiles provided by GIBCO			
1	First version - Draft preferred stopbank option alignment	NICA	LSM
2	Second version - Revised alignment of preferred stopbank option	NICA	CHUT
REV	DESCRIPTION	DIS	CHK
		DATE	LOCATION PLAN



PROJECT No. 1002556 0020			
DESIGNED	NICA	MAR 26	
DRAWN	NICA	MAR 26	
CHECKED	CHUT	MAR 26	
		17.3.26	
APPROVED		DATE	

CLIENT GISBORNE DISTRICT COUNCIL			
PROJECT TE KARAKA FLOOD MANAGEMENT OPTIONEERING			
TITLE PREFERRED OPTION ALIGNMENT			
SCALE (A3)	1:10,000	FIG No	FIGURE 1.2
			REV 2



General Notes

Keys

- Bank
- Boundary lines
- Force lines
- Drains
- Culverts
- Proposed design
- Existing ground
- Design footprint
- Alignment / Change
- Adopted / To be adopted

Coordinate System in form of: NZTM 2000
Vertical Datum in form of: NZVD 2004

CIVIL PROJECT SOLUTIONS

Surveyed by:	CPS CIVIL	10/05/25
Drawn by:	P.P. HUI	02/06/26
Checked by:	UFOOTE	02/06/26

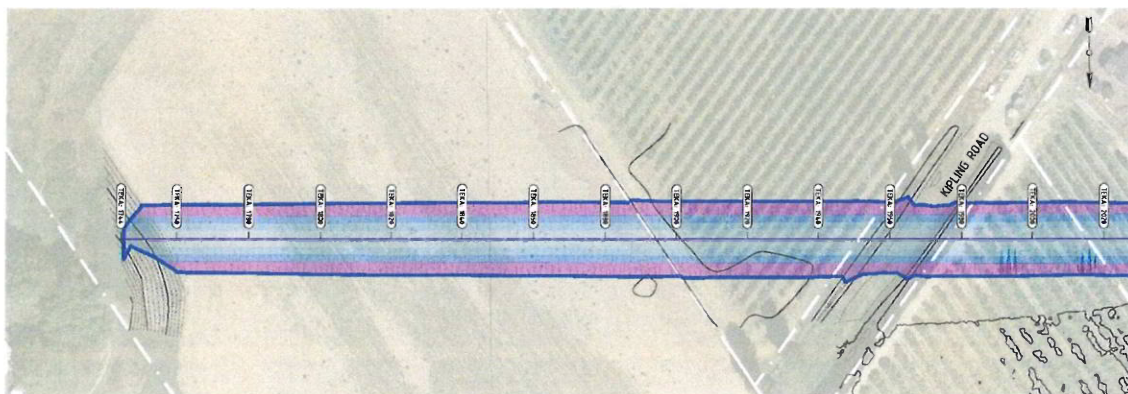
1	Western Side Extended	2026
2	Proposed 600mm	2026
3	Lower side Set 2025	2025
4	Revised/Issue	End

GISBORNE
CITY COUNCIL
Te Kaitiaki Take Kōwhiri

CPS
Civil Project Solutions

Project Name and Location
WAIKAPA RIVER
TE KARAKA - TOWNSHIP
EAST & WESTERN SIDE
PROPOSED ALIGNMENTS

Project	WAIKAPA RIVER	Sheet	1
Date	19.02.2026		
Scale	N.T.S @ A3		



VERT EXAG 1:5
Datum 37.000

CHAINAGE	DESIGN LEVELS	LIDAR LEVELS	DEPTH
1744.48	44.203	42.871	1.332
1750.00	44.214	40.471	3.743
1760.00	44.225	40.433	3.792
1770.00	44.236	40.377	3.860
1780.00	44.247	40.316	3.932
1790.00	44.259	40.255	4.004
1800.00	44.270	40.211	4.059
1810.00	44.281	40.199	4.082
1820.00	44.292	40.181	4.111
1830.00	44.303	40.164	4.139
1840.00	44.314	40.147	4.168
1850.00	44.325	40.138	4.187
1860.00	44.336	40.131	4.206
1870.00	44.348	40.143	4.205
1880.00	44.359	40.102	4.257
1890.00	44.370	39.571	4.799
1900.00	44.381	40.043	4.338
1910.00	44.392	40.021	4.371
1920.00	44.403	40.033	4.370
1930.00	44.414	40.056	4.358
1940.00	44.426	40.148	4.278
1950.00	44.437	40.392	4.045
1960.00	44.448	40.593	3.855
1970.00	44.459	40.244	4.215
1980.00	44.470	40.239	4.231
1990.00			
1996.00			

WESTERN ALIGNMENT - V06 - LONG SECTION

General Notes

Keys

- Bank
- Boundary lines
- Force lines
- Grates
- Subverts
- Proposed design
- Existing ground
- Design footprint
- Alignment / Change
- Waipaoa river / To Karaka

Coordinate System in form of NZM 2000
Vertical Datum is in terms of NZVD 2000

CIVIL PROJECT CONDITIONS

Contract No	105 (NEW)	30/10/25
Drawn by	PP/ALABRE	31/10/26
Checked by	DJ/OTL	31/10/26

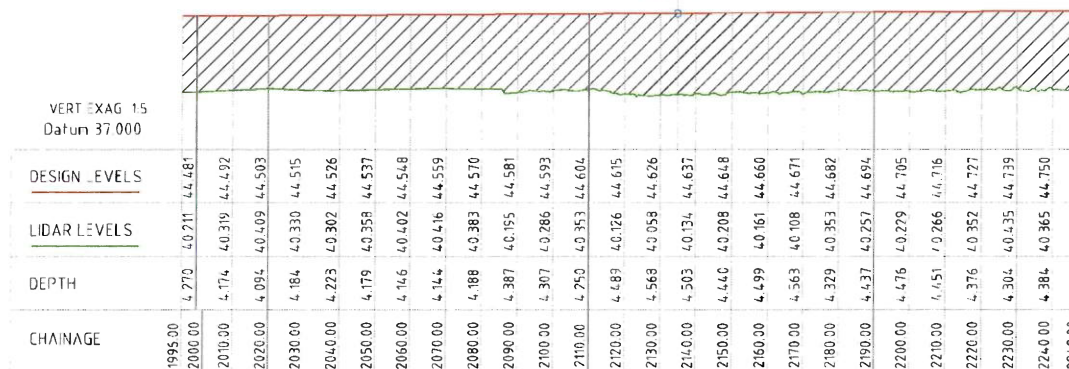
1	SP2 Standard conditions	2025
2	Western Side Extension	2025
3	Provisional 1000m	2025
4	Linear data set 2025	2025

GISBORNE
CPS
CITY OF GISBORNE

WAIPAOA RIVER
TE KARAKA - TOWNSHIP
WESTERN SIDE STOPBANK
LONG SECTION

Scale: 1:1000 @ A3

Page: 1



Insert Here

Map



North



Scale



Boundary Lines



Force Lines



Sales



Liberty



Proposed design



Existing ground



Design footprint

TEC 3605 Alignment / Change
 Vastase River - to Farm

Coordinate System in form of: NZ 1950
 Vertical Datum in form of: NZVD 1928

CIVIL PROJECT SOLUTIONS

Completed by	CPS (1964)	10/10/20
Drawn by	P.A. GEE	23/10/26
Checked by	J.D.C.T.	03/10/26
4	1/27 Shrubland - to 200m	2020
3	Western Side - to 200m	2020
2	Provisional 100m	2020
1	Liberty Lot 3319	2020
Site	Approved/Consent	2020



GISBORNE
 DISTRICT COUNCIL
 The Environment is the Foundation



CPS
 Civil Project Solutions

WARAKOA RIVER
TE KARAKARA - TOWNSHIP
WESTERN SIDE STOPBANK
LONG SECTION

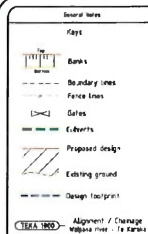
Project No: 010302

WARAKOA RIVER

Date: **01.03.2026**

Scale: **1:1000 @ A3**

2



Coordinate System in terms of NZTD 2000
Vertical Datum in terms of NZVD 2016

CIVIL PROJECT SOLUTIONS			
Surveyed by	CPS (NEW)	10/2025	
Drawn by	PEL (LARGE)	03/2026	
Checked by	03/2026	03/2026	
1	2D Drafting	2025	
2	Review Site Engineer	2025	
3	Final Design	2025	
4	Final Design	2025	

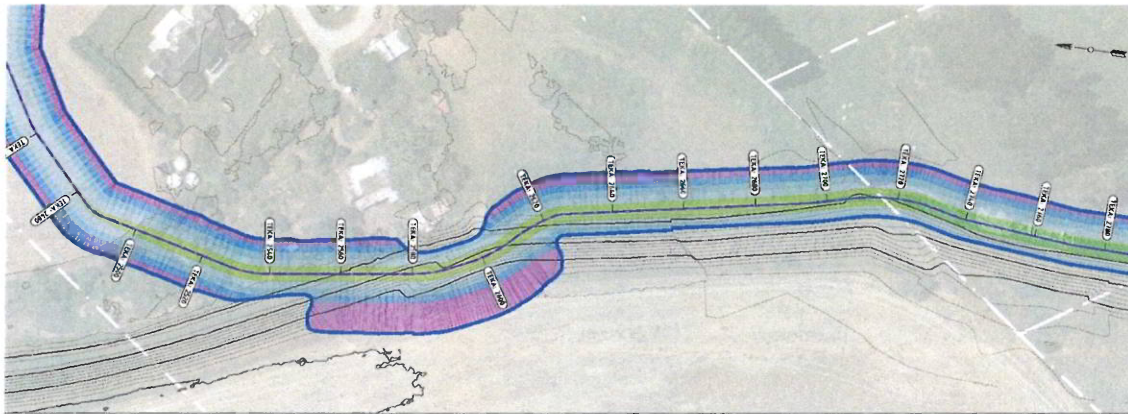


WAIKAPA RIVER
TE KARAKA - TOWNSHIP
WESTERN SIDE STOPBANK
LONG SECTION

WAIKAPA RIVER	3
03.03.2026	
1:1000 @ A3	

VERTICAL 15 Datum 38.000		0.1%									
DESIGN LEVELS											
LIDAR LEVELS											
DEPTH											
CHAINAGE											
2248.00	4.357	4.042	4.759								
2250.00	4.329	4.043	4.761								
2260.00	4.477	4.029	4.772								
2270.00	4.507	4.027	4.784								
2280.00	4.550	4.024	4.795								
2290.00	4.425	4.038	4.806								
2300.00	4.469	4.034	4.818								
2310.00	4.342	4.048	4.829								
2320.00	4.508	4.053	4.840								
2330.00	4.363	4.048	4.851								
2340.00	4.341	4.052	4.863								
2350.00	4.369	4.050	4.874								
2360.00	4.410	4.047	4.885								
2370.00	4.369	4.052	4.896								
2380.00	4.350	4.055	4.908								
2390.00	4.293	4.062	4.919								
2400.00	4.256	4.067	4.930								
2410.00	4.257	4.068	4.942								
2420.00	4.317	4.063	4.953								
2430.00	4.217	4.074	4.964								
2440.00	4.210	4.076	4.975								
2450.00	4.198	4.078	4.987								
2460.00	4.142	4.085	4.998								
2470.00	4.057	4.092	5.009								
2480.00	4.667	4.053	4.5020								
2490.00	4.081	4.095	4.5032								
2500.00											

WESTERN ALIGNMENT - V05 - LONG SECTION



VERTICAL XAG 15
Datum 39 000

DESIGN LEVELS	
LIDAR LEVELS	
DEPTH	
CHANGE	
2500.00	4.1085 45.013
2510.00	4.1085 45.054
2520.00	4.1012 45.066
2530.00	4.1157 45.077
2540.00	4.1335 45.088
2550.00	4.1928 45.099
2560.00	4.2616 45.111
2570.00	4.3028 45.122
2580.00	4.1471 45.133
2590.00	4.2235 45.144
2600.00	4.1803 45.155
2610.00	4.3115 45.167
2620.00	4.1797 45.178
2630.00	4.1019 45.189
2640.00	4.0987 45.200
2650.00	4.0966 45.212
2660.00	4.1261 45.223
2670.00	4.1220 45.234
2680.00	4.1448 45.245
2690.00	4.1729 45.256
2700.00	4.2017 45.268
2710.00	4.2175 45.279
2720.00	4.2138 45.290
2730.00	4.1548 45.301
2740.00	4.1589 45.312
2750.00	4.1491 45.324
2752.00	

WESTERN ALIGNMENT - V06 - LONG SECTION

Source	Notes
Keys	
Barriers	
Boundary lines	
Fence lines	
Drains	
Subverts	
Proposed design	
Existing ground	
Design footprint	
Alignment / Change	
Waypoint / Point	

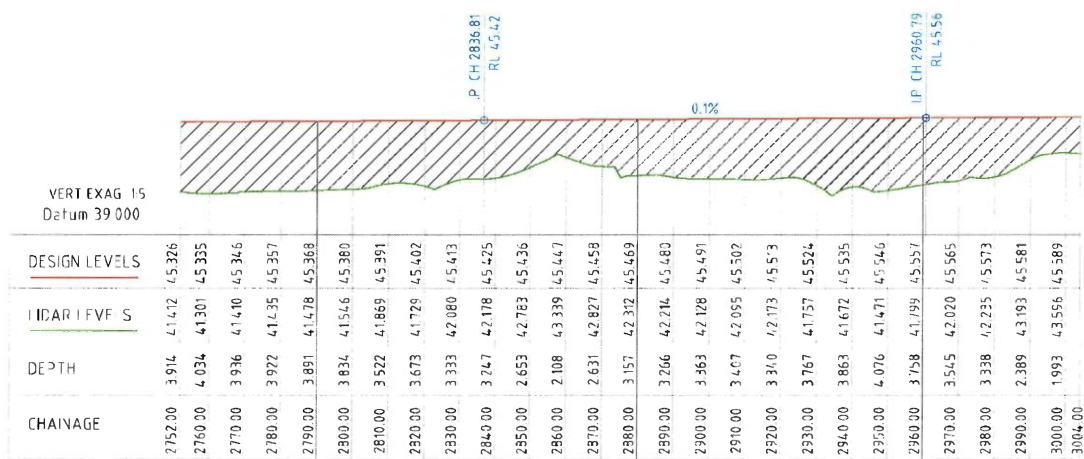
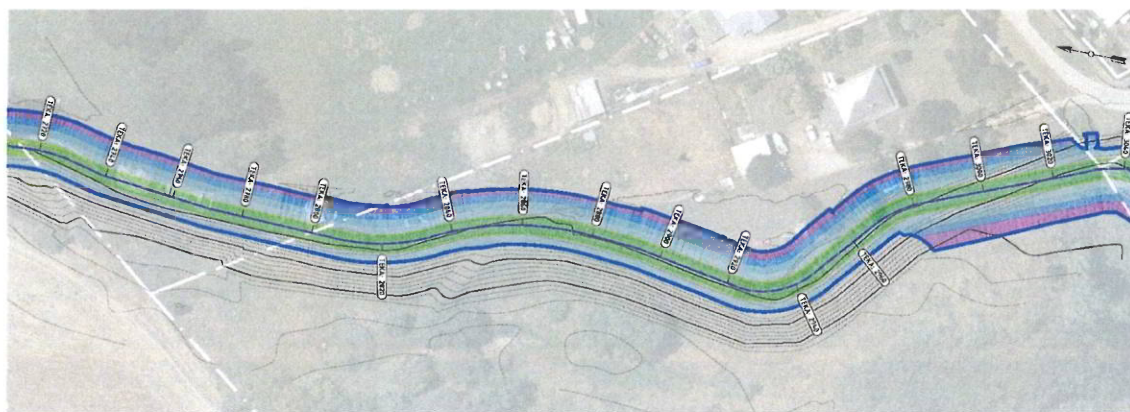
Coordinate System in form of NZTD 2000
Vertical Datum in form of NZVD 2016

CIVIL PROJECT SOLUTIONS		
Surveyed by	CPS CREW	20/02/20
Drawn by	PJ LAUREN	23/02/20
Checked by	DJ BOWEN	25/02/20
Rev	Revised/Issue	Date
1	SP2 Check/Correct	2020
2	Western Side Extension	2020
3	Final Design	2020
4	Local authority approval	2020



WAIKATO RIVER
TE KARAKA - TOWNSHIP
WESTERN SIDE STOPBANK
LONG SECTION

Project	WAIKATO RIVER	Sheet	4
Date	03.03.2020		
Scale	1:1000 @ A3		



WESTERN ALIGNMENT - V06 - LONG SECTION

Legend

- Boundary lines
- Proposed design
- Existing ground
- Design footprint
- Alignment / Change
- Wapada river - In future

Coordinate System in terms of NZTM 2000
Vertical Datum is in terms of NZVD 1974

CIVIL PROJECT SOLUTIONS

Surveyed by	DPS CREW	01/2025
Drawn by	PEL LAUGHER	03/2025
Checked by	03/2025	03/2025

GISBORNE DISTRICT COUNCIL
Transport & Infrastructure Services

CPS
Civil Project Solutions

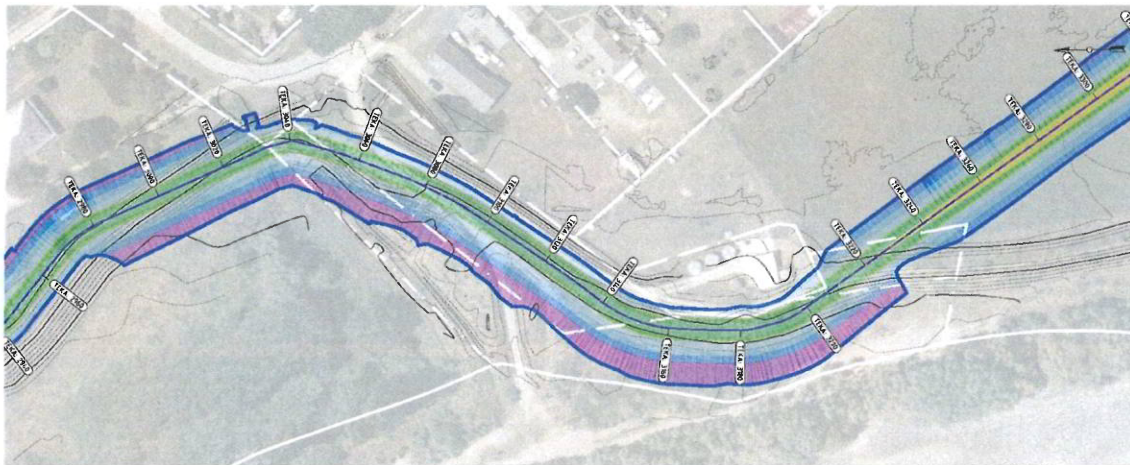
**WAPADA RIVER
TE KARAKA - TOWNSHIP
WESTERN SEE STOPBANK
LONG SECTION**

Project
WAPADA RIVER

Date
01.03.2025

Scale
1:1000 @ A3

Sheet
5



VERT EXAG 15 Datum 39 000		0.1%	
CHAINAGE		DESIGN LEVELS	LIDAR LEVELS
3004.00	2.052	43.540	45.592
3010.00	2.418	43.179	45.597
3020.00	3.252	42.352	45.605
3030.00	3.610	41.972	45.613
3040.00	3.361	42.259	45.620
3050.00	3.172	42.456	45.628
3060.00	2.025	43.611	45.636
3070.00	2.160	43.484	45.644
3080.00	3.161	42.491	45.652
3090.00	3.837	41.823	45.660
3100.00	4.007	41.661	45.668
3110.00	4.025	41.651	45.675
3120.00	3.895	41.789	45.683
3130.00	4.227	41.564	45.69
3140.00	4.510	41.189	45.699
3150.00	4.822	40.885	45.707
3160.00	4.785	40.930	45.715
3170.00	4.143	41.379	45.723
3180.00	4.525	41.205	45.730
3190.00	3.985	41.753	45.738
3200.00	3.595	42.150	45.746
3210.00	2.714	43.040	45.754
3220.00	2.265	43.497	45.762
3230.00	3.919	41.851	45.770
3240.00	4.117	41.660	45.778
3250.00	4.58	41.627	45.785
3256.00			

WESTERN ALIGNMENT - V06 - LONG SECTION

Sheet Name

Key

- Boundary Lines
- Proposed Design
- Existing Ground
- Design (outcrop)
- Alignment / Change
- Mapas over 1:5000

Coordinate System in terms of NZTM 2000
Vertical Datum in terms of NZVD 2000

CIVIL PROJECT SOLUTIONS

Surveyed by: CPS (NZM) 20/02/20

Drawn by: P. J. J. J. J. 23/02/20

Checked by: J. J. J. J. 23/02/20

Rev. Description

1	1:17.5000	2020
2	Western Side Cross-section	2020
3	Final Design	2020
4	Lidar Data Set 2019	2020

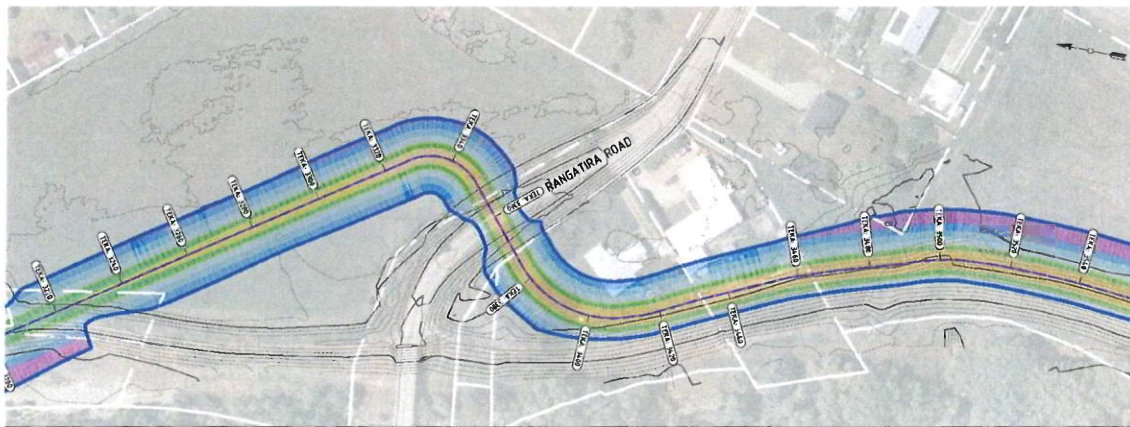
GISBORNE
CPS
The Capital of the South Island

WAIKATO RIVER
TE KARAKA - TOWNSHIP
WESTERN SIDE STOPBANK
LONG SECTION

Scale: 1:1000 @ A3

Date: 03.03.2025

Page: 6



VERT EXAG 15
Datum 40.000

CHAINAGE	DESIGN LEVELS	LIDAR LEVELS	DEPTH
3256.00	4.131	4.1659	45.790
3260.00	4.123	4.1671	45.793
3270.00	4.001	4.1801	45.801
3280.00	3.860	4.1949	45.809
3290.00	3.88	4.1936	45.817
3300.00	3.99	4.1848	45.838
3310.00	4.051	4.1820	45.871
3320.00	4.094	4.1810	45.904
3330.00	4.344	4.1594	45.977
3340.00	4.423	4.1547	45.910
3350.00	4.035	4.1908	46.003
3360.00	-0.011	4.6077	46.036
3370.00	3.227	4.2843	46.069
3380.00	3.999	4.2085	46.084
3390.00	4.081	4.2011	46.092
3400.00	4.221	4.1880	46.101
3410.00	4.150	4.1958	46.109
3420.00	4.106	4.2011	46.117
3430.00	4.092	4.2033	46.125
3440.00	4.199	4.1534	46.133
3450.00	4.744	4.1897	46.141
3460.00	3.900	4.2249	46.150
3470.00	3.982	4.2176	46.158
3480.00	3.844	4.2322	46.166
3490.00	3.835	4.2339	46.174
3500.00	3.272	4.2959	46.181
3508.00			

0.3%
RANGATIRA ROAD
0.1%

IP CH 3294.57 RL 45.82
IP CH 3372.72 RL 46.08
IP CH 3497.74 RL 46.18

WESTERN ALIGNMENT - V06 - LONG SECTION

Source Notes

Keys

- Boundary lines
- Fence lines
- Gates
- Exposures
- Proposed design
- Existing ground
- Design topography
- Alignment / Change
- Vertical curve / Is shown

Coordinate System in form of: NZM 2000
Vertical Datum in form of: NZVD 1974

CIVIL PROJECT SOLUTIONS

Surveyed by: IPS CREW 30/05/2025
Drawn by: P. LAJCEK 03/06/2025
Checked by: J. SUTTE 03/06/2025

1. DTP Standard compliance 2020
2. Western Site Formulas 2020
3. Roadwork 1988 2020
4. Code of Practice 2019 2021
5. Manual/Notes 2021

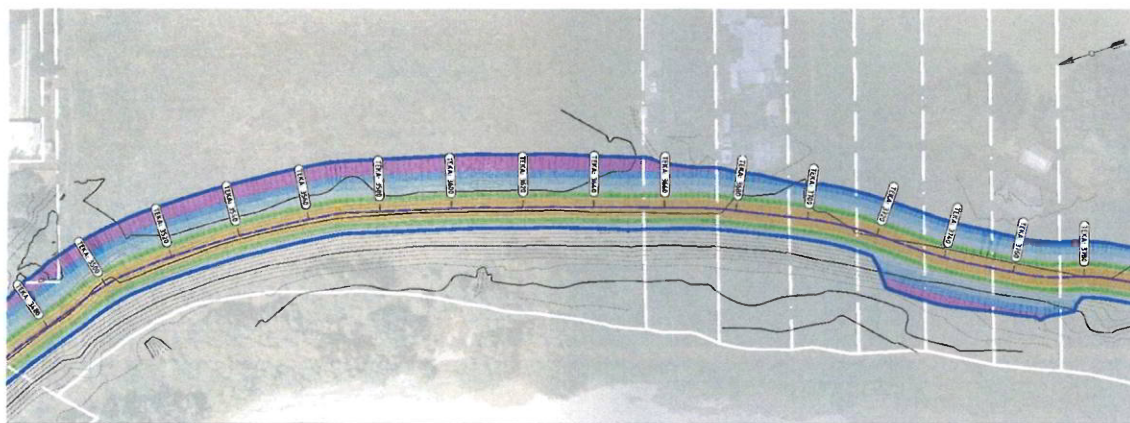
GISBORNE DISTRICT COUNCIL
Te Kaitiaki o te Tauparaki

CPS
Civil Project Solutions

WAPADA RIVER
TE KARAKA - TOWNSHIP
WESTERN SIDE STOPBANK
LONG SECTION

Project: WAPADA RIVER
Date: 03.03.2026
Scale: 1:1000 @ A3

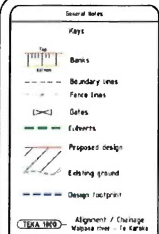
Sheet: 7



VERT EXAG 15
Datum 40.000

	3508+00	3510+00	3520+00	3530+00	3540+00	3550+00	3560+00	3570+00	3580+00	3590+00	3600+00	3610+00	3620+00	3630+00	3640+00	3650+00	3660+00	3670+00	3680+00	3690+00	3700+00	3710+00	3720+00	3730+00	3740+00	3750+00	3760+00
DESIGN LEVELS	46.183	46.184	46.186	46.189	46.192	46.194	46.197	46.200	46.202	46.205	46.208	46.210	46.213	46.216	46.218	46.221	46.224	46.226	46.229	46.232	46.234	46.237	46.240	46.242	46.245	46.248	
LIDAR LEVELS	46.163	46.157	46.139	46.134	46.143	46.157	46.183	46.185	46.208	46.150	46.074	46.018	46.091	46.081	46.194	46.185	46.172	46.168	46.328	46.350	46.314	46.270	46.373	46.308	46.522	46.655	
DEPTH	4.570	4.614	4.447	4.255	4.149	4.377	4.214	4.313	4.174	4.055	4.133	4.172	4.122	4.135	4.304	4.366	4.501	4.538	2.901	2.712	3.114	3.526	3.866	3.144	2.723	2.592	
CHAINAGE	3508.00	3510.00	3520.00	3530.00	3540.00	3550.00	3560.00	3570.00	3580.00	3590.00	3600.00	3610.00	3620.00	3630.00	3640.00	3650.00	3660.00	3670.00	3680.00	3690.00	3700.00	3710.00	3720.00	3730.00	3740.00	3750.00	3760.00

WESTERN ALIGNMENT - V06 - LONG SECTION



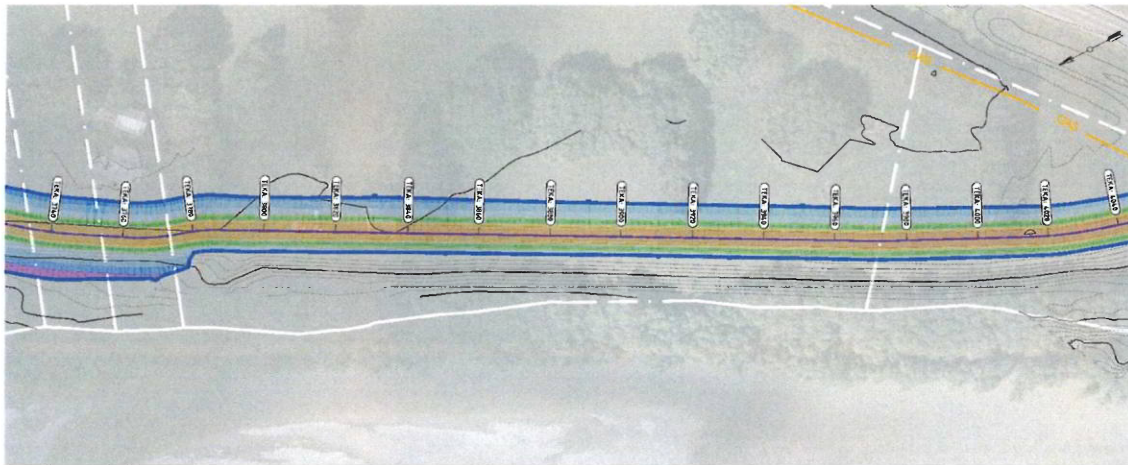
Coordinate System in Units of NZM 2000
Vertical Datum in Units of NZVD 2016

CIVIL PROJECT SOLUTIONS			
Surveyed by	CPS CREW	30/03/2025	
Drawn by	PJ LUGGER	23/03/2025	
Checked by	DJ SUTHER	23/03/2025	
No.	Revised/Issued	30/03	



WAIKATO RIVER
TE KARAKA - TOWNSHIP
WESTERN SIDE STOPBANK
LONG SECTION

WAIKATO RIVER	
Date	03.03.2025
Scale	1:500 @ A3
Sheet	8



VERT EXAG 15
Datum 40.000

DESIGN LEVELS	3760.00	2.447	43.803	46.250
LIDAR LEVELS	3770.00	2.736	43.517	45.253
DEPTH	3780.00	3.713	42.542	45.256
CHANGE	3790.00	3.693	42.565	46.258
	3800.00	3.569	42.692	46.261
	3810.00	3.670	42.593	46.264
	3820.00	3.659	42.607	45.265
	3830.00	3.723	42.546	46.263
	3840.00	3.742	42.530	45.272
	3850.00	3.572	42.702	46.274
	3860.00	3.516	42.761	46.277
	3870.00	3.467	42.813	46.280
	3880.00	3.436	42.846	45.282
	3890.00	3.399	42.886	45.285
	3900.00	3.436	42.852	46.288
	3910.00	3.482	42.808	46.290
	3920.00	3.462	42.831	45.293
	3930.00	3.458	42.838	45.295
	3940.00	3.456	42.843	46.298
	3950.00	3.455	42.846	46.301
	3960.00	3.447	42.857	46.304
	3970.00	3.397	42.910	46.307
	3980.00	3.341	42.968	46.309
	3990.00	3.247	43.065	46.312
	4000.00	3.224	43.091	46.315
	4010.00	3.377	42.940	46.317
	4012.00			

WESTERN ALIGNMENT - V06 - LONG SECTION

General Notes

Keys

- Boundary lines
- Face lines
- Setbacks
- Proposed design
- Existing ground
- Design footprint
- Alignment / Change
- Waipara river - to terrain

Coordinate System in terms of NZM 2000
Vertical Datum in terms of NZVD 2004

CIVIL PROJECT SOLUTIONS

Surveyed by: CPS (RM) 30/2025
Drawn by: PLS (RM) 31/2025
Checked by: DJ (RM) 01/2026

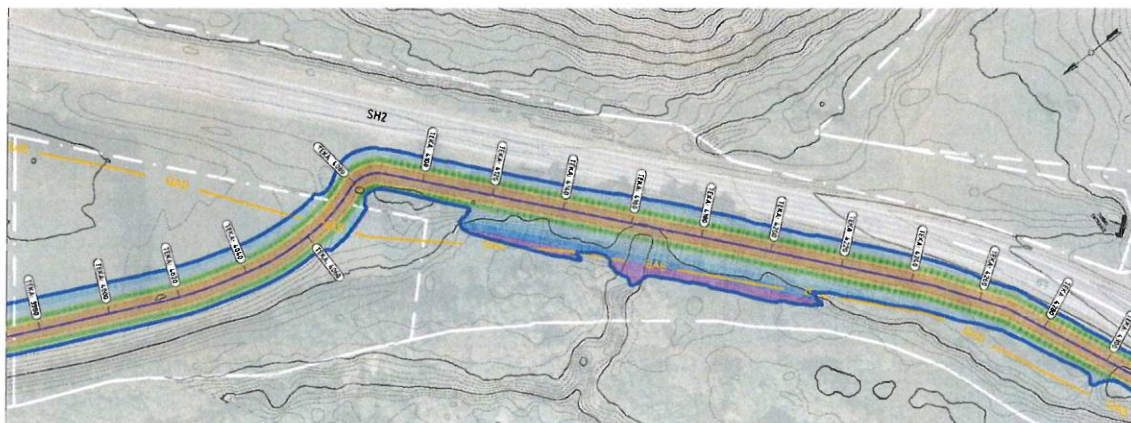
1. 50% Standard Construction 2025
2. Western Side to road 2025
3. Roadside (RM) 2025
4. Later date Set 2025 2025

GISBORNE
CPS
The Kaitiaki to the Tairāhaki

WAIPARA RIVER
TE KAIKAI - TOWNSHIP
WESTERN SIDE STOPBANK
LONG SECTION

WAIPARA RIVER
03.03.2026
1:200 @ A3

9



VERT EXAG 15
Datum 40.000

IP Ch 4109.72
RL 46.34

0.0%

CHAINAGE	DEPTH	LIDAR LEVELS	DESIGN LEVELS
40+00	3.436	42.882	46.318
40+10	3.36	42.959	46.320
40+20	3.171	43.152	46.323
40+30	2.951	43.374	46.375
40+40	2.763	43.555	46.378
40+50	2.434	43.897	46.331
40+60	1.684	44.649	46.333
40+70	1.552	44.784	46.336
40+80	2.639	43.700	46.339
40+90	2.723	43.618	46.341
41+00	2.253	44.032	46.344
41+10	1.547	44.358	46.344
41+20	2.557	43.787	46.344
41+30	2.984	43.361	46.345
41+40	2.999	43.345	46.345
41+50	3.352	42.992	46.345
41+60	3.300	43.045	46.345
41+70	3.173	43.172	46.345
41+80	3.110	43.235	46.345
41+90	2.753	43.592	46.345
42+00	2.685	43.660	46.345
42+10	2.664	43.681	46.345
42+20	2.564	43.781	46.345
42+30	2.408	43.938	46.345
42+40	2.379	43.956	46.345
42+50	2.146	44.200	46.345
42+60			
42+70			

WESTERN ALIGNMENT - V06 - LONG SECTION

General Notes

Keys

- Boundary lines
- Force lines
- Gates
- Culverts
- Proposed design
- Existing ground
- Design footprint
- Alignment / Challenge
- Map scale - 1:5000

Coordinate System in form of NZTM 2000
Vertical Datum in form of NZVD 2000

CIVIL PROJECT SOLUTIONS

Designed by: CPS (NEW) 10/2025
Drawn by: P. LAURENCE 03/2026
Checked by: J. DODD 03/2026

No.	SPS Description	Version
1	Western Side Enclosure	2025
2	Enclosure Scheme	2025
3	Water Data Set 2023	2023
4	Topography	2025

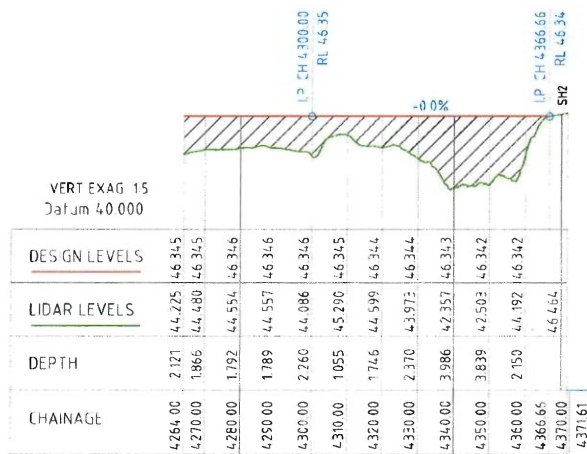
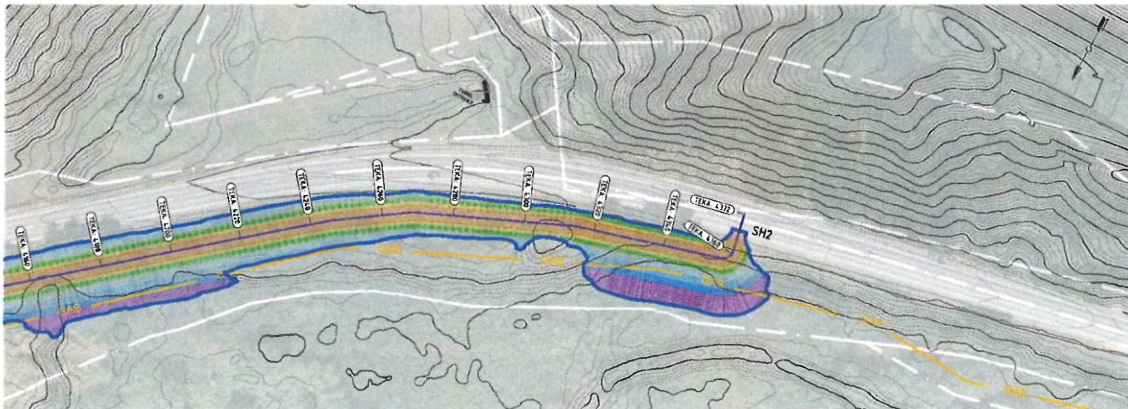
GISBORNE DISTRICT COUNCIL
For Environment & Transport

CPS
Civil Project Solutions

WAIKATO RIVER
TE KARAKA - TOWNSHIP
WESTERN SIDE STOPBANK
LONG SECTION

WAIKATO RIVER
03.03.2026
1:5000 @ A3

10



Source: Notes

Keys

- Banks
- Boundary lines
- Force lines
- Gates
- Subverts
- Proposed design
- Existing ground
- Design footprint
- Alignment / Change
- Waipaoa river - Te Karaka

Coordinate System in Units of: NZM 2000
Vertical Datum in Units of: NZVD 2016

Civil Project Completions

Completed by	SPS CREW	10/2025
Drawn by	PFLAUSER	03/2026
Checked by	03/2026	03/2026

No.	Revision/Description	Date
1	SPS Shrubland - Limestone	2025
2	Western Side Extended	2025
3	Final Road Width	2025
4	Lidar data Sat 2019	2023
5	Revised/Revised	2025

GISBORNE
CPS
CPS
CPS

WAIPAOA RIVER
TE KARAKA - TOWNSHIP
WESTERN SIDE STOPBANK
LONG SECTION

Project: WAIPAOA RIVER
Date: 03.03.2026
Scale: 1:1000 @ A3

Sheet: 11

Chainage 00.000
Datum: 35.000

PROPOSED LEVELS		39 760	40 392	39 796
EXISTING LEVELS		39 760	39 766	39 766
LEVEL DIFFERENCE		0.000	0.626	0.000
OFFSETS	-3.944	0.000	3.091	

Total Volume at Station 0+002.00	
Cut Vol	0.00
Fill Vol	0.00

Chainage 40.000
Datum: 35.000

PROPOSED LEVELS	39 14.0	39 14.0	39 14.0
EXISTING LEVELS	39 14.0	39 11.1	39 14.9
LEVEL DIFFERENCE	0.000	1.387	0.000
OFFSETS	-4.635	0.000	4.797

Total Volume of Station 0+040.00	
Cut Vol	0.00
Fill Vol	191.00

Chainage 20.000
Datum: 35.000

PROPOSED LEVELS		38 994	48 445	38 927
EXISTING LEVELS		38 994	39 955	38 927
LEVEL DIFFERENCE		0.000	1.466	0.000
OFFSETS		-4.802	0.000	6.935

Total Volume at Station 6+20.00	
Cut Vol	0.00
Fill Vol	130.66

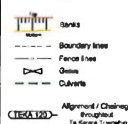
Chainage 60.000
Datum 35.000

PROPOSED LEVELS	38 731	40 551	38 776
EXISTING LEVELS	38 731	38 729	38 776
LEVEL DIFFERENCE	0.000	1.822	0.000
OFFSETS	-5.539	0.000	5.449

Total Volume at Station 0+360.00	
Cut Vol	0.00
Fill Vol	224.99

General Notes

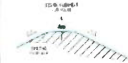
Keys



Alignment / Chaining
throughout
Ya Kanara Township

TYPICAL CROSS SECTION

4m WIDE STOPBANK (TOP)



Coordinate System in term of : NZTM 2000
Vertical Datum in term of : MVD 2018.

SURVEYED	CPI + GOC CREW	.
----------	----------------	---

DRAWN	P. LAUGHLIN (CPM)	10
-------	-------------------	----

ONE-ONE	D. FOOTB (GOC)	10
---------	----------------	----

2	Freeboard 600mm	482m
---	-----------------	------

2	Freehold & Coopers	2020
3	Under care Sat 2023 - 2025	2026

No.	Revision/Issue	Date
-----	----------------	------



Project Name and Address
WAI PAOA RIVER
TE KARAKA TOWNSHIP
EASTERN SIDE STOPBANK
CROSS SECTIONS

Page 12

WAIKATO RIVER

19.02.2026

1:500 @ A3

1



Total Volume at Station 6+080.00	
Cut Vol	0.00
Fill Vol	257.36

PROPOSED LEVELS	38,902	48,054	38,777
EXISTING LEVELS	38,902	38,926	38,777
LEVEL DIFFERENCE	0.000	15.78	0.000
OFFSETS	-5.304	8.000	5.554



Total Volume at Station 0+120.00	
Cut Vol	0.00
Fill Vol	242.91

PROPOSED LEVELS		39,085	40,709	38,972
EXISTING LEVELS		39,089	39,040	38,972
LEVEL DIFFERENCE		0.000	1.670	0.000
OFFSETS		-5.140	0.000	5.374



Total Volume at Station 9-100.00	
Cut Vol	0.00
Fill Vol	248.66

PROPOSED LEVELS		38.946		38.877
EXISTING LEVELS		38.946	38.939	38.877
LEVEL DIFFERENCE	0.000		1.717	0.000
OFFSETS	-5.321	0.000		5.448



Total Volume at Station 0+140.00	
Cut Vol	0.00
Fill Vol	113.82

PROPOSED LEVELS		39 358	40 762	39 657
EXISTING LEVELS		39 358	39 202	39 657
LEVEL DIFFERENCE		0.000	1.400	0.000
OFFSETS		-4.799	0.000	5.250

General Notes		
Keys		
North		
Boundary line		
Fence line		
Ditch		
Gully		
Culvert		
FIG 193 Alignment / Chaining through the Karara Township		
TYPICAL CROSS SECTION AND VERTICAL STATIONING (COPY)		
Coordinates System in use of NZTM 4950 Vertical Datum in use of NZVD 1954		
SURVEYED CPS + GDC CHECK -		
DRAIN PLANNING (CPS) 1970/8		
CHOKING DRAINAGE (GDC) 1950/6		
2 Printers & 100m 2126		
1 Liter era SA 2021 - 2025 2126		
No. Revision/Issue Date		
GISBORNE WATER AND WASTEWATER for the Environment and the Community		
CPS Civil Project Solutions		
Project Name and address WAIPAPOA RIVER THE KARAKA TOWNSHIP EASTERN SIDE STOPBANK CROSS SECTIONS		
Project WAIPAPOA RIVER		
Date 19.02.2022		
Scale 1:500 @ A3		
Sheet 2		

Chainage 160.000
Datum: 35.000

PROPOSED LEVELS				
EXISTING LEVELS				
LEVEL DIFFERENCE				
OFFSETS				

Total Volume at Station 5+160.00	
Cut Vol	0.00
Fill Vol	81154

Chainage 200.000
Datum: 30.000

PROPOSED LEVELS				
EXISTING LEVELS				
LEVEL DIFFERENCE				
OFFSETS				

Total Volume at Station 5+200.00	
Cut Vol	0.00
Fill Vol	62619

Chainage 180.000
Datum: 35.000

PROPOSED LEVELS				
EXISTING LEVELS				
LEVEL DIFFERENCE				
OFFSETS				

Total Volume at Station 5+180.00	
Cut Vol	0.00
Fill Vol	10326

Chainage 220.000
Datum: 35.000

PROPOSED LEVELS				
EXISTING LEVELS				
LEVEL DIFFERENCE				
OFFSETS				

Total Volume at Station 5+220.00	
Cut Vol	620
Fill Vol	76331

General Notes

Keys

- Boundary lines
- Fence line
- Chain
- Curbs

Alignment / Chainage
Broughtland
Te Karaka Township

TYPICAL CROSS SECTION
4m WIDE STOPBANK (TOP)

Coordinate System in terms of NZTM 2000
Vertical Datum in terms of MVDN 2016

SURVEYED	CPS - 4000 CHAIN	
DRAWN	PHILIP JONES (CPS)	19/02/2026
CHECKED	10/02/2026 (CPS)	19/02/2026

2	Projector & Station	2026
1	Author: Lyle & Son 2023 - 2025	2026
Rev	Revisions/Comments	Date

GISBORNE DISTRICT COUNCIL
Te Karaka Township

CPS
Civil Engineering Solutions

Project Name and Address
WAIKAPAOA RIVER
TE KARAKA TOWNSHIP
EASTERN SIDE STOPBANK
CROSS SECTIONS

WAIKAPAOA RIVER
Date: 19.02.2026
Scale: 1:500 @ A3

3

Chainage 240.000
Datum: 35.000

Total Volume at Station 0+240.00
Cut Vol 0.00
Fill Vol 865.53

PROPOSED LEVELS	37.335	41.027	39.494
EXISTING LEVELS	37.335	37.511	36.494
LEVEL DIFFERENCE	0.000	3.516	0.000
OFFSETS	-5.283	0.000	4.965

Chainage 280.000
Datum: 35.000

Total Volume at Station 0+280.00
Cut Vol 0.00
Fill Vol 836.16

PROPOSED LEVELS	36.193	41.132	39.525
EXISTING LEVELS	36.193	37.253	35.525
LEVEL DIFFERENCE	0.000	3.879	0.000
OFFSETS	-11.778	0.000	5.115

Chainage 260.000
Datum: 35.000

Total Volume at Station 0+260.00
Cut Vol 0.00
Fill Vol 925.01

PROPOSED LEVELS	36.861	41.079	39.538
EXISTING LEVELS	36.861	37.057	36.538
LEVEL DIFFERENCE	0.000	4.022	0.000
OFFSETS	-10.338	0.000	4.982

Chainage 300.000
Datum: 35.000

Total Volume at Station 0+300.00
Cut Vol 0.00
Fill Vol 961.00

PROPOSED LEVELS	37.164	41.065	39.572
EXISTING LEVELS	37.164	37.396	39.532
LEVEL DIFFERENCE	0.000	3.769	0.000
OFFSETS	-5.947	0.000	5.246

General Notes

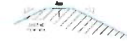
Keys



TYPICAL CROSS SECTION

4m WIDE STOPBANK (TOP)

1:1000

Coordinate System in terms of NZTM 2011
Vertical Datum in terms of NZVD 2016

SURVEYED	CPI + GCD CHECK	-
DRAWN	DRAWING (CPI)	100000
CHANGED	1:100000 (CPI)	100000

2	Proposed Notes	2020
1	Letter A to 2021 - 2021	2020
No.	Revisions/Notes	Date



Project Name and Address
WAIKAPA RIVER
TE KARAKA TOWNSHIP
EASTERN SIDE STOPBANK
CROSS SECTIONS

Sheet	WAIKAPA RIVER	4
Date	19.02.2026	
Scale	1:500 @ A3	

Chainage 1280.000
Datum: 40.000

PROPOSED LEVELS	41.579	42.645	41.972
EXISTING LEVELS	41.579	41.967	41.972
LEVEL DIFFERENCE	0.000	0.678	0.000
OFFSETS	-4.753	0.000	3.246

Total Value at Station 1+1300.00	
Cut Val	0.00
Fill Val	216.12

Chainage 1300.000
Datum: 40.000

PROPOSED LEVELS	43.253	42.645	43.208
EXISTING LEVELS	43.253	43.298	43.208
LEVEL DIFFERENCE	0.000	-0.654	0.000
OFFSETS	-3.316	0.000	3.277

Total Value at Station 1+300.00	
Cut Val	35.34
Fill Val	39.41

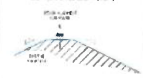
General Notes

Keys



Alignment / Chainage
vertical
Te Karaka Township

TYPICAL CROSS SECTION 4m WIDE STOPBANK (TOP)



Coordinate System in terms of NZTM 2000
Vertical Datum in terms of NZVD 2016

DESIGNED BY	CPS / DCC / DCCW
DRAWN BY	P. BLANKENHORN (CPS)
CHECKED BY	D. MOODY (DCC)

1	Prepared for	10/10
2	Enter data for	10/10
3	Revised/Amend	10/10



Project Name and Address
WAIAPAOA RIVER
TE KARAKA TOWNSHIP
EASTERN SIDE STOPBANK
CROSS SECTIONS

Project WAIAPAOA RIVER	Sheet 17
Date 19.02.2026	
Scale 1:500 @ A3	

Chainage 1746.455
Datum: 35.000

PROPOSED LEVELS		42.841	44.198	44.931
EXISTING LEVELS		42.841	44.005	44.931
LEVEL DIFFERENCE		0.000	0.173	0.000
OFFSETS		-4.634	0.000	3.545

Total Volume at Station 1746.45	
Cut Vol	0.00
Fill Vol	3.00

Chainage 1780.000
Datum: 35.000

PROPOSED LEVELS		40.379	44.235	40.382
EXISTING LEVELS		40.379	40.377	40.382
LEVEL DIFFERENCE		0.000	3.858	0.000
OFFSETS		-9.625	0.000	9.636

Total Volume at Station 1780.00	
Cut Vol	0.00
Fill Vol	98.99

Chainage 1769.000
Datum: 35.000

PROPOSED LEVELS		40.398	44.243	42.287
EXISTING LEVELS		40.398	44.445	44.443
LEVEL DIFFERENCE		0.000	3.742	4.671
OFFSETS		-9.547	0.000	5.736

Total Volume at Station 1769.00	
Cut Vol	3.39
Fill Vol	298.54

Chainage 1800.000
Datum: 35.000

PROPOSED LEVELS		40.256	44.258	41.286
EXISTING LEVELS		40.256	40.257	40.242
LEVEL DIFFERENCE		0.000	4.001	1.044
OFFSETS		-9.993	0.000	7.836

Total Volume at Station 1800.00	
Cut Vol	0.00
Fill Vol	916.13

General Notes

Key:

- Barrows
- Boundary lines
- Face lines
- Gates
- Contours
- Proposed design
- Existing ground
- Design footprint
- Alignment / Drainage
- Vertical curve - To / From

TYPICAL CROSS SECTION
4m wide STOPBANK (100%)

Coordinate System is based on NZTM 2019
Vertical Curve is based on NZTM 2019

CIVIL PROJECT SOLUTIONS		
Submitted by	CPS DESIGN	07/2025
Drawn by	P. FLAHERTY	03/2025
Checked by	G. FORTI	03/2025

No.	Description	Value
1.	SH2 Stopbank correction	2025
2.	Western Side Extension	2025
3.	Freeway Widening	2025
4.	Lower side Sep 2025	2025
5.	Proposed/Actual	Cost

GISBORNE
CITY COUNCIL
Te Kaitiaki o Te Taiāwhiri

CPS
DESIGN
Civil Engineering

**WAIPOA - WESTERN SIDE
TE KARAKA - TOWNSHIP
PROPOSED NEW STOPBANK
CROSS SECTIONS**

Project	GDC	Sheet	1
Date	03.03.2026		
Scale	1:500 @ A3		

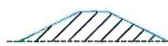
Chainage 1820.000
Datum: 35.000



Total Volume at Station 1820.00
Cut Vol 0.00
Fill Vol 980.07

PROPOSED LEVELS	40.997	41.747	44.280	41.726	40.985
EXISTING LEVELS	40.997	40.997	40.995	40.991	40.985
LEVEL DIFFERENCE	0.000	1.550	4.082	1.535	0.000
OFFSETS	-10.070	0.000	0.000	7.305	30.007

Chainage 1860.000
Datum: 35.000



Total Volume at Station 1860.00
Cut Vol 0.00
Fill Vol 1904.93

PROPOSED LEVELS	40.930	41.556	44.325	41.561	40.935
EXISTING LEVELS	40.930	40.913	40.913	40.939	40.935
LEVEL DIFFERENCE	0.000	1.413	4.087	1.422	0.000
OFFSETS	-10.291	-7.438	0.000	7.429	10.280

Chainage 1840.000
Datum: 35.000



Total Volume at Station 1840.00
Cut Vol 0.00
Fill Vol 966.29

PROPOSED LEVELS	40.964	44.383	44.170
EXISTING LEVELS	40.964	40.964	40.970
LEVEL DIFFERENCE	0.000	4.139	0.000
OFFSETS	-10.177	0.000	10.166

Chainage 1880.000
Datum: 35.000



Total Volume at Station 1880.00
Cut Vol 0.00
Fill Vol 924.31

PROPOSED LEVELS	40.943	44.347	40.883
EXISTING LEVELS	40.943	40.943	40.883
LEVEL DIFFERENCE	0.000	4.294	0.000
OFFSETS	-10.398	0.000	10.469

General Notes

Key

- Barriers
- Boundary lines
- Face lines
- Gates
- Contours
- Proposed design
- Existing ground
- Design footprint

Alignment / Change
Waihoa River - Te Karaka

TYPICAL CROSS SECTION
ON NEW STOPBANK (TOP)

Coordinates system is based on NZTM 2019
Vertical datum is based on NZVD 2016

Civil Project Solutions

Designed by: LPS (REV) 02/2025
Drawn by: P.FLAJOLIE 03/2026
Checked by: D.FOOTE 03/2026

1	Site Stopbank correction	2000
2	Waihoa Side Extension	2000
3	Proposed design	2000
4	Lower level Set 2025	2025
5	Revisions/Notes	Comments

GISBORNE
INFRASTRUCTURE
Te Karaka to Te Taiarua

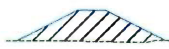
CPS
Civil Project Solutions

WAIPOA - WESTERN SIDE
TE KARAKA - TOWNSHIP
PROPOSED NEW STOPBANK
CROSS SECTIONS

Project: GDC
Date: 03.03.2026
Scale: 1:500 @ A3

2

Chainage 1900.000
Datum: 35.000



Total Volume at Station 1-1900.00
Cut Vol 8.95
Fill Vol 1065.37

PROPOSED LEVELS				
EXISTING LEVELS				
LEVEL DIFFERENCE				
OFFSETS				

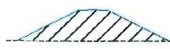
Chainage 1920.000
Datum: 35.000



Total Volume at Station 1-1920.00
Cut Vol 8.80
Fill Vol 1096.54

PROPOSED LEVELS				
EXISTING LEVELS				
LEVEL DIFFERENCE				
OFFSETS				

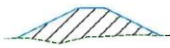
Chainage 1940.000
Datum: 35.000



Total Volume at Station 1-1940.00
Cut Vol 9.08
Fill Vol 1091.97

PROPOSED LEVELS				
EXISTING LEVELS				
LEVEL DIFFERENCE				
OFFSETS				

Chainage 1960.000
Datum: 35.000



Total Volume at Station 1-1960.00
Cut Vol 9.00
Fill Vol 1023.48

PROPOSED LEVELS				
EXISTING LEVELS				
LEVEL DIFFERENCE				
OFFSETS				

Control Notes

Keys

- Barriers
- Boundary lines
- Fence lines
- Gates
- Curbs
- Proposed design
- Existing ground
- Design footprints

TECA 1000 - Alignment / Chalmers
Values in m - To 10 m

TYPICAL CROSS SECTION
(in m) (to 10 m)

Coordinate System is based on NZTM 2008
Vertical Datum is based on NZVD 2016

CIVIL PROJECT SOLUTIONS

Designed by: CPS CREW 15/08/25
Drawn by: P. FLAHERTY 23/03/26
Checked by: B. FOSTER 13/03/26

1. Stop bank connection	2136
2. Western Side Extension	2136
3. Footpath extension	2136
4. 1.0m wide kerb 2136	2136
5. 1.0m wide kerb 2136	2136

Prepared/Drawn: CPS

GISBORNE
SOUTHERN CROSS
Te Karaka - Western Side

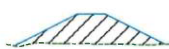
CPS
Civil Project Solutions

WAIPOA - WESTERN SIDE
TE KARAKA - TOWNSHIP
PROPOSED NEW STOPBANK
CROSS SECTIONS

Project: GDC
Date: 03.03.2026
Scale: 1:500 @ A3

Sheet: 3

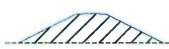
Chainage 1980.000
Datum: 35.000



Total Volume at Station 1-980.00
Cut Vol: 0.00
Fill Vol: 10276.84

PROPOSED LEVELS	39.971	40.615	44.459	40.881
EXISTING LEVELS	39.971	39.920	40.244	40.181
LEVEL DIFFERENCE	0.000	0.695	4.215	0.000
OFFSETS	-10.877	-9.889	0.000	10.156

Chainage 2020.000
Datum: 35.000



Total Volume at Station 2-2020.00
Cut Vol: 0.00
Fill Vol: 1013.74

PROPOSED LEVELS	40.377	44.504	40.350
EXISTING LEVELS	40.377	40.409	40.350
LEVEL DIFFERENCE	0.000	4.095	0.000
OFFSETS	-10.155	0.000	10.208

Chainage 2000.000
Datum: 35.000



Total Volume at Station 2-000.00
Cut Vol: 0.00
Fill Vol: 1043.71

PROPOSED LEVELS	40.376	41.335	44.482	41.296
EXISTING LEVELS	40.376	40.259	40.211	40.270
LEVEL DIFFERENCE	0.000	1.075	4.271	1.026
OFFSETS	-10.372	-8.894	0.000	10.323

Chainage 2040.000
Datum: 35.000



Total Volume at Station 2-040.00
Cut Vol: 0.00
Fill Vol: 1008.41

PROPOSED LEVELS	40.404	44.526	40.318
EXISTING LEVELS	40.404	40.302	40.318
LEVEL DIFFERENCE	0.000	4.224	0.000
OFFSETS	-10.144	0.000	10.316

General Notes

Key

- Top
- Bottom
- Boundary lines
- Fence lines
- Grates
- Curbs
- Proposed design
- Existing ground
- Design footprint

1:500 - Alignment / Chainage
Waipaoa river - 1:500

TYPICAL CROSS SECTION
4m WIDE STOPBANK (TOP)

Coordinates System is based on NZTM 2020
Vertical Datum is based on NZVD 2016

Civil Project Solutions

Designed by: CPS DREW 10/2025
Drawn by: P FLAHERTY 03/2026
Checked by: D FOOTE 03/2026

1	SHS 5 rubber connection	2000
2	Western Side Connection	2000
3	Frederick Street	2000
4	Local data for 2025	2025
5	Proposed Road	2025

GISBORNE DISTRICT COUNCIL
Te Kaitiaki o Te Tairāwhiti

CPS
Civil Project Solutions

WAIPAOA - WESTERN SIDE
TE KARAKA - TOWNSHIP
PROPOSED NEW STOPBANK
CROSS SECTIONS

Project: GDC
Date: 03.03.2026
Scale: 1:500 @ A3

4

Chainage 2060.000
Datum: 35.000

PROPOSED LEVELS	40.400	40.400	41.388	40.411
EXISTING LEVELS	40.398	40.398	40.409	40.411
LEVEL DIFFERENCE	0.002	0.002	0.979	0.000
OFFSETS	-0.198	-7.630	0.000	0.271

Total Volume of Station 2+060.00	
Cut Vol	0.00
Fill Vol	971.94

Chainage 2100.000
Datum: 35.000

PROPOSED LEVELS	40.506	40.506	41.573	40.281
EXISTING LEVELS	40.506	40.506	40.286	40.279
LEVEL DIFFERENCE	0.000	0.000	1.287	0.002
OFFSETS	-10.074	0.000	0.000	10.565

Total Volume of Station 2+100.00	
Cut Vol	0.00
Fill Vol	959.63

Chainage 2080.000
Datum: 35.000

PROPOSED LEVELS	40.449	40.449	41.571	40.063
EXISTING LEVELS	40.449	40.449	40.383	40.063
LEVEL DIFFERENCE	0.000	0.000	1.188	0.000
OFFSETS	-10.145	0.000	0.000	10.196

Total Volume of Station 2+080.00	
Cut Vol	0.00
Fill Vol	1032.79

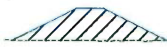
Chainage 2120.000
Datum: 35.000

PROPOSED LEVELS	40.802	40.802	41.975	41.016
EXISTING LEVELS	40.802	39.984	40.726	40.278
LEVEL DIFFERENCE	0.000	0.818	1.249	0.738
OFFSETS	-11.127	-7.182	0.000	10.616

Total Volume of Station 2+120.00	
Cut Vol	0.00
Fill Vol	1011.55

General Notes													
Keys Boundary lines Proposed design Existing ground Design footprint													
TEA 100 Alignment / Drainage Vertical Curve / Te Karaka													
TYPICAL CROSS SECTION 4m wide carriageway (100%) 													
Coordinate system is based on NZTM 2011 Vertical datum is based on NZVD 2016													
CIVIL PROJECT SOLUTIONS Surveyed by: JPS CIVIL Drawn by: P. H. H. H. Checked by: D. H. H. H.													
<table border="1"> <tr> <td>1</td> <td>Site & Survey</td> <td>2020</td> </tr> <tr> <td>2</td> <td>Design & Detail</td> <td>2020</td> </tr> <tr> <td>3</td> <td>Construction</td> <td>2020</td> </tr> <tr> <td>4</td> <td>As-built</td> <td>2020</td> </tr> </table>		1	Site & Survey	2020	2	Design & Detail	2020	3	Construction	2020	4	As-built	2020
1	Site & Survey	2020											
2	Design & Detail	2020											
3	Construction	2020											
4	As-built	2020											
GISBORNE CONSULTANTS CPS CIVIL PROJECT SOLUTIONS													
Project: WAIPOA - WESTERN SIDE TE KARAKA - TOWNSHIP PROPOSED NEW STOPBANK CROSS SECTIONS													
Project: GDC Date: 03.03.2020 Scale: 1:500 @ A3	Sheet: 5												

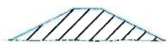
Chainage 214.0 000
Datum: 35.000



Total Volume of Station 2-140.00
Cut Vol 0.00
Fill Vol 1156.34

PROPOSED LEVELS	40.138	40.159	42.884		40.991	40.889
EXISTING LEVELS	40.138	40.137	40.111		40.991	40.889
LEVEL DIFFERENCE	0.000	0.022	2.773		0.000	0.000
OFFSETS	-10.901	-10.859	-5.448		10.974	10.995

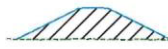
Chainage 2160.000
Datum: 35.000



Total Volume of Station 2-160.00
Cut Vol 0.00
Fill Vol 1151.09

PROPOSED LEVELS	40.223	40.223	42.987		40.187	
EXISTING LEVELS	40.223	40.193	42.987		40.187	
LEVEL DIFFERENCE	0.000	0.030	0.000		0.000	
OFFSETS	-10.775	-5.247	0.000		10.843	

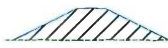
Chainage 2180.000
Datum: 35.000



Total Volume of Station 2-180.00
Cut Vol 0.00
Fill Vol 1123.96

PROPOSED LEVELS	40.321	40.321	44.681		40.271	
EXISTING LEVELS	40.321	40.320	44.681		40.271	
LEVEL DIFFERENCE	0.000	0.001	0.000		0.000	
OFFSETS	-10.535	-10.524	0.000		10.911	

Chainage 2200.000
Datum: 35.000



Total Volume of Station 2-200.00
Cut Vol 0.00
Fill Vol 1123.13

PROPOSED LEVELS	40.249	40.249	44.785		40.244	
EXISTING LEVELS	40.249	40.256	44.785		40.244	
LEVEL DIFFERENCE	0.000	-0.007	0.000		0.000	
OFFSETS	-10.812	-5.892	0.000		10.823	

General Notes

Key

- Barriers
- Boundary lines
- Force lines
- Gates
- Contours
- Proposed design
- Existing ground
- Design footprint

Alignment / Change
Waipaoa River - Te Karaka

TYPICAL CROSS SECTION
on ACIS 8/10/2016

Coordinate System is based on NZTM 2000
Vertical Datum is based on NZVD 2006

CIVIL PROJECT SOLUTIONS

Designed by	CPS CREW	15/03/2025
Drawn by	P. HARRISON	23/03/2026
Checked by	B. HARRISON	13/03/2026

1	Site & Suburb connection	2136
2	Western Side Connection	2136
3	Proposed design	2136
4	Local area for 1115	2123
5	Proposed design	2136

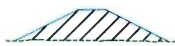
GISBORNE DISTRICT COUNCIL
Te Karaka - Western Side Connection

CPS
Civil Project Solutions

WAIPOA - WESTERN SIDE
TE KARAKA - TOWNSHIP
PROPOSED NEW STOPBANK
CROSS SECTIONS

Project	GDC	Sheet	6
Date	03.03.2026		
Scale	1:500 @ A3		

Chainage 2220.000
Datum: 35.000



Total Volume at Station 2-220.00	
Cut Vol	0.00
Fill Vol	1118.92

PROPOSED LEVELS					
EXISTING LEVELS	40.306	40.342	40.352	40.377	40.358
LEVEL DIFFERENCE	0.000	2.410	4.376	4.282	4.276
OFFSETS	-10.744	-5.851	0.000	6.299	10.974

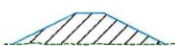
Chainage 2260.000
Datum: 35.000



Total Volume at Station 2-260.00	
Cut Vol	0.00
Fill Vol	1725.86

PROPOSED LEVELS					
EXISTING LEVELS	40.333	40.295	40.297	40.297	40.297
LEVEL DIFFERENCE	0.000	4.477	0.000	0.000	0.000
OFFSETS	-10.778	0.000	0.000	10.850	0.000

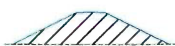
Chainage 2240.000
Datum: 35.000



Total Volume at Station 2-240.00	
Cut Vol	0.00
Fill Vol	1193.38

PROPOSED LEVELS					
EXISTING LEVELS	40.357	40.355	40.365	40.367	40.355
LEVEL DIFFERENCE	0.000	0.032	4.384	0.012	4.035
OFFSETS	-10.666	-10.625	0.000	10.681	10.705

Chainage 2280.000
Datum: 35.000



Total Volume at Station 2-280.00	
Cut Vol	0.00
Fill Vol	1152.95

PROPOSED LEVELS					
EXISTING LEVELS	40.373	40.309	40.276	40.265	40.295
LEVEL DIFFERENCE	0.000	2.033	4.550	0.000	0.000
OFFSETS	-10.844	-6.871	0.000	10.898	0.000

General Notes

Keys

- Boundary lines
- Proposed design
- Existing ground
- Design footprint

Alignment / Chainage
Waipara river - Te Karaka

TYPICAL CROSS SECTION
4m wide, 8m deep, 10m high

Coordinates System is based on NZTM 2000
Vertical Datum is based on NZVD 1988

FILE PROJECT SOLUTIONS

Designed by	CPS GROUP	01/2025
Drawn by	P. J. A. JONES	10/2024
Checked by	B. JONES	10/2024

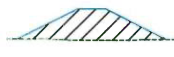
1	SUD 5 substation connection	2100
2	Waipara river connection	2100
3	Proposed new stopbank	2100
4	Local area for 2025	2100

GISBORNE DISTRICT COUNCIL
CPS

WAIPARA - WESTERN SIDE TE KARAKA - TOWNSHIP PROPOSED NEW STOPBANK CROSS SECTIONS

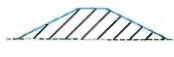
Project: GDC
Date: 03.03.2026
Scale: 1:500 @ A3

Sheet: 7

Chainage 2300.000
Datum: 35.000

Total Volume of Station 2+300.00	
Cut Vol	0.00
Fill Vol	1120.17

PROPOSED LEVELS	49.561		
EXISTING LEVELS	48.561	48.595	44.877
LEVEL DIFFERENCE	0.000	2.647	4.488
OFFSETS	-96.12	-5.211	0.000
			10.622

Chainage 2340.000
Datum: 35.000

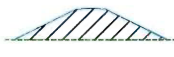
Total Volume of Station 2+340.00	
Cut Vol	0.00
Fill Vol	1019.26

PROPOSED LEVELS	49.580		
EXISTING LEVELS	48.580	48.590	44.862
LEVEL DIFFERENCE	0.000	1.692	4.360
OFFSETS	-16.444	-7.079	0.000
			5.670
			10.732
			10.742

Chainage 2320.000
Datum: 35.000

Total Volume of Station 2+320.00	
Cut Vol	0.00
Fill Vol	1095.16

PROPOSED LEVELS	49.527		
EXISTING LEVELS	48.527	48.532	44.839
LEVEL DIFFERENCE	0.000	4.307	0.855
OFFSETS	-10.526	0.000	0.000
			10.556
			10.596

Chainage 2360.000
Datum: 35.000

Total Volume of Station 2+360.00	
Cut Vol	0.00
Fill Vol	1061.24

PROPOSED LEVELS	49.510		
EXISTING LEVELS	48.510	48.502	44.884
LEVEL DIFFERENCE	0.000	2.293	4.409
OFFSETS	-10.627	-4.998	0.000
			5.102
			10.658

General Notes

Keys

- Boundary lines
- Proposed design
- Existing ground
- Design footprint

1:500 Alignment / Chaining
Vertical Datum: NZVD 1988

TYPICAL CROSS SECTION
4m wide 810mm (10m)

Coordinate System is form of NZTM 2008
Vertical Datum is form of NZVD 1988

CIVIL PROJECT SOLUTIONS

Surveyed by	CPS CREW	02/2025
Drawn by	P. P. P. P. P.	03/2025
Checked by	G. H. H. H. H.	03/2025

1	1:500 Scale & Conversion	2025
1	Western Side Extension	2025
1	Final Design	2025
1	1:500 Scale & Conversion	2025

Prepared by: CPS

GISBORNE
INFRASTRUCTURE
TE Kaitiaki o Te Tairāwhiti

CPS
Civil Project Solutions

WAIPOA - WESTERN SIDE
TE KARAKA - TOWNSHIP
PROPOSED NEW STOPBANK
CROSS SECTIONS

Project	GDC	Sheet	8
Date	03.03.2026		
Scale	1:500 @ A3		

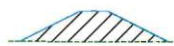
Chainage 2380.000
Datum: 35.000



Total Volume of Station 2-380.00
Cut Vol 0.00
Fill Vol 1091.22

PROPOSED LEVELS					
EXISTING LEVELS	40.558	40.558	40.558	40.558	40.558
LEVEL DIFFERENCE	0.000	0.000	0.000	0.000	0.000
OFFSETS	-8.516	-8.043	0.000	6.349	10.563

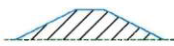
Chainage 2420.000
Datum: 35.000



Total Volume of Station 2-420.00
Cut Vol 0.00
Fill Vol 1051.83

PROPOSED LEVELS					
EXISTING LEVELS	40.750	40.714	40.636	40.699	40.772
LEVEL DIFFERENCE	0.000	0.000	0.000	0.000	0.000
OFFSETS	-10.297	-8.841	0.000	9.863	10.403

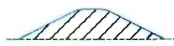
Chainage 2400.000
Datum: 35.000



Total Volume of Station 2-400.00
Cut Vol 0.00
Fill Vol 1066.74

PROPOSED LEVELS	40.675	40.675	40.675	40.675	40.675
EXISTING LEVELS	40.675	40.675	40.675	40.675	40.675
LEVEL DIFFERENCE	0.000	0.000	0.000	0.000	0.000
OFFSETS	-10.407	-10.106	-5.194	0.000	10.478

Chainage 2440.000
Datum: 35.000



Total Volume of Station 2-440.00
Cut Vol 0.00
Fill Vol 1019.83

PROPOSED LEVELS	40.750	40.750	40.750	40.750	40.750
EXISTING LEVELS	40.750	40.730	40.716	40.783	40.794
LEVEL DIFFERENCE	0.000	0.020	0.034	0.000	0.000
OFFSETS	-10.347	-5.388	0.000	5.879	10.259

General Notes

Key

- Boundary lines
- Fence lines
- Gates
- Contours
- Proposed design
- Existing ground
- Design footprint

1:500 - Alignment / Chalkings
Vertical Datum - Te Karaka

TYPICAL CROSS SECTION
4m wide 8 TOPPAKE ROPS

Coordinate System is form of NZTM 2008
Vertical Datum is form of NZVD 2008

CIVIL PROJECT SOLUTIONS

Submitted by: CPS CREW 10/2025
Drawn by: P. PLASSERRE 03/2026
Checked by: D. FODD 03/2026

1	SH2 to SH2 connection	2026
2	Western Side Extension	2026
3	Proposed design	2026
4	Lower side SH2	2025

Prepared/Drawn: CPS

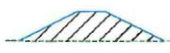
GISBORNE DISTRICT COUNCIL
Te Karaka to Te Tairāwhiti

WAIPOA - WESTERN SIDE
TE KARAKA - TOWNSHIP
PROPOSED NEW STOPBANK
CROSS SECTIONS

Project: BDC
Date: 03.03.2026
Scale: 1:500 @ A3

9

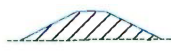
Chainage 2460.000
Datum: 35.000



Total Volume of Station	2460.00
Cut Vol	0.00
Fill Vol	100.87

PROPOSED LEVELS	40.891	40.891	40.891	40.891	40.891
EXISTING LEVELS	40.891	40.891	40.891	40.891	40.891
LEVEL DIFFERENCE	0.000	0.000	0.000	0.000	0.000
OFFSETS	-10.100	-9.433	0.000	9.433	10.100

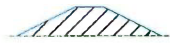
Chainage 2500.000
Datum: 35.000



Total Volume of Station	2500.00
Cut Vol	0.00
Fill Vol	162.42

PROPOSED LEVELS	40.970	40.970	40.970	40.970	40.970
EXISTING LEVELS	40.970	40.970	40.970	40.970	40.970
LEVEL DIFFERENCE	0.000	0.000	0.000	0.000	0.000
OFFSETS	-10.162	-7.300	0.000	7.300	10.162

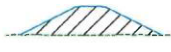
Chainage 2480.000
Datum: 35.000



Total Volume of Station	2480.00
Cut Vol	0.00
Fill Vol	164.29

PROPOSED LEVELS	40.894	40.894	40.894	40.894	40.894
EXISTING LEVELS	40.894	40.894	40.894	40.894	40.894
LEVEL DIFFERENCE	0.000	0.000	0.000	0.000	0.000
OFFSETS	-10.147	-9.048	0.000	9.048	10.147

Chainage 2520.000
Datum: 35.000



Total Volume of Station	2520.00
Cut Vol	0.00
Fill Vol	154.33

PROPOSED LEVELS	41.089	41.089	41.089	41.089	41.089
EXISTING LEVELS	41.089	41.089	41.089	41.089	41.089
LEVEL DIFFERENCE	0.000	0.000	0.000	0.000	0.000
OFFSETS	-9.851	-5.517	0.000	5.517	9.851

General Notes

Keys

- Boundary lines
- Centre lines
- Contours
- Proposed design
- Existing ground
- Design footprint

TECA 100 Alignment / Chainage
Vertical Datum a term of NZVD 2016

TYPICAL CROSS SECTION
on ROAD BENCHMARK (RBM)

Coordinate System is term of NZTM 2016
Vertical Datum a term of NZVD 2016

CIVIL PROJECT SOLUTIONS

Surveyed by	CPS CREW	02/2025
Drawn by	PJL/ALD/RE	03/2026
Checked by	D/100/2	03/2026

1	Sub 5.0m & 10m	2026
2	Western Side Section	2026
3	Proposed design	2026
4	Local data for 2026	2026
5	Proposed design	2026

GISBORNE
Infrastructure & Transport
Te Karaka - Western Side

CPS
Civil Project Solutions

WAIPOA - WESTERN SIDE
TE KARAKA - TOWNSHIP
PROPOSED NEW STOPBANK
CROSS SECTIONS

Project	GDC
Date	03.03.2026
Scale	1:500 @ A3

10

Chainage 2540.000
Datum: 35.000

PROPOSED LEVELS	4.247	4.242		
EXISTING LEVELS	4.181	4.153	4.085	4.030
LEVEL DIFFERENCE	0.066	0.089	0.000	0.000
OFFSETS	-5.577	-9.002	0.000	5.471

Total Volume of Station 2540.00
Cut Vol 0.00
Fill Vol 36.385

Chainage 2580.000
Datum: 35.000

PROPOSED LEVELS	4.307	4.307	4.234	
EXISTING LEVELS	4.307	4.307	39.254	37.878
LEVEL DIFFERENCE	0.000	0.000	3.044	0.000
OFFSETS	-6.008	-6.007	0.000	16.576

Total Volume of Station 2580.00
Cut Vol 0.00
Fill Vol 36.726

Chainage 2560.000
Datum: 35.000

PROPOSED LEVELS	4.128			
EXISTING LEVELS	4.128	4.246	4.354	39.698
LEVEL DIFFERENCE	0.000	0.000	0.000	0.000
OFFSETS	-5.548	0.000	5.807	16.339

Total Volume of Station 2560.00
Cut Vol 9.36
Fill Vol 193.54

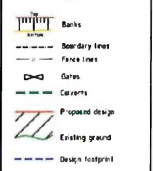
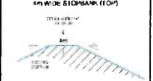
Chainage 2600.000
Datum: 35.000

PROPOSED LEVELS	4.314	4.314	4.269	
EXISTING LEVELS	4.314	4.314	38.841	40.527
LEVEL DIFFERENCE	0.000	0.000	3.349	0.000
OFFSETS	-5.916	0.000	5.655	16.694

Total Volume of Station 2600.00
Cut Vol 0.00
Fill Vol 127.64

General Notes

Keys

Alignment / Chaining
Vertical curve - Te KarakaTYPICAL CROSS SECTION
WAIPOKA - WESTERN SIDECoordinate System is based on NZTM 2000
Vertical Curve is based on NZVD 1980

CIVIL PROJECT SOLUTIONS

Designed by: DPS (DPM) 10/2020

Checked by: P. H. A. 10/2020

Checked by: B. H. C. 10/2020

1. Site & Survey 2020 2020

2. Western Side Extension 2020

3. Proposed Design 2020

4. Layout & Set 2020 2023

5. Final Design 2020

6. Final Design 2020

7. Final Design 2020

8. Final Design 2020

9. Final Design 2020

10. Final Design 2020

11. Final Design 2020

12. Final Design 2020

13. Final Design 2020

14. Final Design 2020

15. Final Design 2020

16. Final Design 2020

17. Final Design 2020

18. Final Design 2020

19. Final Design 2020

20. Final Design 2020

21. Final Design 2020

22. Final Design 2020

23. Final Design 2020

24. Final Design 2020

25. Final Design 2020

26. Final Design 2020

27. Final Design 2020

28. Final Design 2020

29. Final Design 2020

30. Final Design 2020

31. Final Design 2020

32. Final Design 2020

33. Final Design 2020

34. Final Design 2020

Chainage 2620.000
Datum: 35.000

PROPOSED LEVELS					
EXISTING LEVELS					
LEVEL DIFFERENCE					
OFFSETS					

Total Volume at Station 2+620.00	
Cut Vol	8.00
Fill Vol	195.11

Chainage 2660.000
Datum: 35.000

PROPOSED LEVELS					
EXISTING LEVELS					
LEVEL DIFFERENCE					
OFFSETS					

Total Volume at Station 2+660.00	
Cut Vol	0.00
Fill Vol	281.88

Chainage 2640.000
Datum: 35.000

PROPOSED LEVELS					
EXISTING LEVELS					
LEVEL DIFFERENCE					
OFFSETS					

Total Volume at Station 2+640.00	
Cut Vol	0.00
Fill Vol	811.28

Chainage 2680.000
Datum: 35.000

PROPOSED LEVELS					
EXISTING LEVELS					
LEVEL DIFFERENCE					
OFFSETS					

Total Volume at Station 2+680.00	
Cut Vol	0.00
Fill Vol	731.28

General Notes

Keys

- Baris
- Boundary lines
- Force lines
- Gates
- Valleys
- Proposed design
- Existing ground
- Design footprint

TECA 500

Alignment / Chaining
Waipaoa river - Te Karaka

TYPICAL CROSS SECTION
See note 8 (Cross-section report)

Coordinate system is based on NZTM 1988
Vertical datum is based on NZVD 1988

CIVIL PROJECT SOLUTIONS

Designed by: LPS 1010 02/2025

Drawn by: P. FLAHERTY 03/2026

Checked by: D. FOLEY 03/2026

1	SH2 Stopbank connection	2300
2	Western Side Extension	2300
3	Provisional 800m	2300
4	Lower side Stop 2025	2100
5	Provisional	2100

GISBORNE
COUNCIL
Te Karaka to Te Taiarua

CPS
Countryside Planning Solutions

WAIPAOA - WESTERN SIDE
TE KARAKA - TOWNSHIP
PROPOSED NEW STOPBANK
CROSS SECTIONS

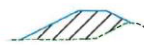
Scale: GDC

Date: 03.03.2026

Sheet: 1:500 @ A3

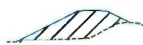
12

General Notes																
Key Boundary Lines Fence Lines Gates Cattleposts Proposed design Existing ground Design footprints																
1:500 Alignment / Challenge Access Route To Gates																
TYPICAL CROSS SECTION ALONG GIBBORNE ROAD																
Coordinate System is a form of: NTM 2008 Vertical Datum is a form of: NTD 2008																
CIVIL PROJECT SOLUTIONS																
Surveyed by: CIVIL ENGINE 12/2025																
Drawn by: PLATE ENGINEER 03/2026																
Checked by: 01/2021 03/2026																
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 5%; text-align: center;">#</td> <td style="width: 85%;">S/D 5 Suburb connection</td> <td style="width: 10%; text-align: right;">2306</td> </tr> <tr> <td style="text-align: center;">1</td> <td>Western Side Extension</td> <td style="text-align: right;">2306</td> </tr> <tr> <td style="text-align: center;">2</td> <td>Proposed 600mm</td> <td style="text-align: right;">2306</td> </tr> <tr> <td style="text-align: center;">3</td> <td>Lower side S/S 3225</td> <td style="text-align: right;">2323</td> </tr> <tr> <td style="text-align: center;">N/A</td> <td>Revised/Issue</td> <td style="text-align: right;">1/20</td> </tr> </table>		#	S/D 5 Suburb connection	2306	1	Western Side Extension	2306	2	Proposed 600mm	2306	3	Lower side S/S 3225	2323	N/A	Revised/Issue	1/20
#	S/D 5 Suburb connection	2306														
1	Western Side Extension	2306														
2	Proposed 600mm	2306														
3	Lower side S/S 3225	2323														
N/A	Revised/Issue	1/20														
Our Team and Values GISBORNE CIVIL ENGINEERING The Engineers to the Tairāwhiti GISBORNE CIVIL ENGINEERING WAIPAKA - WESTERN SIDE TAKARUA - TOWNSHIP PROPOSED NEW STOPBANK CROSS SECTIONS																
Project Name and location																
Client ODC Sheet																
Date 03.03.2026 13																
Scale 1:500 @ A3																

Chainage 2780.000
Datum: 35.000

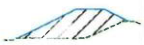
Total Volume at Station 2780.000
Cut Vol: 0.00
Fill Vol: 142.65

PROPOSED LEVELS	41.285	41.285	42.251
EXISTING LEVELS	41.305	41.305	42.251
LEVEL DIFFERENCE	0.000	0.000	0.000
OFFSETS	-10.814	-8.104	0.000

Chainage 2820.000
Datum: 35.000

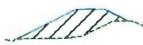
Total Volume at Station 2820.000
Cut Vol: 0.00
Fill Vol: 544.73

PROPOSED LEVELS	41.040	41.040	42.699
EXISTING LEVELS	41.324	41.324	42.699
LEVEL DIFFERENCE	0.000	0.000	0.000
OFFSETS	-10.815	-7.444	0.000

Chainage 2800.000
Datum: 35.000

Total Volume at Station 2800.000
Cut Vol: 0.00
Fill Vol: 175.95

PROPOSED LEVELS	41.306	41.317	45.316
EXISTING LEVELS	41.306	41.310	45.316
LEVEL DIFFERENCE	0.000	0.004	0.000
OFFSETS	-10.839	-9.804	0.000

Chainage 2840.000
Datum: 35.000

Total Volume at Station 2840.000
Cut Vol: 0.00
Fill Vol: 544.31

PROPOSED LEVELS	41.244	41.244	43.333
EXISTING LEVELS	41.244	41.288	43.333
LEVEL DIFFERENCE	0.000	0.046	0.000
OFFSETS	-10.253	-6.074	0.000

General Notes

Keys

- Boundary lines
- Proposed design
- Existing ground
- Design footprint
- Alignment of Drainage
- Watercourse - To farm

TYPICAL CROSS SECTION
1:1000

Coordinate System is based on NZTM 2008
Vertical Datum is based on NZVD 2008

CIVIL PROJECT SOLUTIONS

Designed by	CPS (GWS)	10/2025
Drawn by	P. J. J. J. J.	03/2026
Checked by	070015	03/2026

1	SH2 5m wide & 10m wide	2000
2	Western Side Extension	2000
3	Provisional 10m	2000
4	Local car park 2000	2000
5	Provisional 10m	2000

GISBORNE
CITY COUNCIL
Te Kaitiaki Take Kōwhiri

CPS
Countryside Partnerships

WAIPOA - WESTERN SIDE
TE KARAKA - TOWNSHIP
PROPOSED NEW STOPBANK
CROSS SECTIONS

Project: GDC
Date: 03.03.2026
Scale: 1:500 @ A3

Sheet: 14

Chainage 2860.000
Datum: 35.000

PROPOSED LEVELS				
EXISTING LEVELS				
LEVEL DIFFERENCE				
OFFSETS				

Total Volume of Station 2+860.00	
Cut Vol	200
Fill Vol	875.25

Chainage 2900.000
Datum: 35.000

PROPOSED LEVELS				
EXISTING LEVELS				
LEVEL DIFFERENCE				
OFFSETS				

Total Volume of Station 2+900.00	
Cut Vol	0.00
Fill Vol	893.13

Chainage 2880.000
Datum: 35.000

PROPOSED LEVELS				
EXISTING LEVELS				
LEVEL DIFFERENCE				
OFFSETS				

Total Volume of Station 2+880.00	
Cut Vol	0.03
Fill Vol	528.43

Chainage 2920.000
Datum: 35.000

PROPOSED LEVELS				
EXISTING LEVELS				
LEVEL DIFFERENCE				
OFFSETS				

Total Volume of Station 2+920.00	
Cut Vol	9.03
Fill Vol	752.18

General Notes

Key

- Barriers
- Boundaries
- Proposed design
- Existing ground
- Design footprints
- Alignment / Drainage
- Watercourse / To Terehu

TYPICAL CROSS SECTION
4m wide bituminous HDP

Coordinate System is based on NZTM 2008
Vertical Datum is based on NZVD 2008

CIVIL PROJECT SOLUTIONS

Surveyed by	GPS CREW	02/2025
Drawn by	P. H. H. H.	13/2025
Checked by	D. H. H.	08/2025

1	SH2 Standard cross-section	2026
2	Watercourse Standard	2026
3	Freeway Standard	2026
4	Local Area Std 2025	2025

NS: Proposed/Actual

GISBORNE
COUNCIL
Te Kaitiaki o Te Taihaki

CPS
Countryside Partnerships

WAIPOA - WESTERN SIDE
TE KARAKA - TOWNSHIP
PROPOSED NEW STOPBANK
CROSS SECTIONS

Project: GDC
Date: 03.03.2026
Scale: 1:500 @ A3

Sheet: 15

Chainage 2940.000
Datum: 35.000

PROPOSED LEVELS	48.864	43.865	45.532	43.546
EXISTING LEVELS	48.964	48.844	44.675	43.546
LEVEL DIFFERENCE	0.000	3.011	3.857	0.000
OFFSETS	-11.639	-5.225	0.000	5.887

Total Volume of Stakes 2+940.00	
Cut Vol	0.00
Fill Vol	716.77

Chainage 2980.000
Datum: 35.000

PROPOSED LEVELS	43.263	41.563	45.571	43.392
EXISTING LEVELS	43.263	43.223	42.233	43.257
LEVEL DIFFERENCE	0.000	0.321	3.338	0.135
OFFSETS	-10.544	-9.956	0.000	5.902

Total Volume of Stakes 2+980.00	
Cut Vol	0.00
Fill Vol	782.48

Chainage 2960.000
Datum: 35.000

PROPOSED LEVELS	40.838	42.407	45.554	43.599
EXISTING LEVELS	40.838	41.151	41.798	43.595
LEVEL DIFFERENCE	0.000	1.256	3.756	0.004
OFFSETS	-11.333	-8.794	0.000	5.811

Total Volume of Stakes 2+960.00	
Cut Vol	0.00
Fill Vol	770.24

Chainage 3000.000
Datum: 35.000

PROPOSED LEVELS	42.762	45.587	39.951
EXISTING LEVELS	42.762	43.596	39.951
LEVEL DIFFERENCE	0.000	1.991	0.000
OFFSETS	-10.550	0.000	13.172

Total Volume of Stakes 3+000.00	
Cut Vol	3.89
Fill Vol	813.08

General Notes

Keys

- Benches
- Boundary lines
- Fence lines
- Contours
- Proposed design
- Existing ground
- Design footprint

TECA 3000

Alignment / Change
Waipoua river - Te Karaka

TYPICAL CROSS SECTION
see section 4.1.1.1 (C1.1)

Coordinate System is based on NZTM 2000
Vertical Datum is based on NZVD 1987

CIVIL PROJECT SOLUTIONS

Designed by: CPS (C1.1) 10/2025
Drawn by: P. J. J. J. J. J. 13/2025
Checked by: D. J. J. J. J. 13/2025

1	SH 5.0000	2025
2	Western Side Extension	2025
3	Frederick 800m	2025
4	Local data Set 2025	2025
5	Proposed/Actual	CPS

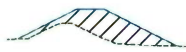
GISBORNE
Western Side Extension
Te Karaka to Te Karaka

CPS
Civil Project Solutions

WAIPOUA - WESTERN SIDE
TE KARAKA - TOWNSHIP
PROPOSED NEW STOPBANK
CROSS SECTIONS

Page: GDC 16
Date: 03.03.2026
Scale: 1:500 @ A3

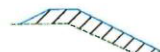
Chainage 3020.000
Datum: 35.000



Total Volume at Station 3+020.00		
Cut Vol	0.00	
Fill Vol	871.44	

PROPOSED LEVELS	41.488	41.488	42.763	45.602	43.066	40.415
EXISTING LEVELS	41.488	42.069	42.352	40.576	40.415	40.415
LEVEL DIFFERENCE	0.000	0.694	3.250	2.590	0.000	0.000
OFFSETS	-10.124	-7.575	0.000	6.978	12.200	

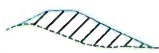
Chainage 3060.000
Datum: 35.000



Total Volume at Station 3+060.00		
Cut Vol	2.03	
Fill Vol	726.46	

PROPOSED LEVELS	43.542	45.634	42.287	39.687
EXISTING LEVELS	43.542	43.611	40.002	39.687
LEVEL DIFFERENCE	0.000	2.022	2.275	0.000
OFFSETS	-5.090	0.000	6.590	13.708

Chainage 3040.000
Datum: 35.000



Total Volume at Station 3+040.00		
Cut Vol	0.00	
Fill Vol	836.14	

PROPOSED LEVELS	43.497	45.618	42.933	40.433
EXISTING LEVELS	43.497	42.863	40.488	40.433
LEVEL DIFFERENCE	0.000	3.356	2.445	0.000
OFFSETS	-4.135	0.000	7.775	12.278

Chainage 3080.000
Datum: 35.000



Total Volume at Station 3+080.00		
Cut Vol	2.38	
Fill Vol	756.51	

PROPOSED LEVELS	43.793	45.649	39.861	39.777
EXISTING LEVELS	43.793	42.491	39.795	39.777
LEVEL DIFFERENCE	0.000	3.859	0.076	0.000
OFFSETS	-5.617	0.000	13.473	13.641

General Notes

Keys

- Baris
- Boundary lines
- Fence lines
- Gates
- Curbs
- Proposed design
- Existing ground
- Design footprint

TEC 1000

Alignment / Change

Vertical Datum - To future

TYPICAL CROSS SECTION

Vertical Datum - To future

Coordinate System is based on NZTM 1950

Vertical Datum is based on NZVD 1916

CIVIL PROJECT SOLUTIONS

Designed by: CPS BREW 10/2025

Drawn by: P. H. H. H. 13/2025

Checked by: D. H. H. H. 23/2025

1	SMB S. sub. & correction	2025
2	Western Side Extension	2025
3	Proposed 600mm	2025
4	Local 600mm	2025
5	Proposed 600mm	2025

GISBORNE PROJECT CONSULTANTS

CPS

WAIPAOA - WESTERN SIDE

TE KARAKA - TOWNSHIP

PROPOSED NEW STOPBANK CROSS SECTIONS

Project: GDC

Date: 03.03.2026

Scale: 1:500 @ A3

Sheet: 17

General Notes																
Keys 																
																
ALTA 2009 Alignment / Drainage Violesse river - Le Farinet																
TYPICAL CROSS SECTION (see page 2)																
																
Coordinate System is term of : NZTD 2018 Vertical Datum is term of : NZVD 1988																
GOAL ORIENTED SOLUTIONS																
Submitted by :	CPS / URBAN 01/2025															
Drawn by :	P.J.A.M.G.E.T 23/2/2025															
Checked by :	D.M.O.L.I 23/2/2025															
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 5%;">No.</th> <th style="width: 85%;">SHE & SCALE / revision</th> <th style="width: 10%;">DATE</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td>Western Side Extension</td> <td style="text-align: center;">2026</td> </tr> <tr> <td style="text-align: center;">2</td> <td>Freeway 600m</td> <td style="text-align: center;">2026</td> </tr> <tr> <td style="text-align: center;">3</td> <td>Lower side SH 2025</td> <td style="text-align: center;">2025</td> </tr> <tr> <td style="text-align: center;">No.</td> <td>Revision/Scale</td> <td style="text-align: center;">Date</td> </tr> </tbody> </table>		No.	SHE & SCALE / revision	DATE	1	Western Side Extension	2026	2	Freeway 600m	2026	3	Lower side SH 2025	2025	No.	Revision/Scale	Date
No.	SHE & SCALE / revision	DATE														
1	Western Side Extension	2026														
2	Freeway 600m	2026														
3	Lower side SH 2025	2025														
No.	Revision/Scale	Date														
																
GISBORNE City of Gisborne Te Kaitiaki o Te Aitanga-a-Māhori																
CPS Civil Planning Solutions																
WAIPIA - WESTERN SIDE TE KARAKA - TOWNSHIP P PROPOSED NEW STOPBANK CROSS SECTIONS																
Project :	GDC															
Date :	18 03 2026															
Time :	1:500 @ A3															

Chainage 3180.000
Datum: 35.000



Total Volume of Station 3-180.00
Cut Vol 0.00
Fill Vol 1368.47

PROPOSED LEVELS	43.355	45.728	39.657
EXISTING LEVELS	43.355	43.205	39.057
LEVEL DIFFERENCE	0.000	4.523	0.000
OFFSETS	-8.646	0.000	15.242

Chainage 3200.000
Datum: 35.000



Total Volume of Station 3-200.00
Cut Vol 0.00
Fill Vol 1758.93

PROPOSED LEVELS	43.542	45.743	39.353
EXISTING LEVELS	43.542	42.550	39.353
LEVEL DIFFERENCE	0.000	3.594	0.000
OFFSETS	-8.303	0.000	14.681

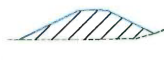
Chainage 3220.000
Datum: 35.000



Total Volume of Station 3-220.00
Cut Vol 0.00
Fill Vol 930.49

PROPOSED LEVELS	41.789	45.793	40.028
EXISTING LEVELS	41.789	41.784	40.028
LEVEL DIFFERENCE	0.000	1.784	0.000
OFFSETS	-9.641	-7.283	13.362

Chainage 3240.000
Datum: 35.000



Total Volume of Station 3-240.00
Cut Vol 0.00
Fill Vol 865.61

PROPOSED LEVELS	41.625	45.775	42.462
EXISTING LEVELS	41.625	41.616	42.462
LEVEL DIFFERENCE	0.000	1.177	0.000
OFFSETS	-10.199	-7.868	8.525

General Notes

Keys

- Top of Bank
- Bank
- Side-slip lines
- Face lines
- Gravel
- Carports
- Proposed design
- Existing ground
- Design footprint

1:2500

Alignment / Chaining: Waipara river - Te Karaka

TYPICAL CROSS SECTION
(see also E:\Documents\10078\10078.dwg)

Coordinates System is based on NZTM 2000
Vertical Datum is based on NZVD 2000

CIVIL PROJECT SOLUTIONS

Designed by: CPS LTD 10/2025

Drawn by: P FLAHERTY 03/2026

Checked by: B FODD 03/2026

1	SW 5 subark connection	2000
2	Western Side Carport	2000
3	Proposed design	2000
4	Lower side slip 2000	2125
5	Drawings/Notes	Copy

GISBORNE

 City Council

CPS

 Civil Project Solutions

WAIPARA - WESTERN SIDE

TE KARAKA - TOWNSHIP

PROPOSED NEW STOPBANK

CROSS SECTIONS

Project	GDC	Sheet	19
Date	03.03.2026		
Scale	1:500 @ A3		

Chainage 3260.000
Datum: 35.000

PROPOSED LEVELS					
EXISTING LEVELS	4.564.3	4.565.3	4.570.0	4.571.0	4.572.3
LEVEL DIFFERENCE	0.000	1.263	4.120	1.278	4.123
OFFSETS	-10.995	-7.648	0.000	7.539	90.036

Total Volume at Station 3+260.00	
Cut Vol	0.00
Fill Vol	931.24

Chainage 3300.000
Datum: 35.000

PROPOSED LEVELS					
EXISTING LEVELS	4.5596	4.5595	4.5630	4.5607	
LEVEL DIFFERENCE	0.000	1.176	3.986	1.116	0.000
OFFSETS	-10.376	-7.954	0.000	7.595	9.812

Total Volume at Station 3+300.00	
Cut Vol	0.00
Fill Vol	936.7

Chainage 3280.000
Datum: 35.000

PROPOSED LEVELS					
EXISTING LEVELS	4.1721	4.1721	4.1832	4.1806	4.1805
LEVEL DIFFERENCE	0.000	1.544	3.857	0.000	0.000
OFFSETS	-10.071	-6.761	0.000	9.582	

Total Volume at Station 3+280.00	
Cut Vol	0.00
Fill Vol	944.78

Chainage 3320.000
Datum: 35.000

PROPOSED LEVELS					
EXISTING LEVELS	4.1549	4.1533	4.1810	4.1801	4.1804
LEVEL DIFFERENCE	0.000	2.344	4.091	1.729	0.000
OFFSETS	-10.504	-5.949	0.000	6.642	10.093

Total Volume at Station 3+320.00	
Cut Vol	0.00
Fill Vol	995.35

General Notes

Keys

- Baris
- Boundary lines
- Frame lines
- Gates
- Curverts
- Proposed design
- Existing ground
- Design footprint

TECA 1000

Alignment / Chainage
Vertical curve: 10.00m

TYPICAL CROSS SECTION
4m wide & 0.5m high (100%)

Coordinate System is based on NZTM 2011
Vertical Datum is based on NZVD 2016

CIVIL PROJECT SOLUTIONS

Designed by: CPS CREW 10/2025
Drawn by: P. J. J. J. J. 13/2025
Checked by: D. J. J. J. 13/2025

1	W/S 5.0m & 10.0m	20.00
2	W/S 5.0m & 10.0m	20.00
3	W/S 5.0m & 10.0m	20.00
4	W/S 5.0m & 10.0m	20.00

GISBORNE
Infrastructure
CPS
Civil Project Solutions

WAIPOA - WESTERN SIDE
TE KARAKA - TOWNSHIP
PROPOSED NEW STOPBANK
CROSS SECTIONS

Project: GDC
Date: 03.03.2026
Scale: 1:500 @ A3

Sheet: 20

Chainage 3340.000
Datum: 35.000

PROPOSED LEVELS	4.1529	4.1529	4.1529	4.1529
EXISTING LEVELS	4.1534	4.1534	4.1534	4.1534
LEVEL DIFFERENCE	0.000	0.000	0.000	0.000
OFFSETS	-10.780	-8.775	0.000	10.251

Total Volume at Station 3+340.00	
Cut Vol	0.00
Fill Vol	516.63

Chainage 3380.000
Datum: 35.000

PROPOSED LEVELS	4.1993	4.1993	4.1993	4.1993
EXISTING LEVELS	4.2011	4.2011	4.2011	4.2011
LEVEL DIFFERENCE	0.000	0.000	0.000	0.000
OFFSETS	-10.083	-7.688	0.000	10.251

Total Volume at Station 3+380.00	
Cut Vol	0.00
Fill Vol	431.35

RANGATIRA ROAD CROSSING

Chainage 3360.288
Datum: 35.000

PROPOSED LEVELS	4.3417	4.3417	4.3417	4.3417
EXISTING LEVELS	4.3418	4.3418	4.3418	4.3418
LEVEL DIFFERENCE	-0.001	-0.001	-0.001	-0.001
OFFSETS	-7.137	-5.136	0.000	5.692

Total Volume at Station 3+360.29	
Cut Vol	0.00
Fill Vol	2.00

Chainage 3400.000
Datum: 35.000

PROPOSED LEVELS	4.1993	4.1993	4.1993	4.1993
EXISTING LEVELS	4.1993	4.1993	4.1993	4.1993
LEVEL DIFFERENCE	0.000	0.000	0.000	0.000
OFFSETS	-10.218	0.000	6.506	10.251

Total Volume at Station 3+400.00	
Cut Vol	0.00
Fill Vol	889.46

General Notes

Keys

- Boundary lines
- Face lines
- Curves
- Contours
- Proposed design
- Existing ground
- Design footprint
- Alignment of Chainage
- Vertical Datum - NZVD 2016

TYPICAL CROSS SECTION
at Chainage 3340.000

Coordinate System is NZTM 2016
Vertical Datum is NZVD 2016

CIVIL PROJECT SOLUTIONS

Surveyed by	CPS CREW	01/2025
Drawn by	P. J. J. J. J.	13/2025
Checked by	P. J. J. J. J.	13/2025

1	Sub S. side & intersection	2000
2	Western Side Extension	2000
3	Freemantle 600m	2000
4	Local side of 2000	2000

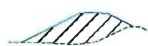
Scale: 1:500

Project Name: WAIPOA - WESTERN SIDE
TE KARAKA - TOWNSHIP
PROPOSED NEW STOPBANK
CROSS SECTIONS

Project: GDC
Date: 03.03.2026
Scale: 1:500 @ A3

21

Chainage 3420.000
Datum: 35.000



Total Volume at Station 3+420.00	
Cut Vol	8.96
Fill Vol	982.67

PROPOSED LEVELS	41.980	42.999	46.916	44.895
EXISTING LEVELS	41.980	41.938	42.811	44.895
LEVEL DIFFERENCE	0.000	1.061	4.105	0.000
OFFSETS	-16.875	-7.337	0.000	5.761

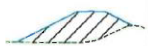
Chainage 3460.000
Datum: 35.000



Total Volume at Station 3+460.00	
Cut Vol	3.00
Fill Vol	864.43

PROPOSED LEVELS	41.695	44.869	46.349	44.477
EXISTING LEVELS	41.695	41.934	42.249	44.477
LEVEL DIFFERENCE	0.000	3.135	4.099	0.000
OFFSETS	-11.206	-5.859	0.000	5.844

Chainage 3440.000
Datum: 35.000



Total Volume at Station 3+440.00	
Cut Vol	8.80
Fill Vol	895.12

PROPOSED LEVELS	41.811	43.297	46.133	44.140
EXISTING LEVELS	41.811	41.799	41.934	44.140
LEVEL DIFFERENCE	0.000	14.498	4.199	0.000
OFFSETS	-16.542	-7.572	0.000	5.885

Chainage 3480.000
Datum: 35.000



Total Volume at Station 3+480.00	
Cut Vol	8.80
Fill Vol	973.68

PROPOSED LEVELS	42.292	44.421	46.145	44.206
EXISTING LEVELS	42.292	44.418	42.372	44.206
LEVEL DIFFERENCE	0.000	3.993	3.843	0.000
OFFSETS	-13.645	-5.678	0.000	5.899

General Notes

Keys

- Proposed design
- Existing ground
- Design footprints

Alignments / Chainage

Typical Cross Section

Coordinate System is based on NZTD 2011

Vertical Datum is based on NZVD 2016

Civil Project Solutions

Designed by: CPS (CPS) 10/10/2025

Drawn by: P. PLUMMER 13/10/26

Checked by: B. FORT 13/10/26

1	SR 5 subgrade construction	2936
2	Western Side Extension	2936
3	Proposed SR Extension	2936
4	Local net's SR 2225	2936
5	Proposed SR	2936

GISBORNE PROJECT CONSULTANTS

CPS

WAIPOA - WESTERN SIDE TE KARAKA - TOWNSHIP PROPOSED NEW STOPBANK CROSS SECTIONS

Project: GDC

Date: 03.03.2026

Scale: 1:500 @ A3

Page: 22

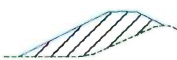
Chainage 3500.000
Datum: 35.000



Total Volume at Station 3-500.00	
Cut Vol	0.00
Fill Vol	1028.5

PROPOSED LEVELS	40.059	40.059	44.801	44.249
EXISTING LEVELS	40.059	40.078	42.969	44.249
LEVEL DIFFERENCE	0.000	1.720	0.000	0.000
OFFSETS	-14.144	-10.664	0.000	5.765

Chainage 3540.000
Datum: 35.000



Total Volume at Station 3-540.00	
Cut Vol	0.00
Fill Vol	175.16

PROPOSED LEVELS	39.868	39.868	44.249	44.249
EXISTING LEVELS	39.868	39.937	42.939	44.249
LEVEL DIFFERENCE	0.000	4.372	4.453	0.000
OFFSETS	-14.552	-5.790	0.000	5.853

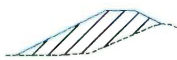
Chainage 3520.000
Datum: 35.000



Total Volume at Station 3-520.00	
Cut Vol	0.00
Fill Vol	154.25

PROPOSED LEVELS	39.881	39.881	44.887	44.224
EXISTING LEVELS	39.881	41.739	44.224	44.224
LEVEL DIFFERENCE	0.000	4.448	0.000	0.000
OFFSETS	-14.575	0.000	0.000	5.824

Chainage 3560.000
Datum: 35.000



Total Volume at Station 3-560.00	
Cut Vol	0.00
Fill Vol	1087.86

PROPOSED LEVELS	39.848	39.848	44.196	44.238
EXISTING LEVELS	39.848	39.845	41.157	44.238
LEVEL DIFFERENCE	0.000	1.612	4.234	0.000
OFFSETS	-14.648	-114.208	0.000	5.773

General Notes

Keys

- Barriers
- Boundary lines
- Face lines
- Cuts
- Fill areas
- Proposed design
- Existing ground
- Design footprints

TECA 1000 Alignment / Drainage

Typical Cross Section

Coordinate System is based on NZTD 2011

Vertical Datum is based on NZVD 1988

Civil Project Solutions

Designed by: CPS CIVIL 15/03/2025

Drawn by: P. RAGGIONE 15/03/2025

Checked by: D. RAGGIONE 15/03/2025

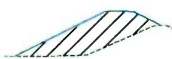
1	SH2 Stopbank connection	2026
2	Western Side Extension	2026
3	Freeway 800m	2026
4	Local area SH 2025	2025

WAIPOA - WESTERN SIDE
TE KARAKA - TOWNSHIP
PROPOSED NEW STOPBANK
CROSS SECTIONS

Scale: 1:500 @ A3

Page: 23

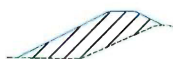
Chainage 3580.000
Datum: 35.000



Total Volume at Station 3-580.00	
Cut Vol	0.00
Fill Vol	1232.40

PROPOSED LEVELS				
EXISTING LEVELS	39.862	39.850	41.327	
LEVEL DIFFERENCE	0.000	1.477	4.228	44.203
OFFSETS	-15.591	-11.652	0.000	5.843

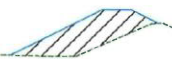
Chainage 3620.000
Datum: 35.000



Total Volume at Station 3-620.00	
Cut Vol	0.00
Fill Vol	1236.40

PROPOSED LEVELS				
EXISTING LEVELS	39.731	39.731	42.906	
LEVEL DIFFERENCE	0.000	0.000	3.395	44.207
OFFSETS	-14.768	-8.269	0.000	5.895

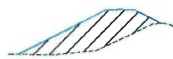
Chainage 3600.000
Datum: 35.000



Total Volume at Station 3-600.00	
Cut Vol	0.00
Fill Vol	1213.15

PROPOSED LEVELS				
EXISTING LEVELS	39.751	39.751	42.074	44.241
LEVEL DIFFERENCE	0.000	0.000	4.134	5.826
OFFSETS	-14.876	0.000	0.000	5.826

Chainage 3640.000
Datum: 35.000



Total Volume at Station 3-640.00	
Cut Vol	0.00
Fill Vol	1094.70

PROPOSED LEVELS				
EXISTING LEVELS	39.971	39.971	42.896	44.249
LEVEL DIFFERENCE	0.000	0.000	2.893	5.573
OFFSETS	-14.384	-8.573	0.000	5.573

General Notes

Keys

- Boundary lines
- Proposed design
- Existing ground
- Design footprint
- Alignment / Drainage
- Wapiti River - To Karaka

TYPICAL CROSS SECTION
1:1000 (1:1000)

Coordinate System in terms of NZTM 2008
Vertical Datum in terms of NZVD 2008

CIVIL PROJECT SOLUTIONS

Designed By: EPS (RSM) 07/2025
Drawn By: P. J. A. B. 13/2025
Checked By: D. F. C. 09/2026

1	SW 5 m x 5 m concrete	2000
2	Western Side Carriageway	2000
3	Proposed 400mm	2000
4	Lane 1000 x 1000	2000
5	Proposed/As-built	2000

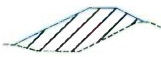
GISBORNE
CITY COUNCIL
CPS
CITY ENGINEER

WAIPIKA - WESTERN SIDE
TE KARAKA - TOWNSHIP
PROPOSED NEW STOPBANK
CROSS SECTIONS

Project: GDC
Date: 03.03.2026
Scale: 1:500 @ A3

Sheet: 24

Chainage 3660.000
Datum: 35.000



Total Volume at Station 3-660.00
Cut Vol 0.03
Fill Vol 106184

PROPOSED LEVELS	41.894	42.712
EXISTING LEVELS	41.894	42.456
LEVEL DIFFERENCE	0.000	0.256
OFFSETS	-12.232	-10.935

Chainage 3700.000
Datum: 35.000



Total Volume at Station 3-700.00
Cut Vol 6.08
Fill Vol 635.19

PROPOSED LEVELS	42.306	44.451
EXISTING LEVELS	42.306	42.370
LEVEL DIFFERENCE	0.000	2.081
OFFSETS	-9.837	-5.544

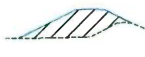
Chainage 3680.000
Datum: 35.000



Total Volume at Station 3-680.00
Cut Vol 6.00
Fill Vol 301.76

PROPOSED LEVELS	41.879	41.291
EXISTING LEVELS	41.879	43.328
LEVEL DIFFERENCE	0.000	2.701
OFFSETS	-10.723	5.756

Chainage 3720.000
Datum: 35.000



Total Volume at Station 3-720.00
Cut Vol 3.80
Fill Vol 836.81

PROPOSED LEVELS	42.716	44.411
EXISTING LEVELS	42.716	42.807
LEVEL DIFFERENCE	0.000	2.244
OFFSETS	-10.347	-5.598

General Notes

Keys

- Barriers
- Secondary lines
- Face lines
- Gates
- Cusps
- Proposed design
- Existing ground
- Design footprint
- Alignment / Chainage
- Vertical curve - To Town

TYPICAL CROSS SECTION
4m WIDE STOPBANK (10m)

Coordinate System is based on NZTM 2000
Vertical Datum is based on NZVD 2000

CIVIL PROJECT SOLUTIONS

Designed by: JPS DESIGN 10/2025
Drawn by: PFLAHEKE 13/2/2026
Checked by: DFOC 13/2/2026

1	5m Stopbank connection	2000
2	Western Side Extension	2000
3	Proposed 600m	2000
4	Local Govt Site 2025	2025
5	Proposed/Actual	1000

GISBORNE
INFRASTRUCTURE
Te Kaitiaki o Te Taiohanga

CPS
Civil Project Solutions

WAIPOA - WESTERN SIDE
TE KARAKA - TOWNSHIP
PROPOSED NEW STOPBANK
CROSS SECTIONS

Project: GDC
Date: 03.03.2026
Scale: 1:500 @ A3

25

Chainage 3740.000
Datum: 35.000



Total Volume at Station 3740.00
Cut Vol 1.80
Fill Vol 723.25

PROPOSED LEVELS	42.349	46.245	44.438	48.644
EXISTING LEVELS	42.149	43.536	43.159	40.644
LEVEL DIFFERENCE	0.000	2.709	0.989	0.000
OFFSETS	-10.000	0.000	5.514	13.095

Chainage 3780.000
Datum: 35.000



Total Volume at Station 3780.00
Cut Vol 0.00
Fill Vol 690.34

PROPOSED LEVELS	42.280	46.255	44.270	
EXISTING LEVELS	42.280	42.544	44.270	
LEVEL DIFFERENCE	0.000	3.715	0.000	
OFFSETS	-9.844	0.000	5.875	

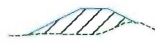
Chainage 3760.000
Datum: 35.000



Total Volume at Station 3760.00
Cut Vol 9.00
Fill Vol 793.91

PROPOSED LEVELS	42.354	43.008	46.251	41.347	41.333
EXISTING LEVELS	42.354	42.559	43.803	41.347	41.333
LEVEL DIFFERENCE	0.000	0.449	2.448	0.000	0.000
OFFSETS	-9.664	-8.226	0.000	11.968	11.736

Chainage 3800.000
Datum: 35.000



Total Volume at Station 3800.00
Cut Vol 0.00
Fill Vol 695.91

PROPOSED LEVELS	42.575	43.459	46.261	44.292	
EXISTING LEVELS	42.575	42.718	42.692	44.292	
LEVEL DIFFERENCE	0.000	0.741	3.569	0.000	
OFFSETS	-9.324	-7.555	0.000	5.799	

Key --- Boundary lines --- Fence lines --- Gates --- Culverts --- Proposed design --- Existing ground --- Design footpath --- Aligned / Chained --- Existing road		
TYPICAL CROSS SECTION as per B1000000000		
Coordinate System is based on NZTM 2009 Vertical Datum is based on NZVD 2006		
Civil Project Solutions Designed by: CPS BREW 02/2025 Drawn by: P. PILLAI/GEAR 03/2026 Checked by: D. FOLEY 03/2026		
1	SHE 5 substation connection	2000
2	Western Side Extension	2000
3	Freeway 600m	2000
4	Local roads for 2025	2025
5	Proposed/Actual	Current
GISBORNE City of Gisborne CPS City of Gisborne		
WAIPOA - WESTERN SIDE TE KARAKA - TOWNSHIP PROPOSED NEW STOPBANK CROSS SECTIONS		
Project: GDC Date: 03.03.2026 Scale: 1:500 @ A3	Sheet: 26	

Chainage 3820.000
Datum: 35.000

PROPOSED LEVELS	42.495	42.565	44.281
EXISTING LEVELS	42.495	42.527	44.281
LEVEL DIFFERENCE	0.000	0.038	0.000
OFFSETS	-9.674	0.000	5.664

Total Volume at Station 3+820.00
Cut Vol 0.00
Fill Vol 951.19

Chainage 3860.000
Datum: 35.000

PROPOSED LEVELS	42.565	42.593	44.281
EXISTING LEVELS	42.565	42.593	44.281
LEVEL DIFFERENCE	0.000	0.000	0.000
OFFSETS	-9.694	0.000	5.278

Total Volume at Station 3+860.00
Cut Vol 0.00
Fill Vol 874.49

Chainage 3840.000
Datum: 35.000

PROPOSED LEVELS	42.419	42.457	44.379
EXISTING LEVELS	42.419	42.457	44.379
LEVEL DIFFERENCE	0.000	0.000	0.000
OFFSETS	-9.975	0.000	5.379

Total Volume at Station 3+840.00
Cut Vol 0.00
Fill Vol 302.19

Chainage 3880.000
Datum: 35.000

PROPOSED LEVELS	42.710	42.710	44.412
EXISTING LEVELS	42.710	42.710	44.412
LEVEL DIFFERENCE	0.000	0.000	0.000
OFFSETS	-9.437	0.000	5.201

Total Volume at Station 3+880.00
Cut Vol 0.00
Fill Vol 421.78

General Notes

Keys

- Boundary lines
- Proposed design
- Existing ground
- Design footprint

Alignment / Chainage
Vertical Datum: NZVD 2016

TYPICAL CROSS SECTION
on ARCH BROADWAY (100%)

Coordinate System is based on: NZTM 2019
Vertical Datum is based on: NZVD 2016

Civil Project Solutions

Designed by: CPS CREW 01/2025
Drawn by: P. HARRIS 03/2026
Checked by: B. FOLEY 03/2026

1	Sub 5m wide concrete	200
2	Western Side Carriageway	200
3	Proposed 800mm	200
4	Lower side for 200	200
5	Proposed 800mm	200

GISBORNE DISTRICT COUNCIL
Te Kaitiaki a Te Tairāwhiti
CPS
Civil Project Solutions

WAIPOA - WESTERN SIDE
TE KARAKA - TOWNSHIP
PROPOSED NEW STOPBANK
CROSS SECTIONS

Project: GDC
Date: 03.03.2026
Scale: 1:500 @ A3

27

Chainage 3900.000
Datum: 35.000

PROPOSED LEVELS		42.737	44.421	
EXISTING LEVELS		42.737	42.852	44.489
LEVEL DIFFERENCE		0.000	1.624	0.000
OFFSETS	-9.377	-6.976	0.000	5.124

Total Volume at Station 3+900.00
Cut Vol 0.00
Fill Vol 806.36

Chainage 3940.000
Datum: 35.000

PROPOSED LEVELS		42.772	43.688	44.294
EXISTING LEVELS		42.772	42.738	42.843
LEVEL DIFFERENCE		0.000	0.951	1.451
OFFSETS	-9.276	-7.714	0.000	5.175

Total Volume at Station 3+940.00
Cut Vol 0.00
Fill Vol 596.83

Chainage 3920.000
Datum: 35.000

PROPOSED LEVELS		42.725	44.286	
EXISTING LEVELS		42.725	42.831	44.522
LEVEL DIFFERENCE		0.000	3.455	0.000
OFFSETS	-9.355	0.000	5.106	

Total Volume at Station 3+920.00
Cut Vol 0.00
Fill Vol 586.05

Chainage 3960.000
Datum: 35.000

PROPOSED LEVELS		42.706	44.392	
EXISTING LEVELS		42.706	42.857	44.597
LEVEL DIFFERENCE		0.000	3.445	0.000
OFFSETS	-9.184	0.000	5.229	

Total Volume at Station 3+960.00
Cut Vol 0.00
Fill Vol 548.96

General Notes

Keys

- Backs
- Secondary lines
- Face lines
- Gravel
- Contours
- Proposed design
- Existing ground
- Design footprint

Alignment / Chainage
Vertical curve - Te Karaka

TYPICAL CROSS SECTION
en route STOPBANK (CROSS)

Coordinate system is based on NZTM 2000
Vertical Datum is based on NZVD 2016

CIVIL PROJECT SOLUTIONS		
Surveyed by	CPS CREW	02/2025
Drawn by	P. FLAHERTY	03/2025
Checked by	D. FOLEY	03/2025

1	SUB 5 substation connection	2006
2	Western Side Extension	2006
3	Proposed 600mm	2006
4	1:1000 scale Set 2025	2025
5	Plan view/section	2025

GISBORNE
CITY COUNCIL
Te Kaitiaki o Te Taumata

CPS
CITY PLANNING SOLUTIONS

WAIPOA - WESTERN SIDE
TE KARAKA - TOWNSHIP
PROPOSED NEW STOPBANK
CROSS SECTIONS

Project	GDC	Sheet	28
Date	03.03.2026		
Scale	1:500 @ A3		

Chainage 3980.000
Datum: 35.000

PROPOSED LEVELS	42.773	43.079	44.300	44.585
EXISTING LEVELS	42.773	42.786	42.568	44.533
LEVEL DIFFERENCE	0.000	0.293	1.732	0.052
OFFSETS	-8.873	-8.361	0.000	5.356

Total Volume at Station 3980.00	
Cut Vol	0.00
Fill Vol	375.67

Chainage 4020.000
Datum: 35.000

PROPOSED LEVELS	43.001	44.678	44.300	44.612
EXISTING LEVELS	43.001	43.021	42.568	44.612
LEVEL DIFFERENCE	0.000	1.657	1.732	0.000
OFFSETS	-8.426	-5.955	0.000	5.310

Total Volume at Station 4020.00	
Cut Vol	0.00
Fill Vol	555.55

Chainage 4000.000
Datum: 35.000

PROPOSED LEVELS	42.962	43.052	44.315	44.611
EXISTING LEVELS	42.964	42.952	43.091	44.611
LEVEL DIFFERENCE	0.000	0.000	1.224	0.000
OFFSETS	-8.661	-8.426	0.000	5.319

Total Volume at Station 4000.00	
Cut Vol	0.00
Fill Vol	558.95

Chainage 4040.000
Datum: 35.000

PROPOSED LEVELS	43.305	43.975	44.315	44.608
EXISTING LEVELS	43.305	43.306	43.374	44.608
LEVEL DIFFERENCE	0.000	0.669	0.941	0.000
OFFSETS	-7.936	-5.595	0.000	5.342

Total Volume at Station 4040.00	
Cut Vol	0.00
Fill Vol	605.44

General Notes

Key

- Banks
- Boundary lines
- Face lines
- Gates
- Contours
- Proposed design
- Existing ground
- Design footprint
- Alignment / Drainage
- Waipaoa river - Te Karaka

TYPICAL CROSS SECTION
4m WIDE STOPBANK (10% SLOPE)

Coordinate System is based on NZTM 2011
Vertical Datum is based on NZVD 2016

Civil Project Solutions

Designed by: CPS GROUP 10/2025
Drawn by: P. FLAHERTY 15/2025
Checked by: D. FOOT 13/2025

1	SH 5 to SH 2 Connection	2236
2	Western Side Carriageway	2036
3	Footpath 400m	2036
4	Lower side Set 2025	2123
5	Proposed Road	2123

GISBORNE
PROJECT CONSULTANTS
Te Karaka to Te Puke Road

CPS
Civil Project Solutions

WAIPAOA - WESTERN SIDE
TE KARAKA - TOWNSHIP
PROPOSED NEW STOPBANK
CROSS SECTIONS

Scale: 1:500 @ A3

Date: 03.03.2026

Page: 29

Chainage 4060.000
Datum: 35.000



Total Volume of Station 4+060.00	
Cut Vol	0.00
Fill Vol	402.52

PROPOSED LEVELS	43.596	43.596	44.331	44.539
EXISTING LEVELS	43.592	43.594	43.899	44.682
LEVEL DIFFERENCE	0.000	0.000	0.432	-0.143
OFFSETS	-7.378	-7.371	0.000	5.197

Chainage 4100.000
Datum: 35.000



Total Volume of Station 4+100.00	
Cut Vol	0.00
Fill Vol	310.06

PROPOSED LEVELS	43.888	43.888	44.377	44.535
EXISTING LEVELS	43.888	43.893	43.818	45.046
LEVEL DIFFERENCE	0.000	0.005	0.559	-0.511
OFFSETS	-6.796	-5.937	0.000	4.479

Chainage 4080.000
Datum: 35.000



Total Volume of Station 4+080.00	
Cut Vol	0.00
Fill Vol	325.64

PROPOSED LEVELS	44.894	44.894	44.954	44.954
EXISTING LEVELS	44.894	44.783	44.954	44.954
LEVEL DIFFERENCE	0.000	0.111	0.000	0.000
OFFSETS	-4.558	0.000	4.662	4.662

Chainage 4120.000
Datum: 35.000



Total Volume of Station 4+120.00	
Cut Vol	0.00
Fill Vol	495.31

PROPOSED LEVELS	43.897	43.897	44.708	44.339
EXISTING LEVELS	43.897	43.776	44.398	44.339
LEVEL DIFFERENCE	0.000	0.121	0.310	0.000
OFFSETS	-6.782	-5.160	0.000	7.418

General Notes

Key

- Baris
- Boundary lines
- Face lines
- Grates
- Curbs
- Proposed design
- Existing ground
- Design footprint

Alignment / Chainage
Station 4+000.00

TYPICAL CROSS SECTION
4+000.00 (CHAINAGE)

Coordinate system is that of NZTM 2008
Vertical Datum is that of NZVD 1988

CIVIL PROJECT SOLUTIONS		
Surveyed by	GPS (GPS)	02/2025
Drawn by	P. FLAHERTY	24/2025
Checked by	D. FOLEY	03/2026

No.	Description/Notes	Level
1	SW 5' subgrade correction	2008
2	Western Side Extension	2008
3	Proposed 800mm	2008
4	Lower side Slope 2008	2008

GISBORNE DISTRICT COUNCIL
Te Kaitiaki o Te Taumata

CPS
Civil Project Solutions

WAIPOA - WESTERN SIDE
TE KARAKA - TOWNSHIP
PROPOSED NEW STOPBANK
CROSS SECTIONS

Scale	QDC	Sheet	30
Date	03.03.2026		
Scale	1:500 @ A3		

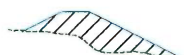
Chainage 4140 000
Datum: 35 000



Total Volume at Station 6+140.03	
Cut Vol	0.00
Fill Vol	599.32

PROPOSED LEVELS					
EXISTING LEVELS					
LEVEL DIFFERENCE					
OFFSETS					

Chainage 4160.000
Datum: 35.000



Total Volume at Station + 160.00	
Cut Vol	0.23
Fill Vol	885.40

[illegible]

Chainage 4180 000
Datum: 35.000



Total Volume at Station 4+190.00	
Cut Vol	0.29
Fill Vol	962.13

PROPOSED LEVELS				
	0.000	43.349	43.349	
		43.350	43.707	
EXISTING LEVELS				
			43.372	44.344
LEVEL DIFFERENCE				
	0.000	0.485	1.371	1.060
		0.000	4.013	4.003
OFFSETS				
	-2.118			
		-1.714		
			0.000	
				10.564
				12.990

Chainage 4200.000
Datum: 35.000



Total Volume at Station 4=200.00	
Cut Vol	0.00
Fill Vol	0.00

PROPOSED LEVELS	43,036	44,556	46,346	48,362
EXISTING LEVELS	43,036	43,725	43,597	42,533
LEVEL DIFFERENCE	0.000	0.830	2.754	1.898
OFFSETS	-6.720	-5.440	0.000	5.868

General Notes																
Flags																
	Banks															
Boundary lines																
Fence lines																
	Gates															
Culverts																
Proposed design																
Existing ground																
Design landscape																
TEA WFO Alignment / Drainage Wapiti River - to Lakes																
TYPICAL CROSS SECTION See annex A - Elevation history 																
Coordinates System in terms of : NZTM 2000 Vertical datum in terms of : NZVD 2000																
CIVIL PROJECT TOWNSHIPS <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Surveyed by :</td> <td>DPS 100 MW</td> <td>07/2025</td> </tr> <tr> <td>Drawn by :</td> <td>P. J. K. 000 MW</td> <td>10/2025</td> </tr> <tr> <td>Checked by :</td> <td>D. J. 000 MW</td> <td>03/2026</td> </tr> </table>		Surveyed by :	DPS 100 MW	07/2025	Drawn by :	P. J. K. 000 MW	10/2025	Checked by :	D. J. 000 MW	03/2026						
Surveyed by :	DPS 100 MW	07/2025														
Drawn by :	P. J. K. 000 MW	10/2025														
Checked by :	D. J. 000 MW	03/2026														
1. S105 S104000 connection <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 5%;">C</td> <td style="width: 85%;">S105 S104000 connection</td> <td style="width: 10%;">2026</td> </tr> <tr> <td>2</td> <td>Western Side Culvert</td> <td>2026</td> </tr> <tr> <td>3</td> <td>Proposed culvert</td> <td>2026</td> </tr> <tr> <td>4</td> <td>Lake area, 1st 2026</td> <td>2026</td> </tr> <tr> <td>No.</td> <td>Proposed culvert</td> <td>2026</td> </tr> </table>		C	S105 S104000 connection	2026	2	Western Side Culvert	2026	3	Proposed culvert	2026	4	Lake area, 1st 2026	2026	No.	Proposed culvert	2026
C	S105 S104000 connection	2026														
2	Western Side Culvert	2026														
3	Proposed culvert	2026														
4	Lake area, 1st 2026	2026														
No.	Proposed culvert	2026														
Our New and Old  GISBORNE PROJECT COUNCIL Te Kaitiaki o Te Taiwhiri CPS Civil Project Council																
Project Name and Address WAIPOA - WESTERN SIDE TE KAITI - TOWNSHIP PROPOSED NEW STOPBANK CROSS SECTIONS																
Project	GDC	Road														
Date	03/03/2026	31														
Scale	1:5000 @ A3															

Chainage 4220.000
Datum: 35.000



Total Volume at Station 4220.00
Cut Vol 0.00
Fill Vol 574.85

PROPOSED LEVELS	43.737	43.888	44.348	43.429
EXISTING LEVELS	43.938	43.788	43.681	43.383
LEVEL DIFFERENCE	-0.201	0.101	0.665	0.045
OFFSETS	-7.100	-6.818	0.000	7.738

Chainage 4260.000
Datum: 35.000



Total Volume at Station 4260.00
Cut Vol 2.58
Fill Vol 382.93

PROPOSED LEVELS	44.895	44.598	44.349	44.570
EXISTING LEVELS	44.916	44.506	44.200	44.001
LEVEL DIFFERENCE	-0.021	0.092	0.149	0.569
OFFSETS	-5.848	-5.761	0.000	5.905

Chainage 4240.000
Datum: 35.000



Total Volume at Station 4240.00
Cut Vol 2.12
Fill Vol 408.96

PROPOSED LEVELS	43.837	44.350	44.601	43.591
EXISTING LEVELS	44.517	43.938	43.596	43.591
LEVEL DIFFERENCE	-0.680	0.412	0.005	0.000
OFFSETS	-6.925	0.000	7.392	7.412

Chainage 4280.000
Datum: 35.000



Total Volume at Station 4280.00
Cut Vol 0.00
Fill Vol 329.14

PROPOSED LEVELS	44.561	44.350	44.600	44.349
EXISTING LEVELS	44.561	44.554	44.350	44.349
LEVEL DIFFERENCE	0.000	0.196	0.250	0.000
OFFSETS	-5.479	0.000	5.384	5.924

General Notes

Keys

- Backs
- Boundary lines
- Face lines
- Gates
- Contours
- Proposed design
- Existing ground
- Design footprint
- Alignment / Chaining
- Vertical curve - To Curve

TYPICAL CROSS SECTION
4m wide STOPBANK (100%)

Coordinate System - is based on NZTM 2009
Vertical Datum is based on NZVD 1988

GENERAL PROJECT INFORMATION

Designed by: CPS CREW 12/2025
Drawn by: P. FLAHERTY 13/2026
Checked by: D. FOLEY 13/2026

1	SW 5 m wide 8 connection	2000
2	Western Side Connection	2000
3	Frontward 800mm	2000
4	Local data Set 2025	2025
5	Proposed design	2026

GISBORNE
PROJECT CONSULTANTS
To Kaitiaki & Te Pūkeko

CPS
CITY PLANNING SERVICES

**WAIPOA - WESTERN SIDE
TE KARAKA - TOWNSHIP
PROPOSED NEW STOPBANK
CROSS SECTIONS**

Project: GDC
Date: 03.03.2026
Scale: 1:500 @ A3

32

Chainage 4300.000
Datum: 35.000

PROPOSED LEVELS	44.760	44.760	44.350	44.191	43.506
EXISTING LEVELS	44.760	44.306	44.306	43.626	43.506
LEVEL DIFFERENCE	0.000	2.264	0.765	0.000	0.000
OFFSETS	-5.000	0.000	6.234	7.603	

Total Volume at Station 4+300.00	
Cut Vol	0.00
Fill Vol	329.28

Chainage 4340.000
Datum: 35.000

PROPOSED LEVELS	44.903	44.350	43.790	43.081	39.790
EXISTING LEVELS	44.904	42.357	39.476	39.169	39.790
LEVEL DIFFERENCE	-0.001	3.993	4.254	1.662	-0.001
OFFSETS	-4.787	0.000	7.131	12.970	16.013

Total Volume at Station 4+340.00	
Cut Vol	0.00
Fill Vol	391.68

Chainage 4320.000
Datum: 35.000

PROPOSED LEVELS	44.963	44.350	44.721	44.312	43.893
EXISTING LEVELS	44.963	44.599	43.968	43.241	43.898
LEVEL DIFFERENCE	0.000	1.751	0.753	0.071	0.005
OFFSETS	-4.556	0.000	5.141	11.959	17.787

Total Volume at Station 4+320.00	
Cut Vol	0.00
Fill Vol	339.14

Chainage 4355.963
Datum: 35.000

PROPOSED LEVELS	45.321	44.350	41.409	39.346
EXISTING LEVELS	45.581	42.805	39.477	39.346
LEVEL DIFFERENCE	0.000	3.545	1.984	0.000
OFFSETS	-3.561	0.000	11.788	15.908

Total Volume at Station 4+355.96	
Cut Vol	0.00
Fill Vol	971.56

General Notes

Keys

- Barbs
- Boundary lines
- Centre lines
- Contours
- Proposed design
- Existing ground
- Design footprint
- Alignment / Chaining
- Stationing

TYPICAL CROSS SECTION

Coordinate System is based on NZTM 2009

Vertical Datum is based on NZVD 1988

Civil Project Solutions

Designed by: CPS CREW 10/2025

Drawn by: P. FLAUGHER 03/2026

Checked by: D. FORTIS 03/2026

4	SHB 5 substation connection	2000
5	Western Side Carriageway	2000
2	Proposed 600mm	2000
1	Local centre line 2025	2025
10	Proposed/Actual	1000

GISBORNE DISTRICT COUNCIL
Te Kaitiaki o Te Taumatawhi

CPS
Civil Project Solutions

WAIPOA - WESTERN SIDE
TE KARAKA - TOWNSHIP
PROPOSED NEW STOPBANK
CROSS SECTIONS

Scale: 1:500 @ A3

Date: 03.03.2026

Sheet: 33



ghd.com

→ The Power of Commitment