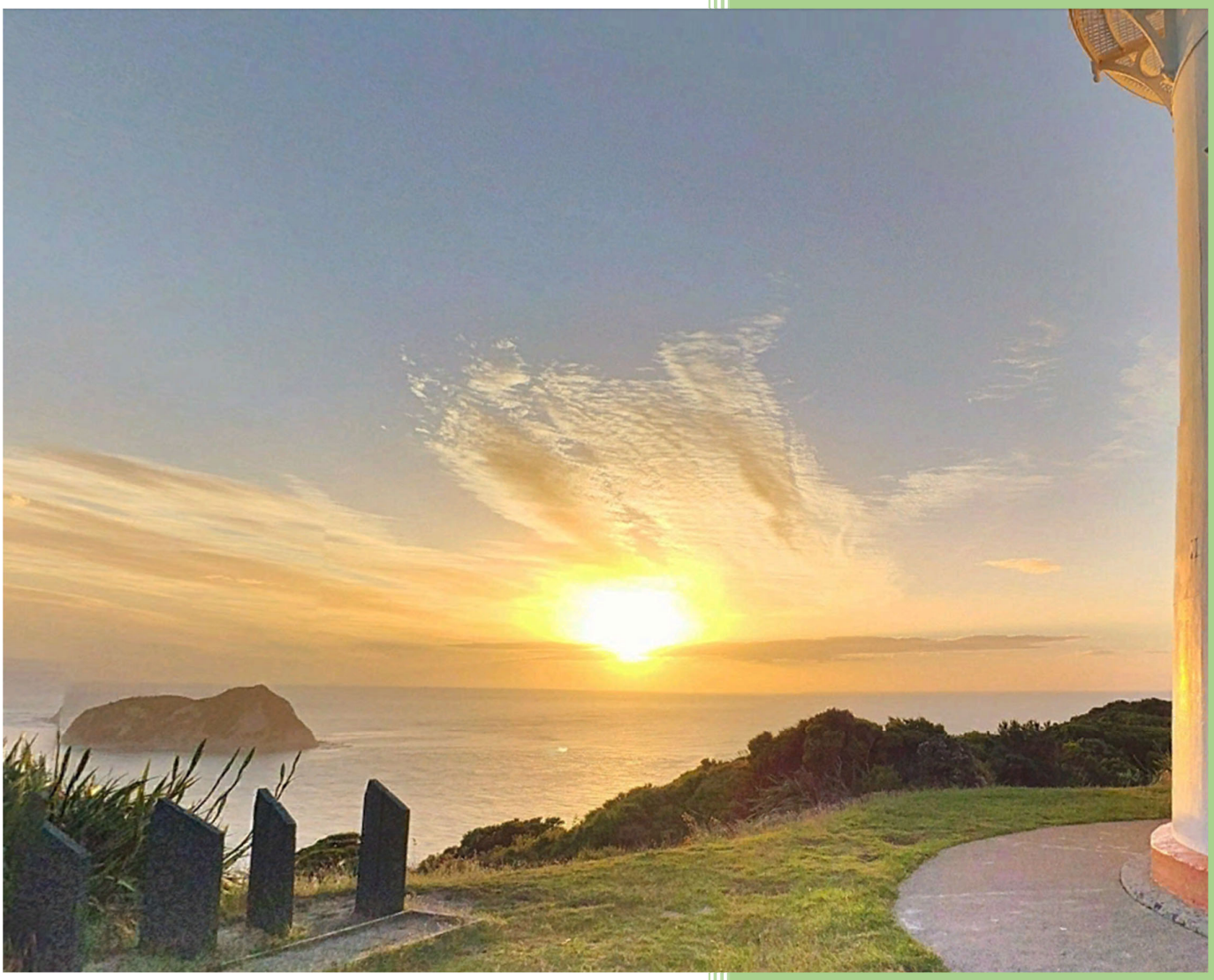
CPS
Civil Project Solutions

2024

Te Ara Tipuna Trailway



Zac Borrie
Civil Project Solutions
9/17/2024

Table of Contents

1 Introduction

This trailway is designed to enrich the cultural, social, and economic status of the east coast while providing incentive for activity upon completion and employment during and after construction. From the Rohe of Ngāti Porou and Te Whanau-a-Apanui encompassed by Gisborne and Opotiki this proposed 500km trailway hopes to carve a path for future generations.

The following report will cover:

- General design considerations for all civil works.
- Methodology for construction of the trailway with reference to specific cross section treatments proposed.
- Management of sensitive environments.
- Construction requiring specific design & consent.
- General environmental management.
- Health & Safety management.

2 Background

2.1 The Site

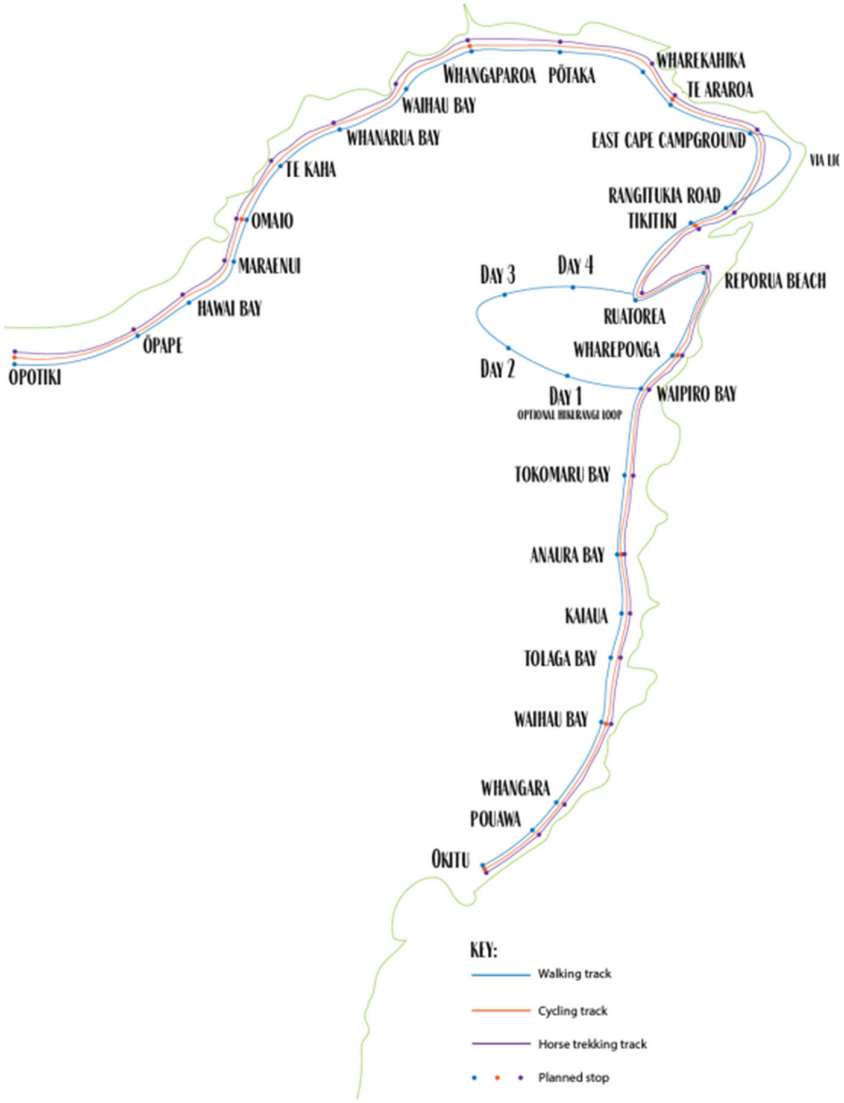


Figure 1: Te Ara Tipuna overview map (provided by Sport Gisborne Tairawhiti).

Te Ara Tipuna is the working title of this multi-layered project, literally meaning the ways of our forebears. It is a project to build and maintain the infrastructure of accessways for pedestrians, cyclists, and horse trekkers; local commuters, visitors, and whole-of-journey hikers, bikers, and riders. As with all kaupapa, it has layers of meaning. And it anticipates further layers of growth and development.

First, Te Ara Tipuna is an evocation of the ways of our ancestors. The way they practiced life and community; the way they interacted with the physical and metaphysical environment; the ways they used to move between

whanau and hapu, undertake activities, and connect with each other; the way they were in the world, in their time, and the cultural legacy they have left.

Second, Te Ara Tipuna is intended to restore connectivity and momentum in the daily life of those who live and work in-rohe, the iwi kaenga, the ahi ka, safe and independent of SH35. To be able to create local level enterprises and economic development, to save and share the stories of their wahi, to revitalise the pa kaenga as centres of activity and society, to be everyday kaitiaki of the ara and the people who traverse them, locals and manuhiri alike.

Third, Te Ara Tipuna, is the overall description of the proposed network of ara/accessways, connecting existing tracks, old and new, reviving unused trails, defunct paper roads, and encroachments, along with new mapping to create a continuous journey from one end of Te Tairawhiti to the other, through Ngati Porou and Te Whanau-a-Apanui.

Fourth, Te Ara Tipuna, provides the opportunity for a distinct tourism experience in the heart of Te Tairawhiti, on foot, cycle and horse trekking. It opens a part of Aotearoa New Zealand where tough terrain, beautiful beaches and bays are home to richly carved and decorated wharenui and wharekai, and people who know how to hunt, dive, fish, cook, haka, sing, tell long stories, sly jokes, and deliver fast and furious one-liners.

Fifth, Te Ara Tipuna can offer a warm welcome and unique manaaki experience – iwi to kiwi - to fellow New Zealanders to walk into a marae, prepare kai in the kauta, eat and wash dishes, yarn by the fire, sleep in the wharenui, and head off into the day and to the next equally proud hapu along the ara.

This Proposal focuses on the foundation layer of infrastructure to create and support the ara/accessways, that together make up Te Ara Tipuna network; and, subsequently to support the wider kaupapa.

2.2 Construction Activity

The following activity summary does not include any quantities/volumes for civil construction works. The table below outlines the various civil components which will be involved in the trailway construction along with construction considerations and best practices to ensure work is carried out in a safe manner with an environmental focus.

Feature	Summary Design Information
Earthworks	Earthworks will be kept to a minimum where possible. More extensive earthworks will be required where a compacted aggregate trail, lime stabilised trail, boardwalk or alternative formed surface will be installed. Removal of topsoil and some subgrade (if required) will be completed prior to backfilling and compacting with the selected clean engineered fill material. Large cuts of 1.5m or more and retaining structures will be avoided where possible with the natural contours of the land followed. The landscape architect, ecologist

	and geotechnical engineer will need to be consulted to determine natural regeneration capability and track resilience suitability. All earthworks will be conducted in a manner which takes into consideration, dust, sediment, and erosion controls. Excavated material will be kept onsite and utilised for landscaping or lost within the contours of the land where possible. Any material that needs to be taken offsite will be transported to an appropriate facility for disposal. Material will be assessed under the NESCS if required.
Stormwater	The track will maintain a level of cross fall that will allow stormwater flow across the track and towards the nearest drainage channel. During construction, the natural drainage channels will be preserved with any introduced structures allowing flow paths for water to continue to flow at pre-development levels. No existing stormwater flows will be restricted. Where culverts or drainage facilitating structures are introduced, these will be designed for a 1:100-year AEP event based on the NIWA Hirds 2081-2100 RCP8.5 predicted rainfall probability data. Culverts will be avoided underneath structures that traverse water courses.
Wastewater	All toilets installed are proposed to be compostable. The units are fully contained and do not produce any liquid/solid discharge to the surrounding environment. The location of these toilets shall be such that they are not within any culturally sensitive areas or areas in close proximity to drainage channels or watercourses. Where possible existing infrastructure will be utilised. These toilets shall be installed with consideration for servicing requirements. It is intended that servicing will be completed via small portable units where possible if vehicle access is not possible. Wastewater generated from hut basins/sinks will be appropriately disposed of in septic fields following local authority guidelines.
Water Supply	Water supply to huts and for any washing facilities will be supplied from onsite storage tanks in remote locations. Mains supply will be utilised where this is accessible.
Roading & Concrete Work	Concrete structures will only be installed where necessary with separate consents sought for these following any required detailed design. Any work within the state highway road corridor will be carried out as per NZTA guidelines with any work on local roads conducted as per the Local Authority requirements. Structural design and geotechnical input will be required for significant structures such as bridges.
Utilities	Power and fibre will be seldom required for any permanent structures on the track. Toilets proposed to be compostable, shelters will be kept to a timber standalone covered structure only, and any huts will look to utilise solar power.

Building Finished Floor Levels	Floor levels for any structures will be set to ensure water does not enter during a 1% AEP (Annual Exceedance Probability) event within the Coastal Environment or a 2% AEP event for areas outside the Coastal Environment. Council will determine the appropriate freeboard that needs to be added to the flood level to set the required minimum floor level. A building consent will be sought for each building structure prior to implementation where finished floor levels will be appropriately determined as above.

3 Construction Methodology

3.1 Overview

In aiming to keep with the natural environment and provide an immersive experience for users, approximately 90% (high level estimate) of the track is proposed to remain relatively untouched with the track composition to emulate that of a farm track. Where assessed as an appropriate location for providing a higher level of service, additional work will be conducted to construct a path comprised of aggregate, timber, or a widened and improved berm/road shoulder surface. It may also be practical in some areas to provide a concrete surface.

Section 3 below will provide a more detailed overview of the methodology for construction of each specified cross section (Appendix 1). General construction considerations will also be discussed in section 4 outlining best practice management for controlling and mitigating any adverse effects which may be presented to the contractor during physical works.

The Viridis ecological report should be read and referenced in conjunction with this CMP.

3.2 Typical Trail Cross Sections

3.1.1.1 Typical Trail Cross section 1

Typical cross section 1 shows the proposed raised boardwalk trail. This involves stripping away necessary vegetation and topsoil to allow construction of a raised wooden boardwalk that accommodates walkers. A lime stabilised track may run adjacent to this. Refer to note in 3.2.1.2.

The raised wooden boardwalk will have a series of augured holes typically 450mm in diameter ranging between 300-900mm below ground level. Any excavated topsoil and subgrade will be retained onsite where possible and used to landscape/re-establish any disturbed ground. If any ground water is encountered this will be dewatered to the nearest drainage channel prior to any concrete being poured. Prior to pouring any concrete, the piles should be inspected, and the shear strength tested as per geotechnical recommendations.

Should concrete trucks be required for pouring, access should be made as safe as possible with the appropriate traffic management in place. Any concrete spoil should be removed from site following completion of the work. Service locates should be completed prior to carrying out work which involves excavation greater than topsoil depth.

The lime stabilised track shall be constructed by first removing the vegetation and stripping the topsoil down to the subgrade. If required, the subgrade should be shaped appropriately to match existing contours and to suit natural stormwater flow paths. The wooden edging should then be installed along the track edges prior to backfilling with clean 20-40mm aggregate. This should be appropriately compacted as per the geotechnical report recommendations.

Note: It should be noted that the stabilisation of the track may not be required. During construction, the construction methodology of the route for cross sections 1 & 2 may omit the inclusion of stabilisation. It is deemed that this will introduce a greater level of maintenance and cost over the path's lifespan. In this instance, the construction of the route will be followed as per 3.2.1.3 below.

3.1.1.2 Typical Trail Cross Section 2

Cross section 2 is similar to cross section 1 with the key difference being its construction flush with the ground. Spacing in the joists allows stormwater runoff. Due to the height difference in relation to the adjacent track running parallel there is also the addition of a separation post on the edge of the ground level trail at approximately 100m intervals.

Cross section 2 supports will be augured 450mm wide and vary in depth between 300-900mm below ground level. Excavated topsoil and subgrade will be reused where possible in the surrounding landscape or in re-establishment of the area, excess will be disposed of in approved landfill site. Placement/removal of concrete should be carried out as outlined in 3.2.1.1 above.

An approved traffic management plan shall be implemented with any required service locations complete prior to commencement. Construction of the lime stabilised track should follow the recommendations as set out in 3.2.1.1 above. Note: Stabilisation will only be completed if deemed required – confirm with geotechnical engineer prior to construction.

3.1.1.3 Typical Trail Cross Section 3

Cross section 3 is a simplification of the ground level trail utilised in 3.2.1.1 and 3.2.1.2 above, with the removal of the lime stabilisation. This will retain resilient character without the same degree of cost/difficulty in relation to maintenance.

Construction will involve initial vegetation clearance and topsoil stripping as per 3.2.1.1 & 3.2.1.2 above. Due to the increased track width, care should be taken to avoid over excavation during adverse weather as this may lead to excessive ponding and softening of the subgrade. Wooden edging should be installed prior to the placement of 20-40mm aggregate. Consistent compaction should be targeted across the width of the track with care taken not to overuse the vibrating element of the compaction equipment as this may cause water to pump up from the subgrade into this base course layer ruining the integrity.

Softer areas or any unforeseen discoveries should be noted to the geotechnical engineer. Cross fall of 2-3% minimum should aim to be achieved to ensure no ponding occurs on the track.

Care should be taken to avoid spoil entering the water course with erosion and sediment protection installed as required when working in close proximity to waterbodies.

3.1.1.4 Typical Trail Cross Section 4 & 5

Standard track 1 and 2 will be interchangeable being constructed based on the type of terrain. In areas where growth is significant (use cross section 5) the overgrown grass/vegetation will be removed and cut back to a similar length to that of a mown track. Due to this then being distinguishable from the surrounding environment it can be maintained at this length with no further need for grass removal down to the topsoil. Areas of the track which traverse farmland with grass coverage maintained by stock may require grass removal to delineate the track (if the landowner requires this) – utilising cross section 4. Following grass removal, the topsoil should be proof rolled/compacted to ensure it is firm. This may also need to be shaped to achieve the required cross fall

and facilitate stormwater runoff. Way finding/segregation markers will be installed at appropriate intervals (100m used as reference – will be less frequent). The existing ground either side will then be tied into edge of track to allow stormwater runoff to match the surrounding area.

3.1.1.5 Typical Trail Cross Section 6

Cross section 6 denotes construction recommendations for when the grade is greater than 15%. To provide track resilience and traction, an aggregate based track will be installed.

Vegetation clearance and topsoil removal to be carried out as outlined in the above sections. Prior to placement of the AP20-40mm aggregate, the subgrade should be compacted and inspected for soft spots. Upon placing the aggregate, it should be spread and compacted to a minimum depth of 75mm. 3-4% cross fall should be achieved. The finished level of the track should not be significantly lower than the surrounding ground as this would promote pooling on the track. Compaction recommendations and stability analysis should be followed as recommended by the geotechnical engineer.

3.1.1.6 Typical Trail Cross Section 7

Cross section 7 represents scenarios where the track is required to run along the road shoulder adjacent to a state highway. Active traffic management will be required for sections using this typical design, traffic management will be approved and in place prior to commencement. A corridor access request will also be required.

Construction is as follows, 0.5m separation from live lane shall be measured and a fluorescent flexible visibility bollard shall be installed. Bollard separation will be site specific, and guidance will be provided by NZTA. Existing loose gravel shall be compacted, and topsoil stripped, if necessary additional gravel may be carted in when required to make a lane of at least 1m width. If existing drains cannot be kept in suitable condition or extra space is needed for the trail, an extension into the drain or revetment may need to be constructed.

3.1.1.7 Typical Trail Cross Section 8

Cross section 8 is to be utilised where there is enough of a road shoulder/berm to accommodate multiple lanes adjacent to a highway. Traffic management requirements will be similar to cross section 7.

Construction follows similar methodology to cross section 7. 0.5m will be established from the line marking and flexible, fluorescent bollard installed. Existing gravel will be compacted, and topsoil/ scrap material removed. Additional gravel may need to be carted in to widen for multiuse as required. The existing ground will be reshaped if required and compacted to make the surface suitable for user access. Fall towards the open drain must be achieved.

3.1.1.8 Typical Trail Cross Section 9

Cross section 9 is proposed for where existing infrastructure is in place adjacent to the state highway corridor. The existing footpath and grassed berm should be inspected to ensure they are suitable for both pedestrian & horse access. Cyclists are to utilise the cycling lane if this is present. If the width of the footpath permits, cyclists may utilise this corridor. NZTA should be consulted for discussions around reduced speed limits if there are not already in place. Note: This cross section will be pedestrian only until detailed design is completed and feasibility for future users is assessed.

3.1.1.9 Typical Trail Cross Section 10

Cross section 10 is to be utilised on low volume roads where there is scope for vegetation clearance to form a single lane walkway for pedestrians. Both sides of the road corridor should be assessed to determine which is most suitable taking into account drainage channel and flow path disturbance.

Following road shoulder selection, vegetation and grass cover should be removed, stockpiled, and then disposed as required (as per best practice and following the procedures outlined in sections above). The subgrade should be shaped to provide cross fall towards the drainage channel. A width of 1.2-1.5m should aim to be achieved.

3.1.1.10 Typical Trail Cross Section 11

Cross section 11 is to be utilised when low volume roads are present and existing shoulders do not permit enough width for the trail. The road shoulder/berm with the greatest width should be selected and users will be permitted to utilise the lane on this side of the corridor.

Excavation should be minimal where there is no excessive vegetation cover. The selected roadside shoulder should be widened as much as possible with turn off areas provided for users to move off the road when oncoming traffic is passing. This widening shall be carried out by shaping the subgrade and utilising fill from any cuts to backfill lower areas. Where required, clean aggregate may need to be imported for the turn off areas.

Signage will be very important through areas where cross section 11 is implemented. This should be approved by the Local Authority and traffic engineer. Traffic will need to be made aware of the shared use with possible speed limit reductions discussed with the Local Authority.

3.1.1.11 Typical Trail Cross Section 12

Cross section 12 shows existing local roads fit for purpose for servicing a potential multiuse trail. Pedestrians and will utilise the widest roadside berm. Initial inspection is required to determine whether the roadside berm has a minimum width of 2m. Ideally 3m should be achieved.

Vegetation will be removed and disposed of offsite. The subgrade should be shaped to enable cross fall to the drainage channel.

3.1.1.12 Typical Trail Cross Section 13

Cross section 13 reflects locations where the track will traverse through dense vegetation and a path is required to be cleared. The expected vegetation is larger mature trees. Arborists may be required in developed areas. Prior to works beginning, the ecologist and landscape architect should be consulted to identify possible species which are to remain (where possible), and which are to be replanted if they are removed.

Construction will involve the trimming and removal of trees followed by the excavation of extensive root systems. Where the roots do not impede on the integrity or quality of the track they should be retained. If they will cause any risk to the users, they should be excavated and removed. The subgrade should be reshaped and backfilled with onsite material where roots have been removed. The backfilled material should then be recompacted ensuring drainage channels are maintained.

Way finding points through this section will vary in frequency with their type guided by the Landscape Management Plan completed by Isthmus.

3.1.1.13 Typical Trail Cross Section 14

Typical cross section 14 is a cycle only trail through rural hillside. Trail width should aim to be 1.5m wide with a recommended 3% crossfall. This cross section will be installed as required following detailed design of the pedestrian route. Way finder posts are to be installed at an appropriate frequency and only as required.

Vegetation will be cleared and disposed of offsite. Grass coverage may be stripped (if required by the landowner), and the subgrade shaped to form a suitably firm track. Any grass/soil removed should be used for landscaping onsite ensuring drainage channels are not impeded. The existing ground should then be compacted to ensure a firm base for use.

3.1.1.14 Typical Trail Cross Section 15

Cross section 15 is a resilient route proposed for ATV access between Tokomarau Bay and Ruatoria. This section of the route has proven to be particularly vulnerable with SH35 experiencing extensive damage in recent weather events. The cross section depicts the maximum corroder width aimed to be achieved. However, it should be noted that in the instance where the land does not permit this width, at a minimum the 3m wide gravel track (stabilisation subject to onsite assessment) will be installed.

Construction of the gravel track should follow the methodology outlined in cross section 3. The ATV track will utilise AP40 aggregate and meet a minimum depth of 150mm. Stabilisation will be subject to onsite conditions and will only be completed if deemed appropriate. If stabilisation does not proceed, compaction standards will need to be met as recommended by the geotechnical engineer. The geotechnical engineer will be consulted during this construction decision making.

Removable bollards will be installed at key points along this route to deter unwanted ATV/vehicle access.

3.1.1.15 Typical Trail Cross Section 16

Typical cross section 16 covers any sections of the trail which may cross an unformed road (paper road) or formed trails within private property. The existing aggregate track should be inspected to determine suitability and whether any upgrades are required. If a width of 3m is achieved, then this can be used to service walkers and other potential future modes. Additional metal should be applied as required (if within private property, the owner should be consulted prior to works commencing).

Where the existing aggregate track does not meet a width of 4.5m and the landscape permits a trail of up to 4.5m wide, vegetation and topsoil should be removed to allow for a 4.5m wide trail. The subgrade should be shaped and compacted. Drainage channels should be preserved.

3.1.1.16 Typical Pedestrian Crossing 1 & 2

There will be numerous locations where road crossings are required along the route. Safety and signage will be two of the most important aspects of this work with clear communication of expectations required between the project team and the local authority/NZTA. Cross sections 1 & 2 represent two indicative scenarios where users may be required to cross either local roads or state highway. It should be noted that detailed design will need to be signed off by Urban Connections, the relevant Local Authority and/or NZTA.

A second viable option proposed for bridge crossings and which could be used in place of some clip on bridges is the bridge crossing concept provided in Appendix 6.2. This has been physically implemented on Blackbridge Road along Dairy Flat Highway in Auckland. This concept utilises a series of static and illuminated signs to warn traffic of active users on or very near the bridge. 300m from the bridge there is a SLOW DOWN sign used to warn traffic of the need to reduce their speed. This may be accompanied by a speed restriction sign if deemed necessary and approved by the roading authority. 200m from the bridge there will be two solar panels both of

which will supply power to the illuminated sign which will light up when activated by the user. 100m from the bridge there will be a pole which will have buttons for each user to press to activate the illuminated sign 200m from the bridge. Once activated motorists will be instructed that there is an active mode near or on the bridge.

It is expected that detailed design and safety assessment will need to be completed prior to implementing this system.

Note that all cross sections provided in the appendices are indicative only.

As the trail approaches the road corridor, signage will be put in place warning users of the upcoming road crossing. Way finding markers will be installed to direct users towards the point of crossing. Where deemed necessary on higher risk roads, speed bumps can be installed near the road shoulder to slow users down. Relevant line marking shall be installed following detailed design and approval.

3.1.1.17 Concrete Landing

Where required there may be scope to install a concrete landing or strip in select areas. These areas may be appropriate as follows:

1. Transition from a boardwalk to a stabilised AP20 surface.
2. Transition from a road crossing to a way finding or aggregate track.
3. Along the road shoulder where the track is steep or narrow.

Construction will first require stripping of topsoil (and subgrade) and replacement with a minimum of 100mm AP40 as the basecourse. The concrete footpath should then be boxed and poured to a minimum depth of 75mm. Reinforcing/fibre content can be confirmed at detailed design. Adequate cross fall and channel drainage should be provided to ensure water does not pool on the path. Due to this scope being site specific no cross section has been provided.

4 Construction Considerations

4.1 Erosion & Silt Control Measures

Silt control measures will be built in general accordance with the conditions of the resource consent(s). Installation and construction of silt measures are to be completed prior to any significant excavation works commencing.

The basic priority of sediment control is to keep clean water from entering areas of open ground and control sediment laden water prior to it exiting the site.

This will be completed throughout the course of the project with the following actions:

- Maintaining silt fences. Replacing any which are damaged.
- Constructing contour drains/drainage channels as necessary.
- Construct diversion bunds as necessary
- Topsoil and grass seed finished areas immediately following final contouring.
- Constantly monitor all erosion and sediment control systems with regard to the site works being conducted.

General silt controls should include but not be limited to the following:

- Silt fencing
- Dirty water diversion bunds
- Clean water diversion bunds
- Grass clearways for stormwater filtration

Erosion control should include but not be limited to:

- Riprap protection.
- Installation of flumes to avoid scouring where culverts are installed.
- Retaining structures to be installed only as required.

As works progress it may be necessary to adapt the sediment control plan to suit on site conditions. Following the stripping of topsoil and start of fill importing, the sediment and control measures will be checked to ensure they are sufficient. Additional measures will be put in place if required with the following document used as guide:

Erosion and Sediment Control Guidelines for Land Disturbing Activities – June 2010

4.2 Structures

Structures used as a part of the trail will require specifically engineered designs depending on the section of the trail they are located on. Structures will include bridges, clip on bridges, retaining walls, shelters, huts and approaches to any structures scattered throughout the trail that will require new track types outside of the typical cross sections included in this document. Please refer to Appendix 6.1 for indicative cross sections. Appropriate finished floor levels will be determined at the detailed design phase.

It should be noted that an alternative option to clip on bridges may also be sought. This has been included in Appendix 6.2.

4.3 Topsoil Removal & General Soil Disturbance

The proposed route will aim to reduce the amount of land disturbance by following natural contours. Should there be a change to the alignment of the route and alteration to the extent of earthworks, the project manager should be notified so this can be checked with the issued resource consents. If required, additional consents will be applied for.

Topsoil removed will be stored onsite and used for landscaping within that land parcel where required. Topsoil required to be removed will be stockpiled temporarily away from any water courses and the road corridor. Dust, erosion, and dispersal of this stockpile will be monitored and controlled until its removal. Any potential dust hazards presented by open excavations will be monitored throughout the project.

An assessment of Archaeological effects has been completed for the track's current location, which shall avoid those identified sites. Should any land disturbance accidentally uncover any unidentified archaeological sites, all works shall cease, and the Accidental Discovery Protocols will be followed. This includes contacting the project manager who will work with the project Archaeologist to ensure that all protocols under the Heritage New Zealand Pouhere Taonga Act 2014 are adhered to.

4.4 Vegetation Removal

4.4.1 Removal Considerations

During the consenting phase, in-depth desktop analyses were undertaken to determine locations where the route passed through protected management areas (PMA's). In addition to those, the ecologist identified areas with high ecological values which were not included in these PMA's. The track was realigned to avoid or minimise vegetation removal in those areas with consents being sought for vegetation removal in the PMA's. For those areas outside of the PMA's, if the track's location requires vegetation removal of indigenous vegetation that will not meet the permitted rules, in the first instance, the track will be rerouted to avoid the area. If not possible, there will be input from the ecologist as well as requirement for relevant consents from the Consenting Authority.
Post consent submission, a second ecologist Viridis was engaged to complete a comprehensive desktop analysis and management plan for the project. This report was very detailed and has provided a clear set of recommendations and pathways forward for pre-construction and during construction monitoring. The report will be submitted with the amended application.

During vegetation clearance care should be taken to preserve exotic and indigenous species where possible. In field surveys may be conducted by the ecologist or members of the project team. If these are required to be removed, an attempt should be made to replant these adjacent to the track. Should vegetation need to be stored onsite prior to offsite disposal, it should be stockpiled away from the road corridor and any water courses/drainage channels. If stockpiles are to be left exposed and unattended for more than 24-hours or prior to predicted heavy rain, they should be located in a manner that will avoid the risk of the material being mobilised in stormwater flow paths.
Where vegetation clearance is in close proximity to dwellings, arborists may be required to ensure this clearance does not pose any risk to residents or their assets. Close approach permits are to be applied for as necessary when working beneath any overhead lines or when excavating near live underground services.

There are stringent requirements for disturbance of Pohutukawa trees in the BOP regional coastal environmental plan. Due to the location of the track being predominantly in the road corridor in the BOP region, Pohutukawa disturbance can likely not be avoided. This will be minimised where possible with the required consents sought.

4.4.2 Vegetation Re-use

Where significant exotic and indigenous species are required to be removed, replanting these in an appropriate location should be the priority if their condition permits. In areas where landscaping is proposed, if the removed vegetation is suitable for mulching, it may be chipped and used as mulch for these new plants. Any timber suitable and in a practical location for reuse as firewood will be made available to local residents/iwi. Access requirements for obtaining this timber will need to be well managed prior to this being made available. The most suitable option would be to cut and relocate this timber in a public collection area with safe access.

4.5 Construction Adjacent to Streambeds, Rivers & Coastal Environments

Construction near streambeds, rivers and coastal environments will be minimised where possible. No work is intended to occur within the watercourse – the exception may be installation of bridge piles. If required to complete work adjacent to these environments, construction methodology will meet all permitted standards and follow best practice guidelines for working within these areas. This includes putting appropriate sediment and runoff controls in place prior to construction, and regular monitoring of the measures to ensure they remain

effective, particularly after heavy rain events. Rehabilitation of the sites will also occur to prevent erosion and sediment generation once construction has been completed.

4.6 Commonly used Plant & Machinery

List of commonly used equipment for this job will be as follows:

- Excavators
- Graders
- Trucks – Including concrete trucks, tip trucks and general cartage vehicles.
- Loaders
- Rollers – Including smaller compaction equipment (plate compactors etc).
- Tractors
- Small generators
- Geotechnical testing/investigation equipment
- Woodchippers & other miscellaneous arborist equipment

Prestart checks on all mechanical equipment are to be completed every morning prior to starting work. A Site-Specific Safety Plan (SSSP) will be required to be kept onsite and approved prior to establishment of any new worksites. All members on that site will require an induction and will be required to be wearing the appropriate PPE.

Prior to working within 20m of a water body, all machinery should be checked for any leaks. Any refuelling required should be carried out on a hard sealed surface (where practical) and must be further than 20m from a watercourse.

Work within areas identified as wetlands will be avoided. The track will be re-routed as required.

4.7 Noise & Vibration

Noise and vibration are both key elements which need to be managed for two key purposes:

1. To avoid noise and vibration levels which have an adverse effect on human health.
2. To ensure the acoustic environment is consistent with the character of the zone/area.

The location and nature of the work involved in constructing the trail means that the risk posed by noise and vibration generation is lower than other associated roading activities. A large portion of the track is located remotely, away from residential properties and environments occupied by humans. Additionally, the construction of 85% of the track is very minimalistic with the removal of grass coverage (subject to functional requirement and landowner requests) and light compaction of the ground typical (note as referenced in the Landscape and Visual Assessment), delineation of the track will be conducted via this methodology as required. Vibrations will generally be generated from cartage of material to site, tracking of diggers across the landscape, plate compaction and vegetation removal which involves uprooting deeply embedded plants. Noise and vibrations generated adjacent to residential zones and within zones with natural character sensitives shall be managed via the following procedures – Note: These procedures should be implemented in all zones as relevant:

- Work adjacent to residential zones and coastal environments will only occur between the hours of 7am and 6pm, Monday-Saturday. Sunday work upon approval.

- Noise associated with emergency warning devices should be exempt when working adjacent to residential and coastal environment zones.
- Cartage vehicles shall use the most appropriate route for access to the site maintaining a safe speed limit to avoid significant dust, noise and excessive vibration generation.
- A complaints register shall be kept onsite to record any complaints from residents or by passers. These complaints should be communicated to the project manager in the first instance.
- When not in operation for an extended period machinery should be switched off rather than left to idle.
- Daily pre-start checks, and end of week checks should be completed on all machinery to ensure they are running efficiently – this will help avoid any unnecessary noise and vibration.

Should any issues arise during construction, refer to section C11.2 of the TRMP for guidance.

4.8 Contingency Measures

Should the above monitoring reveal that there are significant changes occurring downstream of the earthworks site such as those listed above then a series of checks should commence to ensure that the sediment controls operating on site are doing so effectively. Checking should continue until the source of the problem is identified or it is established that it is occurring separate to the earthwork operations, e.g.: neighbouring site or external activity. If the problem has been identified on-site or is a result of the earthworks, then this is to be remedied immediately or at least prior to any further rain event and the next inspection.

4.9 Ongoing Maintenance

Maintenance post construction of the track will be required to keep the trail in a suitable condition. Maintenance contracts for the trail shall be issued to locals throughout the length of track. When the track traverses within the NZTA corridor, maintenance agreements will need to be set up via this roading authority to ensure their guidelines are followed.

The trail should be regularly monitored for:

- Potholes to be filled and compacted with material which matches the profile of that specific aspect of the trail.
- Overgrown vegetation will need to be cleared. Overgrown grass, bushes and trees will need cutting back as required to keep the trail clear of obstacles for users.
- Damaged signs/signposts are to be replaced or remediated as soon as possible to ensure user safety and notification along the trail is maintained.
- Damaged bollards are to be replaced in their entirety.
- Structures should be inspected regularly to ensure their integrity is maintained. Any defects should be noted, and the engineer should be notified.
- Following significant weather events, the track should be examined in its entirety for damage and a report filed to summarise findings. Note should be made on the condition of the drainage channels and spread of weeds/vegetation. Invasive and undesired species pose a risk to the exotic and native species.

4.10 Health & Safety

Health and safety risks will be assessed via weekly toolbox meetings. Discussions will include any concerns from the previous week and consider any new risks associated with the changing work environment or trail construction methodology. Assessed risks will be communicated to all workers involved on the worksite. Each individual will require an induction following establishment on site, they will be required to be familiar with the

Site-Specific Safety Plan. Each morning all workers onsite (and visitors) will sign onto the pre-start sheet with work for the day outlined in the toolbox meeting. Relevant documents required prior to establishment of works include:

- Traffic management plan (Local Authority approved).
- Site Specific Safety Plan
- Corridor Access Request
- Close approach permits (if applicable)

For all work adjacent to the road corridor, the local authority and/or NZTA should be informed, and approval granted prior to work commencing.

5 Disclaimer

This document is to be read and understood by all contractors prior to starting work. The SSSP provided by each contractor should be formulated in conjunction with the requirements as set out in this document.

If there is an inconsistency between the CMP and the resource consent conditions, the conditions within the consent shall prevail.

Completed By: Civil Project Solutions

Signature:

Name: Zac Borrie

Position: Project Manager

6 Appendices

Appendix 6.1 – Typical Trail Cross Sections

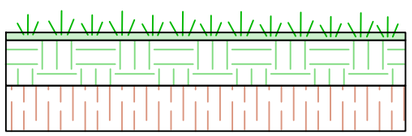
WHEN APPLYING THIS DOCUMENT

The extent of this project are too large to develop consistent cross-sections throughout, Typical cross-sections have been prepared as a guideline only to be applied and adapted as appropriate to the constraints of the particular site.The cross-sections provided may not be appropriate in some cases where extreme ground instability or hazardous areas are present. Note that stabilisation works should only be undertaken where absolutely necessary.

Implimentation of the cross-sections on the State Highway, Local Roads, Paper Roads, Private Land or any other areas shall take into account but not limited to;

- Terrain Hazards (Slips / cliffs / narrow lanes)
- Vehicular Traffic (Existing and Future)
- Existing Ground Stability and Composition
- Trail Drainage and Existing Drainage Systems
- Construction Costs & Feasibility
- Sight Lines
- Maintenance
- Road Safety
- Pedestrian Safety
- Segregated Lanes for Walking / Cyclists and Horse Riders
- Wayfinding
- Walkway Amenity
- Private Land Value
- Preserving the Natural Character of the environment
- Avoiding Disturbance of Earth in Vicinity of Significant Water Bodies
- Utilising Existing Surfaces and Formed Pathways
- Trail slopes and cross-falls
- The appropriate provision of road signage, traffic calming and other implication to vehicle traffic.
- The intended traffic and combination of traffic on the trail, as a general rule 1.5m to be allowed for each form of traffic (walk, bike, horse)

For the purposes of this document, grass layer refers to the top layer of the ground which contains the majority of the organic material, top soil refers to all soil between the bottom of the grass layer and the top of the subgrade.



Disclaimer:
This set of plans has been is subject to peer review, input and plans from other professionals.
All information contained herein is subject to change.

CPS
Civil Project Solutions
1 Te Maanga Drive
PO Box 460
Gisborne, NZL
Project Management Specialists
0800 PROJECT
www.civilprojects.co.nz

GENERAL NOTES
1. Coordinates in terms of : .
2. Elevations in terms of : .
3. Contour interval is : .

NO	DATE	REVISION	BY	CHK	APP
.	.	.	.	.	.

PRINCIPAL

SURVEYED		
DRAWN	P.PIERARD	30/05/2023
CHECKED		.
APPROVED		

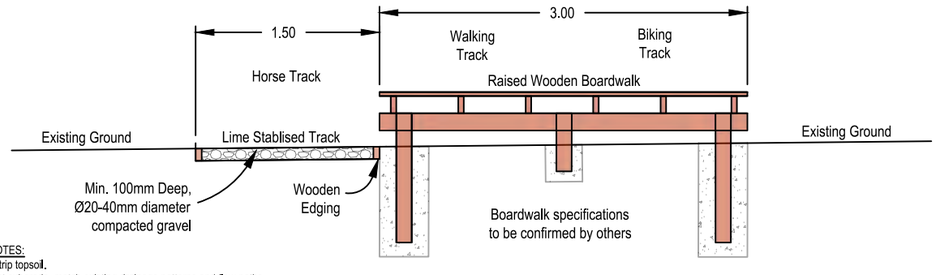
SCALE: . @A3 | ORIGINAL SIZE: A3

TITLE
TE ARA TIPUNA TRACKS
CONCEPTUAL DOCUMENT
COVER PAGE

DRAWING No: J2004-200-01

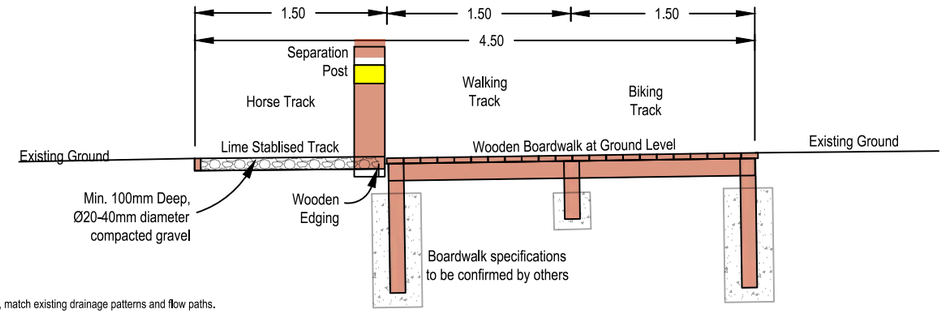
REVISION: 0

Typical Trail Cross-section 1
Raised Wooden Boardwalk



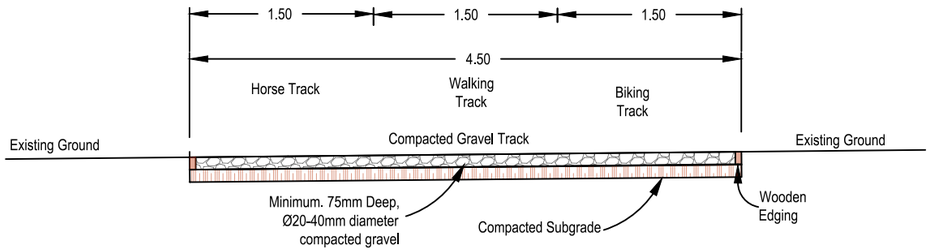
CONSTRUCTION NOTES:
1) Clear vegetation, strip topsoil.
2) Shape and compact subgrade, match existing drainage patterns and flow paths.
3) Supply, place, compact and lime stabalise the track.
4) Auger pile locations.
5) Construct boardwalk per design documentations.
6) Allow stormwater runoff below boardwalk.
7) Construction specifications by others.

Typical Trail Cross-section 2
Ground Level Boardwalk



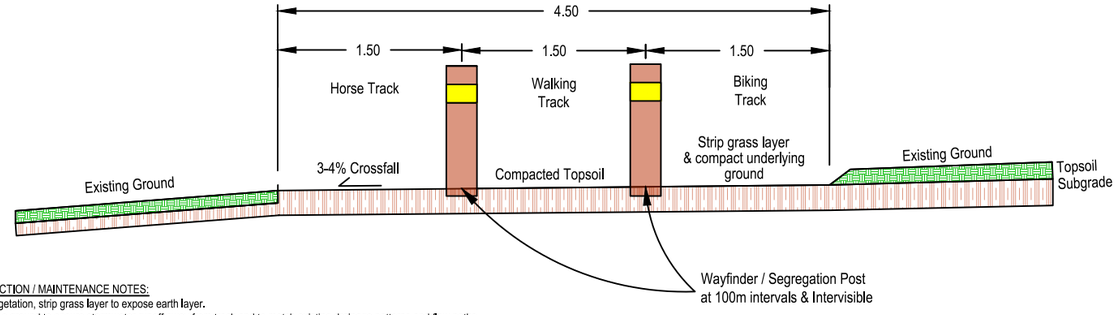
CONSTRUCTION NOTES:
1) Clear vegetation, strip topsoil.
2) Shape and compact subgrade, match existing drainage patterns and flow paths.
3) Auger pile locations.
5) Construct boardwalk per design documentations.
6) Support joists at ground level to run perpendicular to trail direction with spacings to allow stormwater runoff through the structure.
7) Construction specifications by others.

Typical Trail Cross-section 3
Aggregate Trail



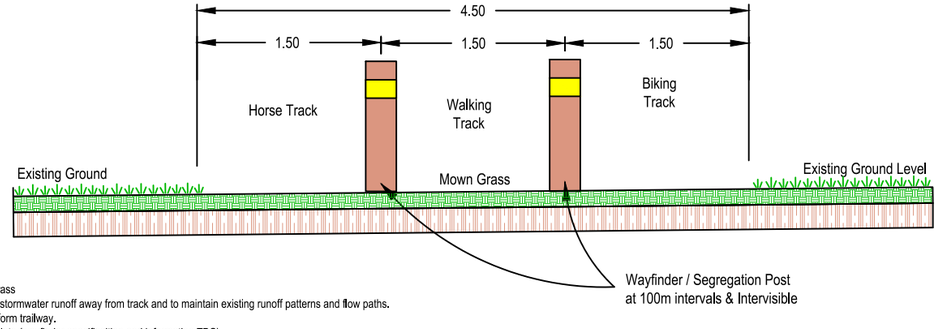
CONSTRUCTION NOTES:
1) Clear vegetation, strip topsoil.
2) Shape and compact subgrade, match existing drainage patterns and flow paths.
3) Install wooden edgings.
4) Supply, place, compact and lime stabalise the track.

Typical Trail Cross-section 4
Way Finding Trail 1



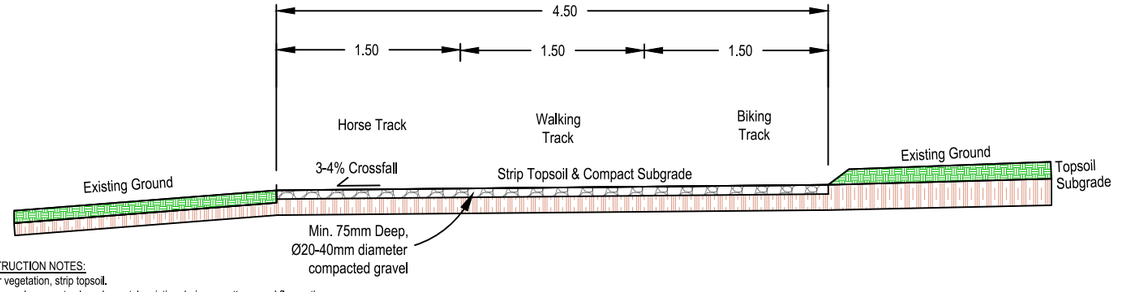
CONSTRUCTION / MAINTENANCE NOTES:
1) Clear vegetation, strip grass layer to expose earth layer.
2) Shape the ground to ensure stormwater runoff away from track and to match existing drainage patterns and flow paths.
3) Compact existing ground to form trailway.
4) Install wayfinders as appropriate (wayfinder specificaition and information TBC).
5) For sites with less than 15% grade and where a dirt track is preferred or more practical.
6) Regular maintenance to prevent grass regrowth.

Typical Trail Cross-section 5
Way Finding Trail 2



CONSTRUCTION NOTES:
1) Clear vegetation and mow grass
2) Shape the ground to ensure stormwater runoff away from track and to maintain existing runoff patterns and flow paths.
3) Compact existing ground to form trailway.
4) Install wayfinders as appropriate (wayfinder specificaition and information TBC).
5) Suitable in areas with less than 15% grade and where a grassed track is preffered and appropriate (e.g. through undulating rural hillside)
6) Cyclability of the track to be considered where bike access if envisioned.

Typical Trail Cross-section 6
Way Finding Trail - Steep or Unstable Ground



CONSTRUCTION NOTES:
1) Clear vegetation, strip topsoil.
2) Shape and compact subgrade, match existing drainage patterns and flow paths.
3) Supply, place, compact gravel track formation.
4) Required for sections over 15% in grade.
5) Subject ot level of instability may require site specific pavement CBR rating or further investigation from geotechnical engineer.

CPS
Civil Project Solutions
1 Te Maanga Drive
PO Box 460
Gisborne, NZL
Project Management Specialists
0800 PROJECT
www.civilprojects.co.nz

GENERAL NOTES
1. Coordinates in terms of : .
2. Elevations in terms of : .
3. Contour interval is : .

NO	DATE	REVISION	BY	CHK	APP
.	.	.	.	.	.

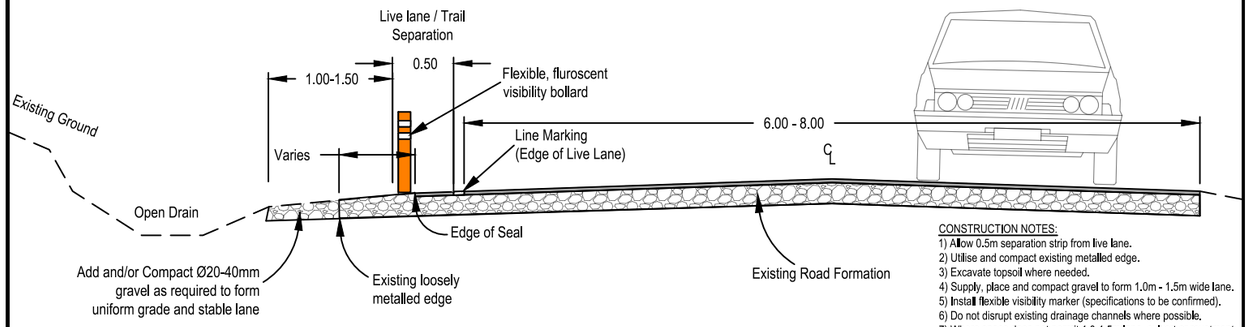
PRINCIPAL

SURVEYED		.
DRAWN	P.PIERARD	30/05/2023
CHECKED		.
APPROVED		.

TITLE
TE ARA TIPUNA TRACKS
CONCEPTUAL DOCUMENT
TYPICAL CROSS-SECTIONS

SCALE	ORIGINAL SIZE	DRAWING No	REVISION
1:50 @A3	A3	J2004-200-02	0

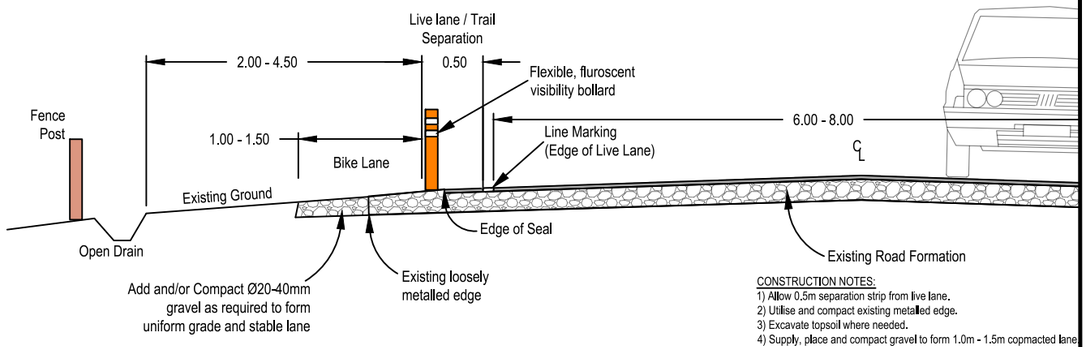
Typical Trail Cross-section 7
Narrow Lane Adjacent Highway



CONSTRUCTION NOTES:
1) Allow 0.5m separation strip from live lane.
2) Utilise and compact existing metalled edge.
3) Excavate topsoil where needed.
4) Supply, place and compact gravel to form 1.0m - 1.5m wide lane.
5) Install flexible visibility marker (specifications to be confirmed).
6) Do not disrupt existing drainage channels where possible.
7) Where space does not permit 1.0-1.5m lane, culvert or revetment may need to be considered.

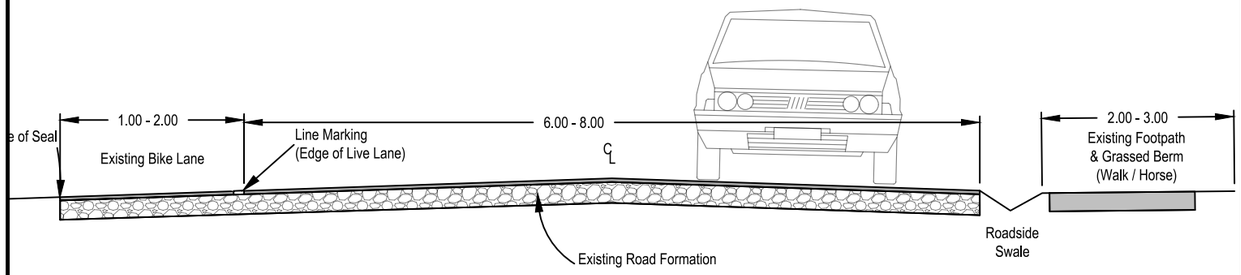
GENERAL NOTE:
Keep horse lane furthest away from live lane, place flexible separation bollards at 200m intervals where space permits.

Typical Trail Cross-section 8
Multi-lane Path Adjacent Highway



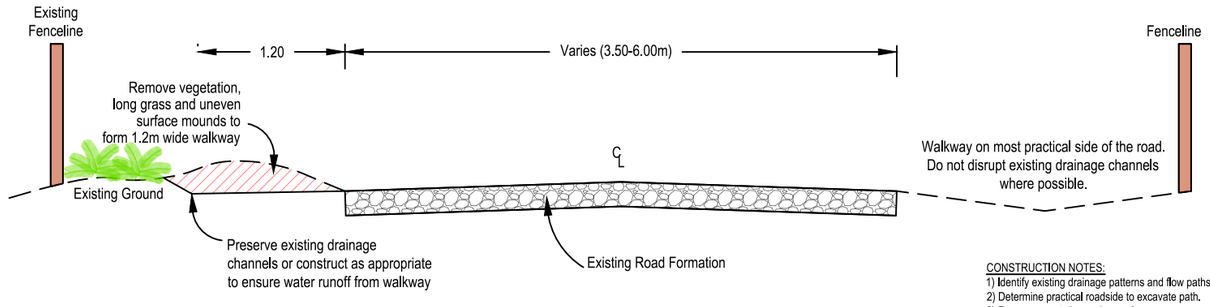
CONSTRUCTION NOTES:
1) Allow 0.5m separation strip from live lane.
2) Utilise and compact existing metalled edge.
3) Excavate topsoil where needed.
4) Supply, place and compact gravel to form 1.0m - 1.5m copmacted lane.
5) Install flexible visibility marker (specifications to be confirmed).
6) Do not disrupt existing drainage channels where possible.

Typical Trail Cross-section 9
Pathways Adjacent Highway in Residential Settlement



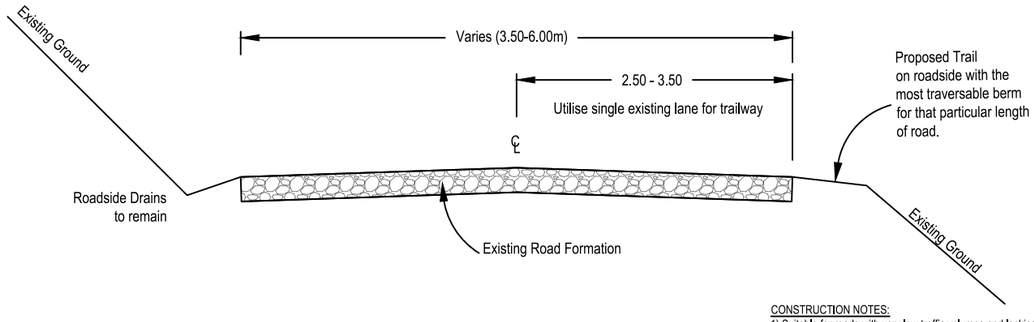
CONSTRUCTION NOTES:
1) Inspect pathways to ensure fit for purpose.
2) Suitable for areas with a reduced speed limit.

Typical Trail Cross-section 10
Walkway Alongside Low-Volume Road



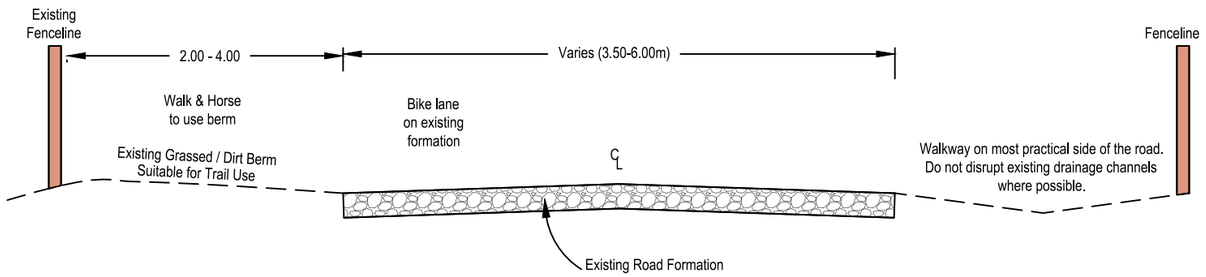
CONSTRUCTION NOTES:
1) Identify existing drainage patterns and flow paths.
2) Determine practical roadside to excavate path.
3) Remove vegetation and grass layer.
4) Shape and compact ground layer to form pathway.
5) Ensure stormwater runoff away from trail.

Typical Trail Cross-section 11
LV Road: Utilising Existing Road Carriageway



CONSTRUCTION NOTES:
1) Suitable for roads with very low traffic volumes and lacking space on roadside berm.
2) Pedestrian signage should be installed to alert drivers of alternative traffic.
3) Widening road berm around blind corners should be considered when possible.
4) Provide "turn-off" areas where pedestrians can move off the road where possible.

Typical Trail Cross-section 12
Existing Local Road Fit for Purpose



CONSTRUCTION NOTES:
1) Identify road and grassed berm fit for purpose.
2) Add road signage as appropriate.
3) Clear vegetation as needed.

CPS
Civil Project Solutions
1 Te Maanga Drive
PO Box 460
Gisborne, NZL
Project Management Specialists
0800 PROJECT
www.civilprojects.co.nz

GENERAL NOTES
1. Coordinates in terms of : .
2. Elevations in terms of : .
3. Contour interval is : .

NO	DATE	REVISION	BY	CHK	APP
.	.	.	.	.	.

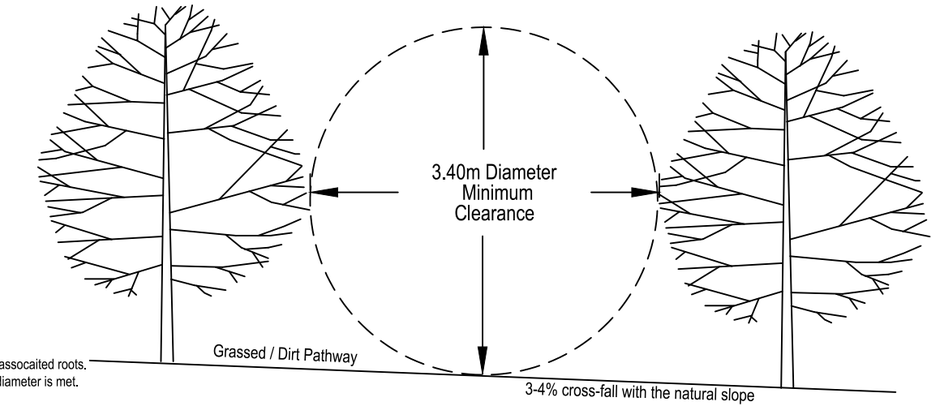
PRINCIPAL

SURVEYED			
DRAWN	P.PIERARD	30/05/2023	
CHECKED			
APPROVED			

TITLE
TE ARA TIPUNA TRACKS
CONCEPTUAL DOCUMENT
TYPICAL CROSS-SECTIONS

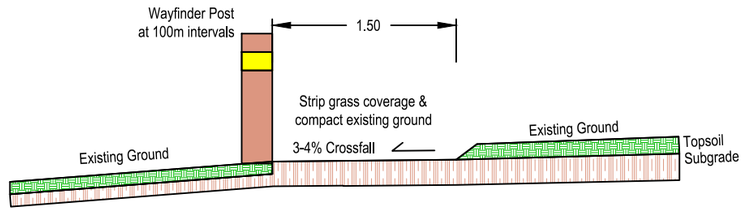
SCALE	ORIGINAL SIZE	DRAWING No	REVISION
1:50 @A3	A3	J2004-200-03	0

Typical Trail Cross-section 13
New Pathway Through Existing Vegetation



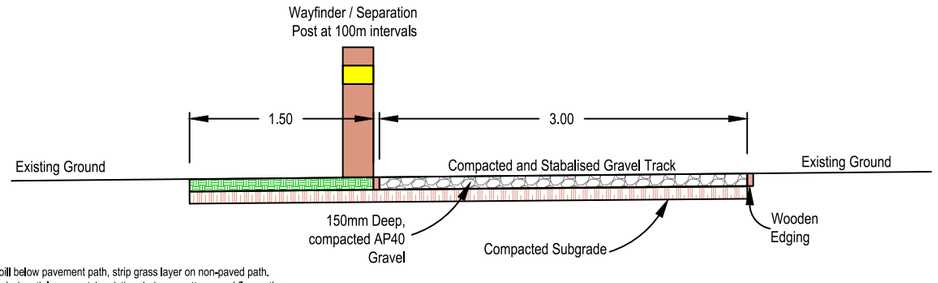
CONSTRUCTION NOTES:
1) Remove larger vegetations and assocaited roots.
2) Trim trees to ensure clearance diameter is met.
3) Remove top layer of grass.
4) Shape and compact underlying soil, maintain existing drainage paths.
5) Ensure wayfinding as appropriate.

Typical Trail Cross-section 14
Solo Bike Trail Through Rural Hillside



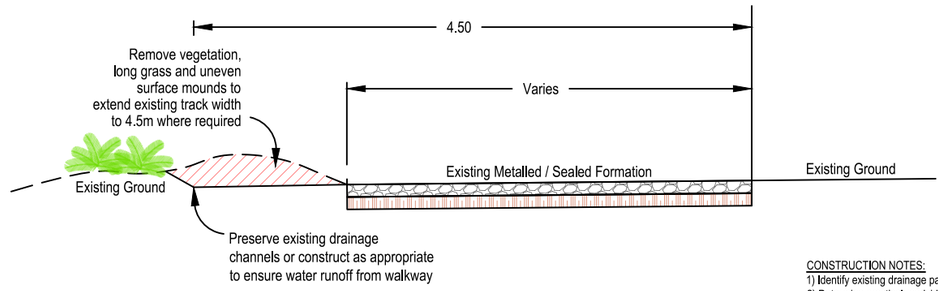
CONSTRUCTION / MAINTENANCE NOTES:
1) Clear vegetation, strip grass layer to expose earth layer.
2) Shape the ground to ensure stormwater runoff away from track and to match existing drainage patterns and flow paths.
3) Compact existing ground to form trailway.
4) Install wayfinders as appropriate (wayfinder specificaition and information TBC).
5) Regular maintenance to prevent grass regrowth.

Typical Trail Cross-section 15
Tokomaru / Ruatoria Trail (with ATV Use)



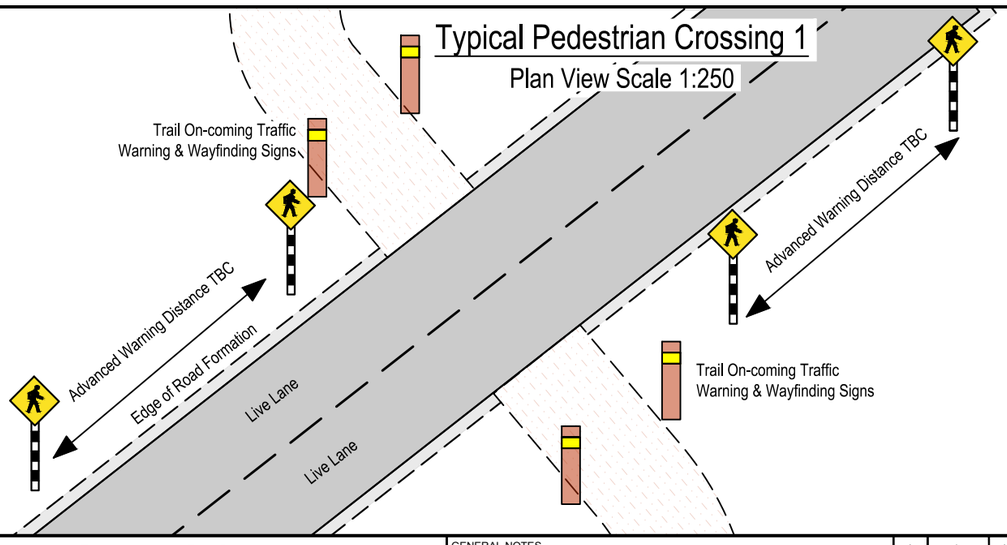
CONSTRUCTION NOTES:
1) Clear vegetation, strip topsoill below pavement path, strip grass layer on non-paved path.
2) Shape and compact subgrade / earth layer, match existing drainage patterns and flow paths.
3) Install wooden edgings.
4) Supply, place, compact and lime stabalise the track.

Typical Trail Cross-section 16
Existing Formation within Private Property or Paper Roadway

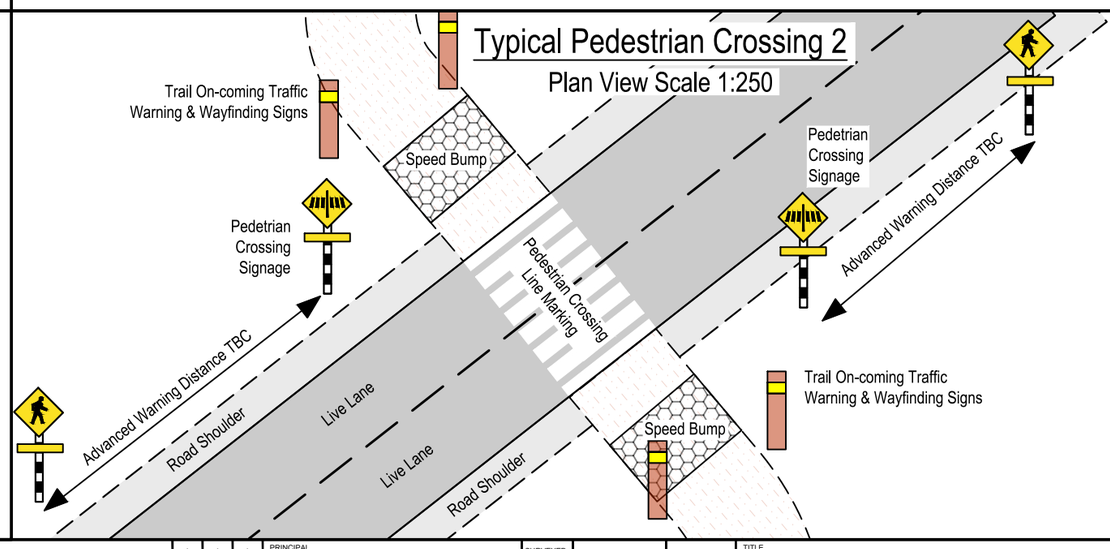


CONSTRUCTION NOTES:
1) Identify existing drainage patterns and flow paths.
2) Determine practical roadside to excavate path.
3) Remove vegetation and grass layer.
4) Shape and compact ground layer to form pathway.
5) Ensure stormwater runoff away from trail.

Typical Pedestrian Crossing 1
Plan View Scale 1:250



Typical Pedestrian Crossing 2
Plan View Scale 1:250



CPS
Civil Project Solutions
1 Te Maanga Drive
PO Box 460
Gisborne, NZL
Project Management
Specialists
0800 PROJECT
www.civilprojects.co.nz

GENERAL NOTES
1. Coordinates in terms of : .
2. Elevations in terms of : .
3. Contour interval is : .

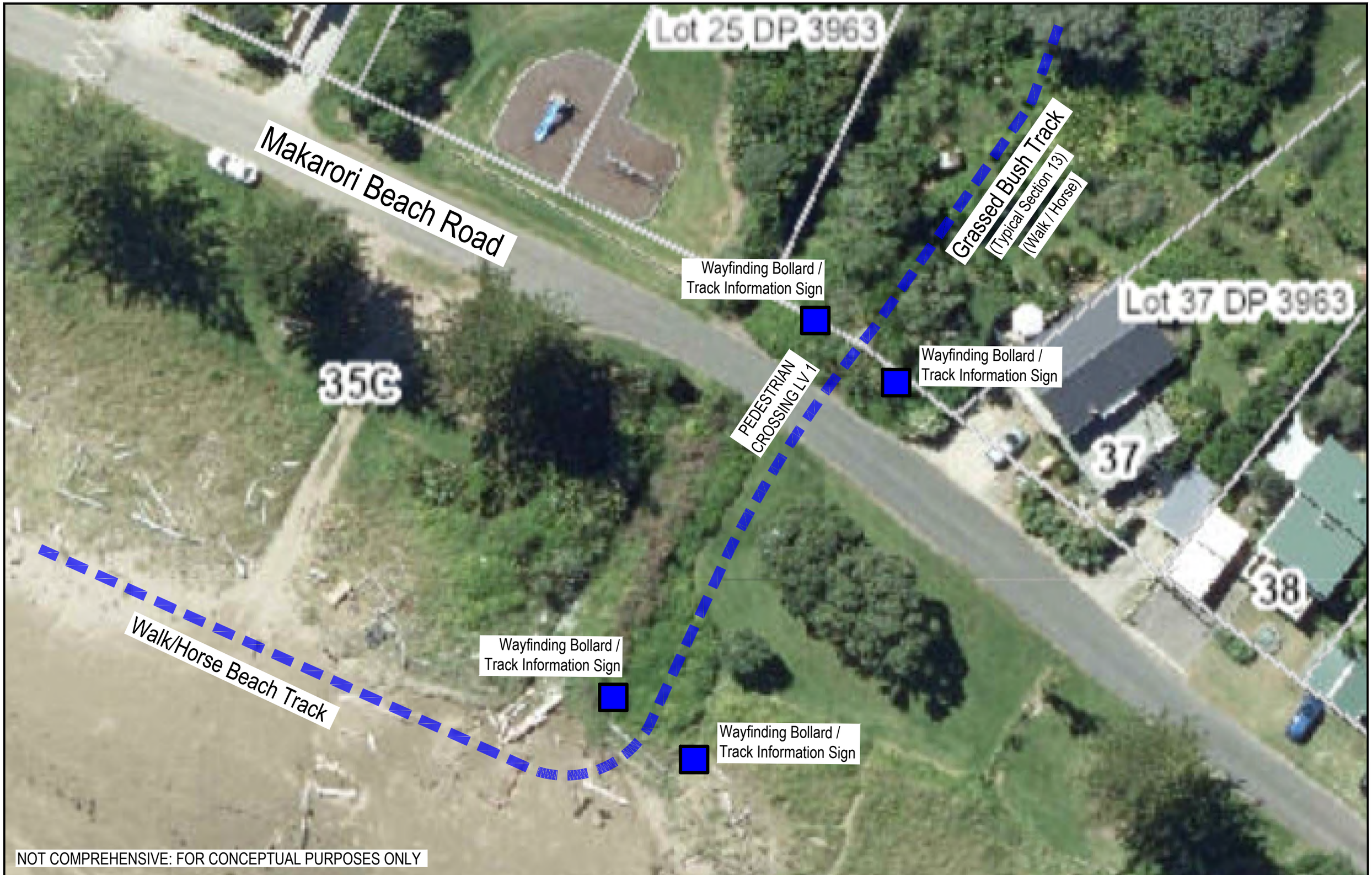
NO	DATE	REVISION	BY	CHK	APP
.	.	.	.	.	.

PRINCIPAL

SURVEYED		
DRAWN	P.PIERARD	30/05/2023
CHECKED		
APPROVED		

TITLE
TE ARA TIPUNA TRACKS
CONCEPTUAL DOCUMENT
TYPICAL CROSS-SECTIONS □ PEDESTRIAN CROSSINGS

SCALE	ORIGINAL SIZE	DRAWING No	REVISION
1:50 @A3	A3	J2004-200-04	0



CPS
Civil Project Solutions
1 Te Maanga Drive
PO Box 460
Gisborne, NZL
Project Management Specialists
0800 PROJECT
www.civilprojects.co.nz

GENERAL NOTES
1. Coordinates in terms of : .
2. Elevations in terms of : .
3. Contour interval is : .

NO	DATE	REVISION	BY	CHK	APP
.	.	.	.	.	.

PRINCIPAL

SURVEYED		
DRAWN	P.PIERARD	30/05/2023
CHECKED		.
APPROVED		.

SCALE: NTS @A3
ORIGINAL SIZE: A3

TITLE
TE ARA TIPUNA TRACKS
CONCEPTUAL DOCUMENT
EXAMPLE SECTION OF TRAIL 1

DRAWING No: J2004-200-05
REVISION: 0

CPS®
Civil Project Solutions
1 Te Maanga Drive
PO Box 460
Gisborne, NZL
Project Management
Specialists
0800 PROJECT
www.civilprojects.co.nz

GENERAL NOTES
1. Coordinates in terms of : .
2. Elevations in terms of : .
3. Contour interval is : .

NO	DATE	REVISION	BY	CHK	APP
.	.	.	.	.	.

PRINCIPAL

SURVEYED		
DRAWN	P.PIERARD	30/05/2023
CHECKED		
APPROVED		

SCALE: NTS @A3
ORIGINAL SIZE: A3

TITLE
TE ARA TIPUNA TRACKS
CONCEPTUAL DOCUMENT
EXAMPLE SECTION OF TRAIL 2

DRAWING No: J2004-200-06
REVISION: 0

CPS
Civil Project Solutions
1 Te Maanga Drive
PO Box 460
Gisborne, NZL
Project Management Specialists
0800 PROJECT
www.civilprojects.co.nz

GENERAL NOTES
1. Coordinates in terms of : .
2. Elevations in terms of : .
3. Contour interval is : .

NO	DATE	REVISION	BY	CHK	APP
.	.	.	.	.	.

PRINCIPAL

SURVEYED		
DRAWN	P.PIERARD	30/05/2023
CHECKED		
APPROVED		

TITLE
TE ARA TIPUNA TRACKS
CONCEPTUAL DOCUMENT
EXAMPLE SECTION OF TRAIL 3

SCALE	ORIGINAL SIZE	DRAWING No	REVISION
NTS @A3	A3	J2004-200-07	0

Cross existing footbridge

Pedestrian Crossing LV2

Existing footpath & Grass Berm

Typical Cross-section 9

Existing bike lane adjacent highway

Existing Road Formation

mata 2F7B Block

Paremata 2A Block

Part Paremata 4

Part Paremata 4 Block

Lot 5 DP 4042

Lot 18

Lot 19

Lot 20 DP

Lot 21 DP

NOT COMPREHENSIVE: FOR CONCEPTUAL PURPOSES ONLY

CPS®
Civil Project Solutions

1 Te Maanga Drive
PO Box 460
Gisborne, NZL
Project Management Specialists
0800 PROJECT
www.civilprojects.co.nz

GENERAL NOTES
1. Coordinates in terms of : .
2. Elevations in terms of : .
3. Contour interval is : .

NO	DATE	REVISION	BY	CHK	APP
.	.	.	.	.	.

PRINCIPAL

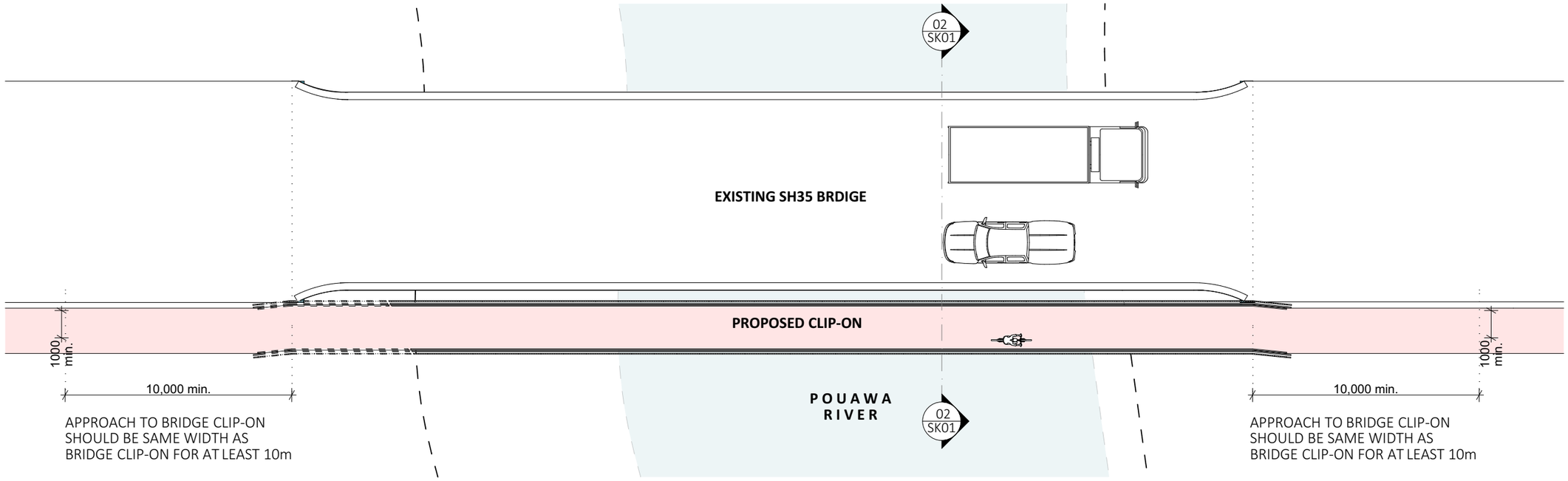
SURVEYED		.
DRAWN	P.PIERARD	30/05/2023
CHECKED		.
APPROVED		

SCALE: NTS @A3
ORIGINAL SIZE: A3

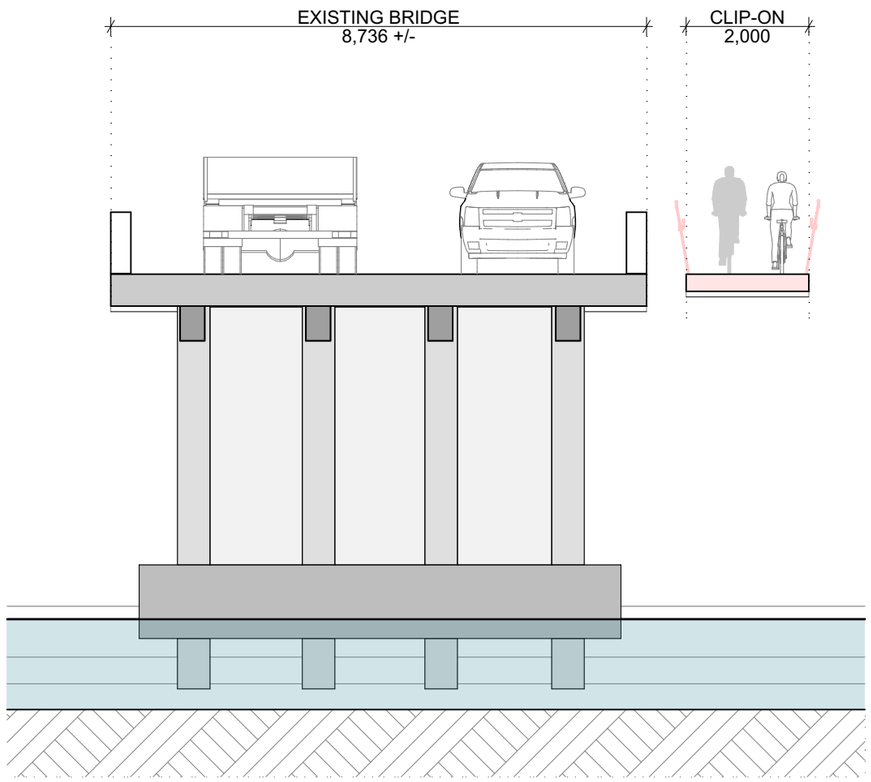
TITLE
TE ARA TIPUNA TRACKS
CONCEPTUAL DOCUMENT
EXAMPLE SECTION OF TRAIL 4

DRAWING No: J2004-200-08
REVISION: 0

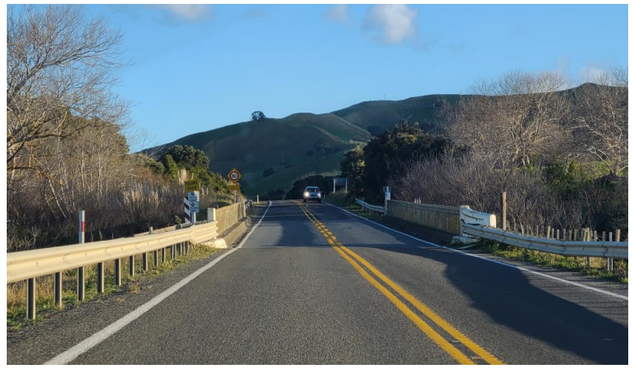
Appendix 6.2 – Typical Bridge & Clip on Bridge Cross Sections



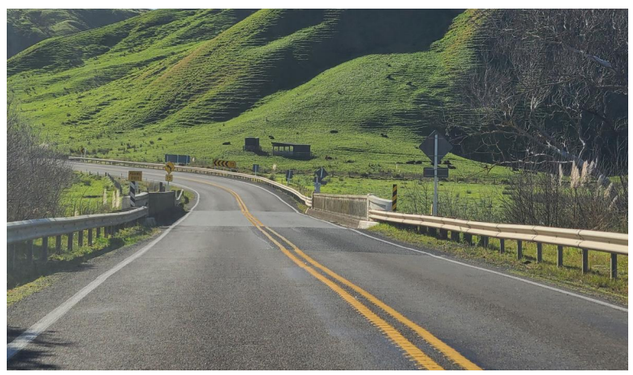
1:200 POUAWA PLAN- PROPOSED CLIP-ON- OPTION 1 01



1:100 POUAWA SHORT SECTION- OPT 1 02



NORTHERN APPROACH



SOUTHERN APPROACH

Location 1 - Clip-On
1101 Whangara Road- Bridge just before the Pouaua Marine Reserve.
Proposal- Clip on bridge, RHS (eastern). To be a minimum of 1.5-2m wide to be single lane and to cater for walkers, cyclists and horses.

CLIENT
CPS

PROJECT
TE ARA TIPUNA TRAIL

ADDRESS
VARIOUS

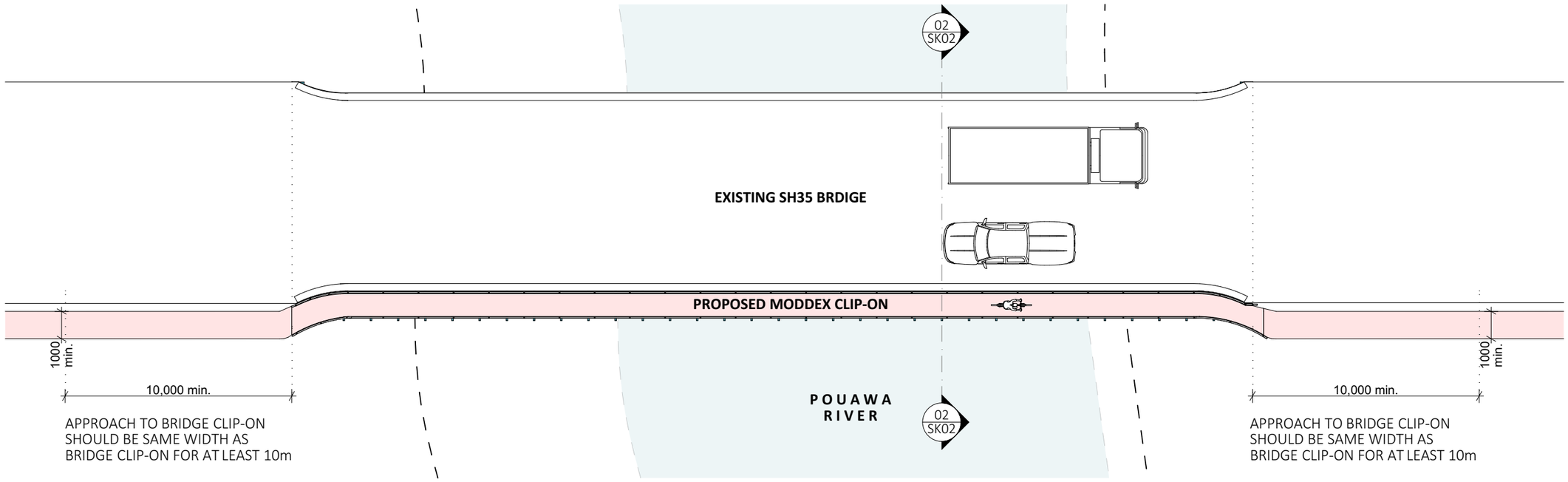
ISSUE STATUS
CONCEPT FOR RESOURCE CONSENT

JOB No	REVISION No	SCALE	ORIGINAL SHEET SIZE
2338		1:200, 1:100	A3

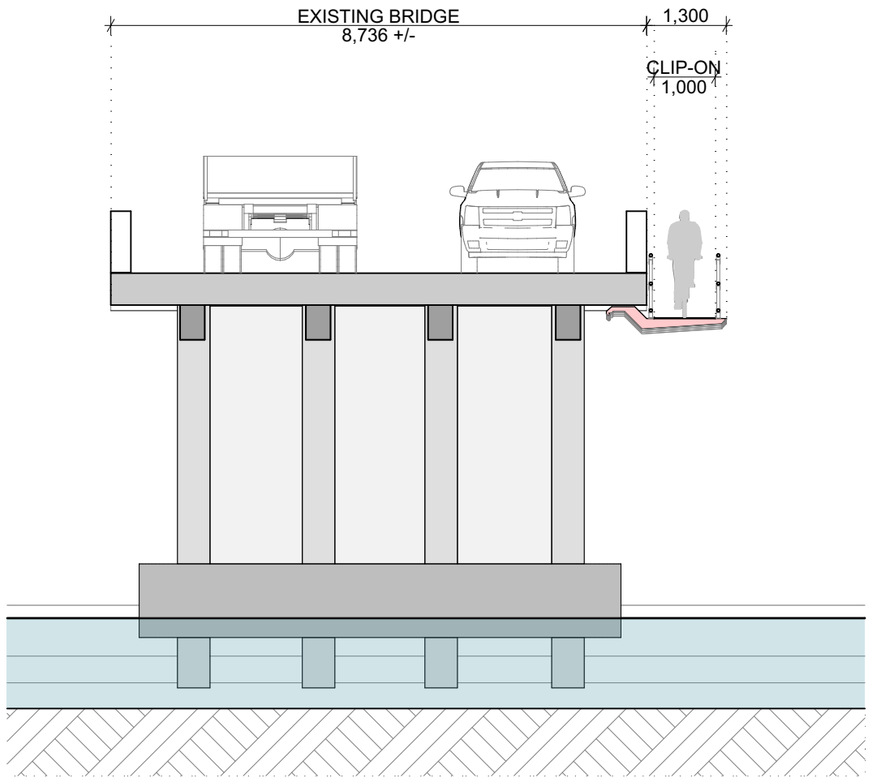
NO **SK01** TITLE **POUAWA OPTION 1**

ARCHITECTS 44

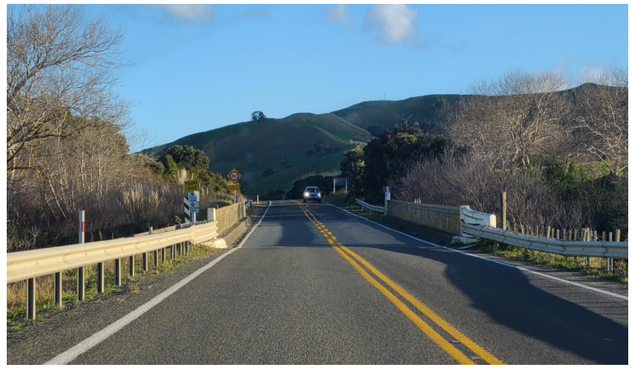
Architects 44 Limited
44 Childers Road Gisborne | PO Box 1241 Gisborne
P 06 867 9622 | F 06 867 9422 | architects@A44.co.nz
www.architects44.co.nz



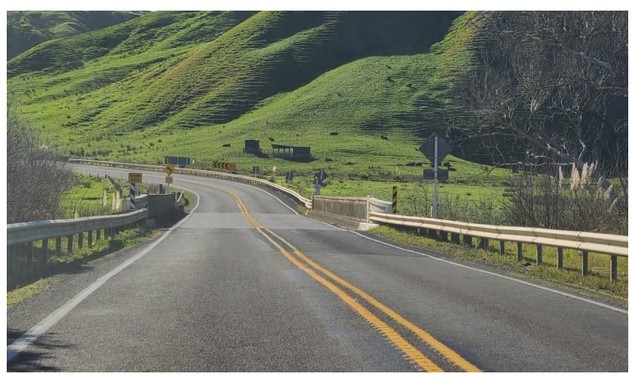
1:200 POUAWA PLAN- PROPOSED CLIP-ON- OPTION 2 01



1:100 POUAWA SHORT SECTION- OPT 2 02



NORTHERN APPROACH



SOUTHERN APPROACH

Location 1 - Moddex Clip-On
1101 Whangara Road- Bridge just before the Pouaua Marine Reserve.
Proposal- Clip on bridge, RHS (eastern).
Testing the Moddex Kliptread system.

CLIENT
CPS

PROJECT
TE ARA TIPUNA TRAIL

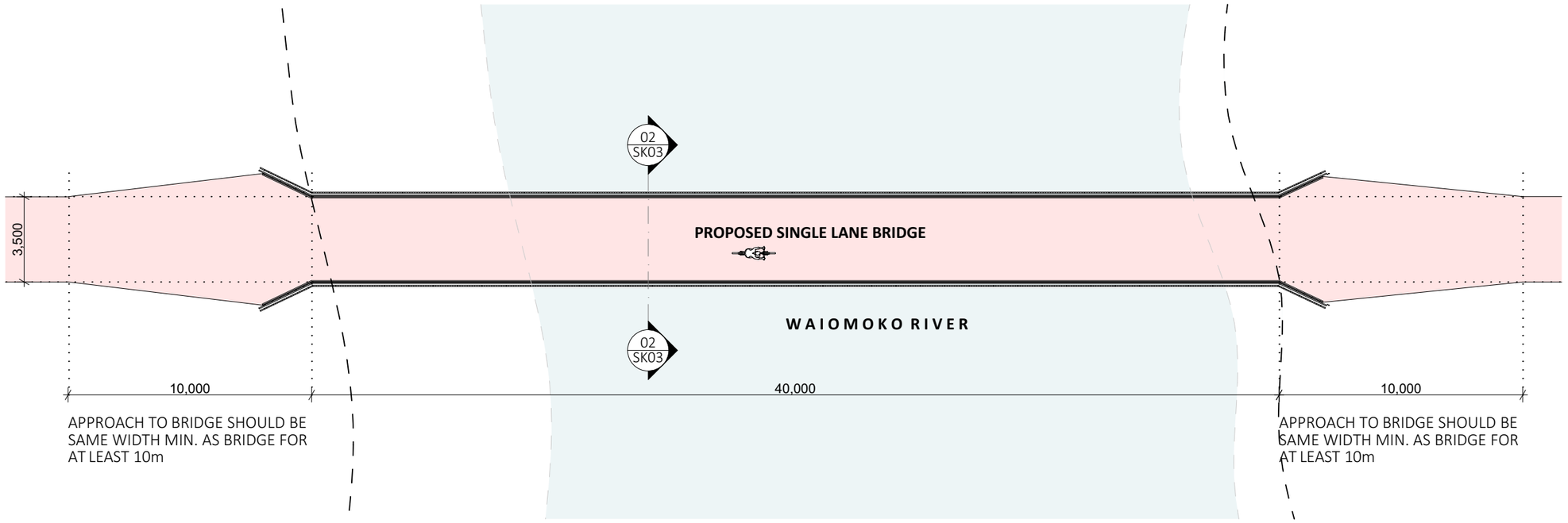
ADDRESS
VARIOUS

ISSUE STATUS
CONCEPT FOR RESOURCE CONSENT

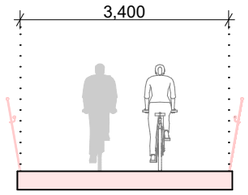
JOB No	REVISION No	SCALE	ORIGINAL SHEET SIZE
2338		1:200, 1:100	A3

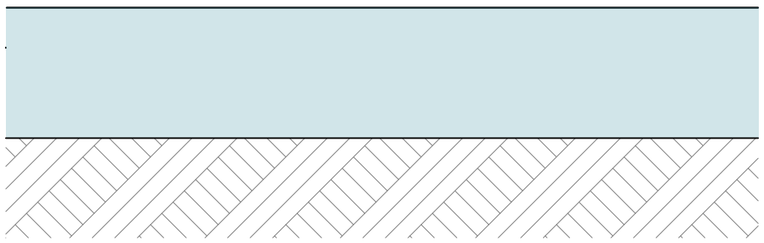
NO **SK02** TITLE **POUAWA OPTION 2**

ARCHITECTS 44
Architects 44 Limited
44 Childers Road Gisborne | PO Box 1241 Gisborne
P 06 867 9622 | F 06 867 9422 | architects@A44.co.nz
www.architects44.co.nz



1:200 WHANGARA PLAN- NEW BRIDGE 01





1:100 WHANGARA SHORT SECTION 02

LOCATION

Location 2 - New Bridge

Waimoko River coming onto Pa Road. Proposal- New bridge crossing the Waimoko River entering onto Pa Road and coming into Whangara. Bridge to be single lane with light vehicle access only. Lane width 3.1m or as per standard practice.

CLIENT
CPS

PROJECT
TE ARA TIPUNA TRAIL

ADDRESS
VARIOUS

ISSUE STATUS
CONCEPT FOR RESOURCE CONSENT

JOB No	REVISION No	SCALE	ORIGINAL SHEET SIZE
2338		1:200, 1:100	A3

NO **SK03** TITLE **WHANGARA**

ARCHITECTS 44
Architects 44 Limited
44 Childers Road Gisborne | PO Box 1241 Gisborne
P 06 867 9622 | F 06 867 9422 | architects@A44.co.nz
www.architects44.co.nz

KLIPTREAD™

WALKWAY AND HANDRAIL SYSTEM

Making your bridge walkway and barrier installation seamless...

Patent Pending 767353

Moddex proprietary Kliptread™ System ensures walkways and handrails on bridges can be specified and fitted effortlessly, with compliance guaranteed.

KlipTread™ has been specially designed and manufactured for upgrades on existing bridge infrastructure that are no longer compliant due to changes in standards over the years, and/or due to deterioration of walkways under the harsh environment in which they are found.

- Modular Flexibility
- No-weld assembly
- Flat pack delivery
- Reduce corrosion
- Available ex-stock
- Retrofittable

Technical Data

Material

Stanchions and rails	Steel/grade C250
Clamp fittings	Ferrous Casting
Clamp locking screws	Stainless Steel (304)

Protective coating

Stanchions and rails	G390 Hot-dip Galvanized (min 390g/m²)
Clamp fittings	Hot dip Galvanized with patented protective coating on threads
Arm	G 600. Minimum 500g/m²
Optional	Powder coating and paint specs*

*The standard process for Powder Coated and Painted handrail products is as follows: black steel is used for fabrication. The steel is sand blasted and a zinc primer coating is applied. The powder coat / paint coat is then applied over the zinc primer creating a dual shield coating with a decorative finish.

HANDRAIL

Dimensions

Stanchions

Diameter	48.3mm OD 41.9mm ID
Nominal Thickness	3.2 – 4.0 (loading dependent)

Rails

Diameter	48.3mm OD 41.9mm ID
Nominal Thickness	3.2mm

Clamp fittings

Thickness	5.0mm (approx)

Weight

Variable depending on building/application/code

Stanchion with clamps	7.2 to 8.0kg
Rail @ 6.0m	21.6kg

Fixings

Stanchion attachment to

Concrete	M12 galvanized mechanical concrete anchor
Structural steel	M16 galvanized high tensile bolt set

*Other Fixing options are availble on request

WALKWAY

Angle Side Supports	75x75x6mm
Material	FRP Grating

CANTILEVER ARM

Dimensions	8mm Plate 50mm Plate Hooks
Material	C350

Retrofittable

- Can be added to a bridge prior to any maintenance and used as an access platform.
- Installs directly onto bridge structure, separate to sleepers and tracks. Allows for the sleepers to be removed and replaced. without dismantling the walkway or handrail – allows the bridge to be safe for access prior and during sleeper and track work.
- Supplied in modular kitset form including all fixings, packed in 6.5m sections. Benefit of this makes transport to site straight-forward.

Safe, Compliant and Approved

- Fully compliant – pre-enigineered and certified.
- A compliant retrofittable walkway proprietary system.
- It has type approval. Which means if you are on the KiwiRail network, this solution is approved for use.
- Remove risk of falling during inspections and future maintenance.
- Modular, pre – engineered retrofit system means JSA/SSSP. requirements will be consistent and reliable, allowing for a greater margin of safety.

Speed and Ease of install

- Simple installation from above the structure.
- Easy and fast installation – specifically designed with KiwiRail to overcome traditional long-winded and difficult walkway installation.
- Cuts downtime to a fraction of previous walkway installs. (Installation completed in hours not days).
- Safety of install – designed to be installed from the top. Removes scaffolding costs and downtime.
- Speed of install – Uses a completely different methodology of install. What currently takes them 2months will be reduced to days.
- No welding or hotworks on site. No drilling to existing structure required.
- Moddex offers support and training for teams to get a full understanding of install methodology.

Warranty

50 years from date of purchase subject to correct installation, use and maintenance in accordance with manufacturer's specifications and recommendations, unless otherwise negotiated at the time of purchase.*

*Excludes FRP

Inspection & Maintenance

Visual inspection for any damage or loose fixings must be done periodically and prior to use. No certified maintenance required. Basic wear and tear preventative maintenance is recommended, as per manufacturer's specifications and recommendations.

Compliance

Moddex KlipTread ™ system is designed and manufactured in accordance with AS/NZS 1657:2018. Galvanized to AS 4792 and AS/NZS 4680:2006 (where applicable).

Testing

Stringent vibration endurance tests have been performed and independent testing has been carried out to confirm the suitability of the Moddex system in maritime conditions. FEA modelling, static load testing with a PS1 provided.

Design Life

Standard design life of Walkway is 50 years.*

*Excludes FRP

Applications suited to

- Interchangeable clamp hooks ensure fitting to a range of different I-beam profiles is seamless.
- Clipon walkways allow safety for pedestrians and service personnel by segregation from vehicles.
- Access requirements on I-beam structures
- Platforms and plantdecks

KT30 KlipTread™ Hot-dip Galvanized.
Industrial Handrail & Walkway Specifications

Clip-on Cantilever arm with a walkway
Top, mid & bottom rail

KiwiRail Type Approved
Patent Pending 767353

Key features
- Modular flexibility
- No-weld assembly
- Flat pack delivery
- Reduced corrosion
- Available ex-stock
- BIM & CAD Support

Applications suited to
- Interchangeable clamp hooks ensure fitting to a range of different I-beam profiles is seamless.
- Clipon walkways allow safety for pedestrians and service personnel by segregation from vehicles.
- Access requirements on I-beam structures
- Platforms and plantdecks

Specification Summary
Supply of KlipTread ™ proprietary system which includes a clipon cantilever arm and a TR30 handrail mounted onto a walkway to substrate according to Moddex specifications.

Technical Data

Material

Stanchions and rails	Steel/grade C250
Clamp fittings	Ferrous Casting
Clamp locking screws	Stainless Steel (304)

Protective coating

Stanchions and rails	G390 Hot-dip Galvanized (min 390g/m^2)
Clamp fittings	Hot dip Galvanized with patented protective coating on threads
Arm	G 600. Minimum 500g/m^2
Optional	Powder coating and paint specs*

*The standard process for Powder Coated and Painted handrail products is as follows: black steel is used for fabrication. The steel is sand blasted and a zinc primer coating is applied. The powder coat / paint coat is then applied over the zinc primer creating a dual shield coating with a decorative finish.

HANDRAIL

Dimensions

Stanchions

Diameter	48.3mm OD 41.9mm ID
Nominal Thickness	3.2 – 4.0 (loading dependent)

Rails

Diameter	48.3mm OD 41.9mm ID
Nominal Thickness	3.2mm

Clamp fittings

Thickness	5.0mm (approx)

Weight

Variable depending on building/application/ code

Stanchion with clamps	7.2 to 8.0kg
Rail @ 6.0m	21.6kg

Fixings

Stanchion attachment to

Concrete	M12 galvanized mechanical concrete anchor
Structural steel	M16 galvanized high tensile bolt set

*Other Fixing options are availble on request

WALKWAY

Angle Side Supports	75x75x6mm
Material	FRP Grating

CANTILEVER ARM

Dimensions	8mm Plate 50mm Plate Hooks
Material	C350

Compliance
Moddex KlipTread ™ system is designed and manufactured in accordance with AS/NZS 1657:2018.
Galvanized to AS 4792 and AS/NZS 4680:2006 (where applicable).
KiwiRail Type Approved - Certificate Number B - TA - 1001.

Testing
Stringent vibration endurance tests have been performed and independent testing has been carried out to confirm the suitability of the Moddex system in maritime conditions. FEA moddelling, static load testing with a PS1 provided.

Warranty
50 years from date of purchase subject to correct installation, use and maintenance in accordance with manufacturer's specifications and recommendations, unless otherwise negotiated at the time of purchase.*
— Refer installation manual
* Excludes FRP

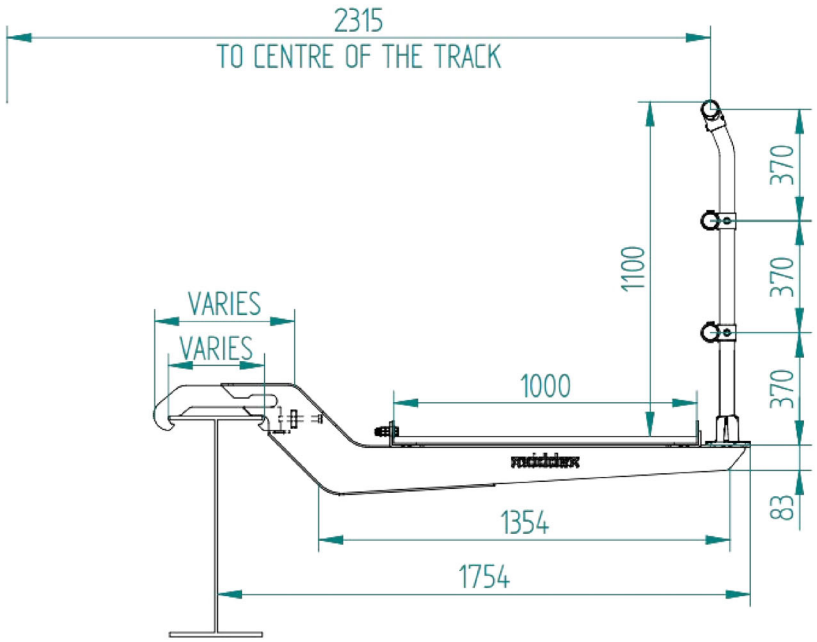
Inspection & Maintenance
Visual inspection for any damage or loose fixings must be done periodically and prior to use. No certified maintenance required. Basic wear and tear preventative maintenance is recommended, as per manufacturer's specifications and recommendations.
— Refer installation manual

Design Life
Standard design life of Walkway is 50 years.*

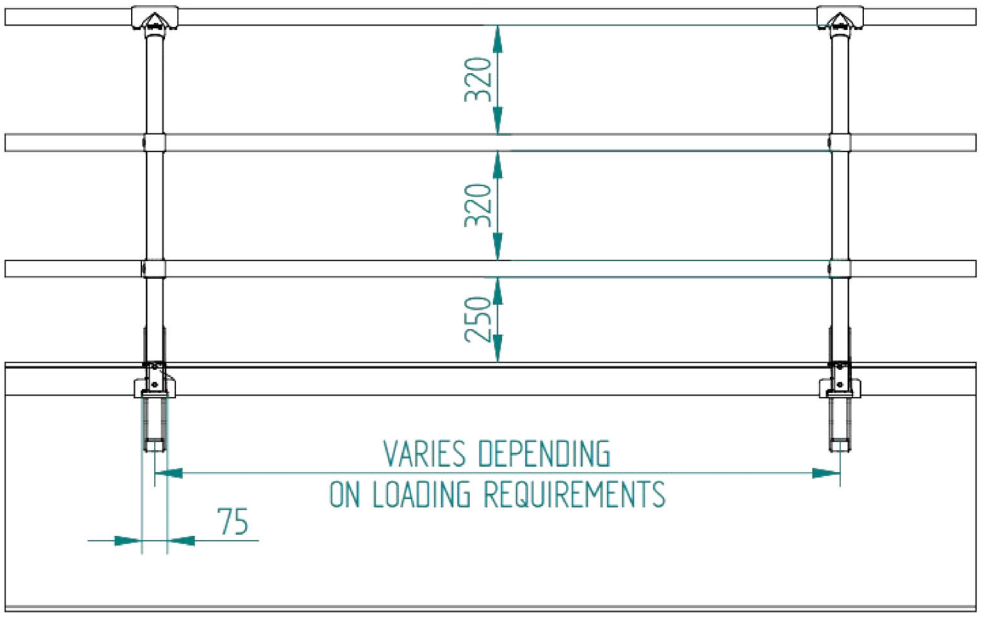
* Excludes FRP

Technical Information

Clip-on Cantilever Arm & Walkway



Industrail Handrail Tuffrail TR30



For information or technical support please contact us
T 1800 663 339 (AU)
T 0800 663 339 (NZ)

moddex.com

MODDEX

THE LEADERS IN MODULAR
BARRIER SYSTEMS

moddex®
EVERYTHING FITS

CONTENTS

ABOUT US

Everything Fits.

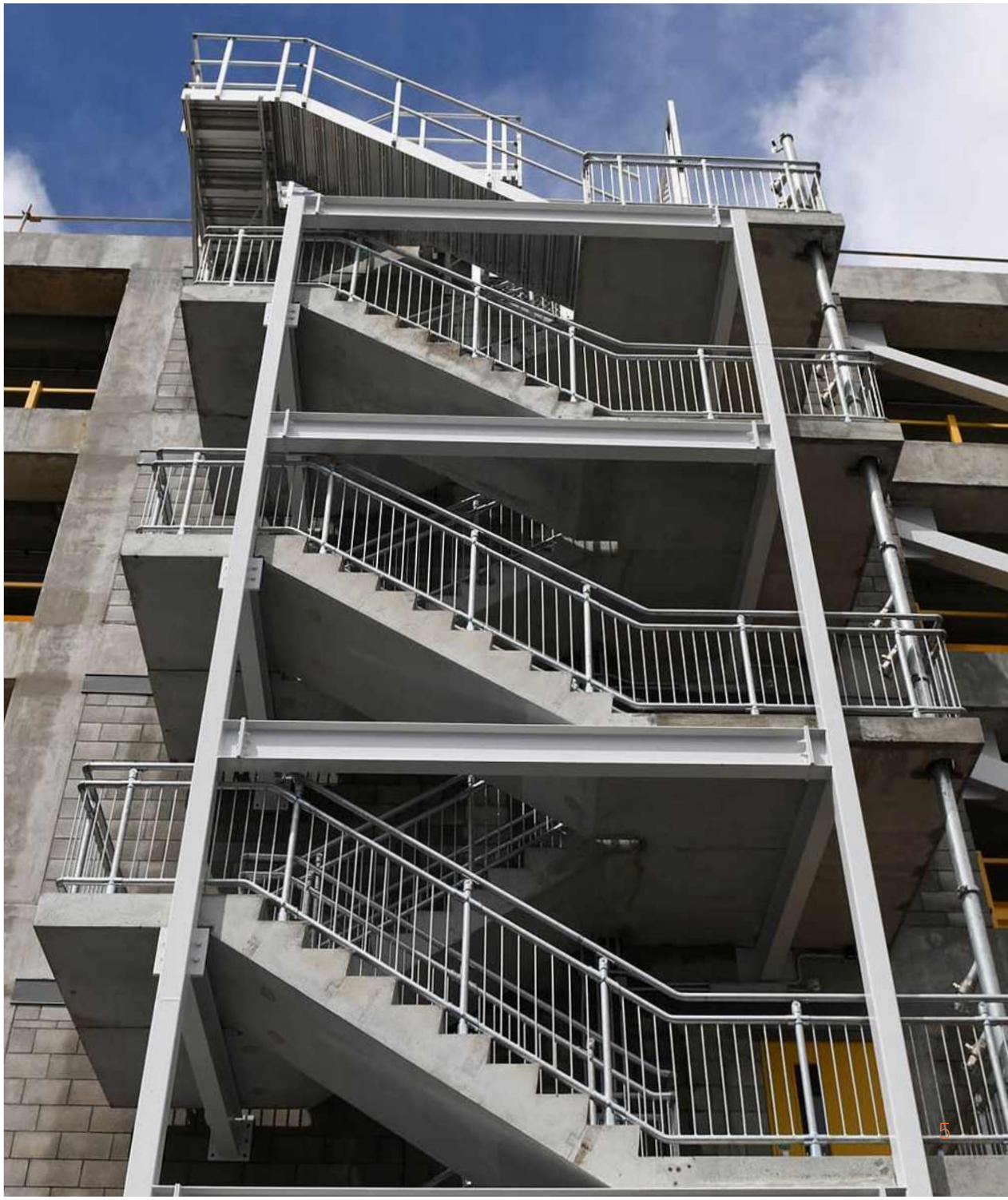
Moddex is Australasia's leading manufacturer of innovative barrier systems for large-scale infrastructure and non-residential construction projects.

We do things differently at Moddex - we're always on the lookout for better ways to solve the unique obstacles construction projects face, so that our customers can focus on doing what they do best.

Our extensive range of handrails, barriers, commercial and industry balustrade and guardrail systems are specifically designed for a wide range of industrial, commercial and civil applications. All our systems comply with Australian and New Zealand Standard, NCC and WHS regulations, so you know you're always covered.

Our range of proprietary modular designs are manufactured in house and designed to save our customers time and money, and our personalised approach to customer service ensures you're looked after from concept to installation. Our barrier systems are fit for purpose, simple to use, and able to be modified to cater for any unique requirements, and our streamlined ordering and installation process is designed with customer convenience in mind.

With Moddex there is ultimate peace of mind, with knowing everything fits. Get in touch today to find out how we can help with your next project.



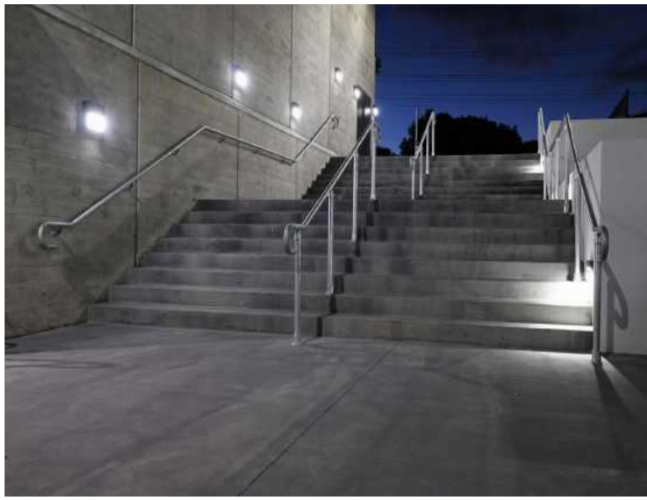
ASSISTRAIL®
PUBLIC ACCESS HANDRAILS

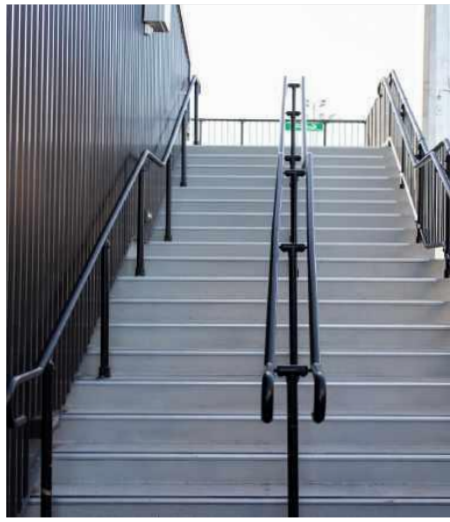
Moddex Assistrail® Public Access and Disability Handrail systems ensure safety on accessible routes for people moving in and out of buildings and for the mobility impaired or vision impaired can traverse your site safely and with ease. You have the backing of our technical experts who can advise on potential hazards and the best solutions.
Moddex Public Access and Disability Handrails comply with the New Zealand Building Code (NZBC) and New Zealand Standard 4121:2001. With 15 configurations available in the Assistrail® family, Moddex Public Access and Disability Handrails offer:

- Single or double rail requirements for primary and secondary schools
- Smooth and continuous top rails for compliance with NZS 4121:2001 and the NZBC
- Galvanized zinc for durability and corrosion resistance
- Modular Kerbrails fully compliant to the NZBC - D1 Accessible Routes.

APPLICATIONS

- Shared pedestrian paths
- Sports and recreation centres
- Service platforms
- Roof service areas and fall edges
- Warehouses and loading bays
- Access ramp and stairs
- Fire and access stairs
- Schools and universities
- Safety railing for mezzanine
- Hospitals and medical facilities
- Public transport and sightseeing
- Community and recreation centres.





CONECTABAL®
COMMERCIAL BALUSTRADES

When you need to mitigate or eliminate risk to workers, customers and visitors from falls from height in public areas, why not consider Moddex Conectabal® Commercial Balustrades?

Conectabal® can also form part of a cohesive solution as they're designed to integrate easily with our Tuffrail® and Assistrail® ranges.

Moddex commercial balustrades offer a high safety load rating and will achieve compliance with every standard in any application.

With nine configurations available in the Conectabal® family, Moddex commercial balustrades are suitable for:

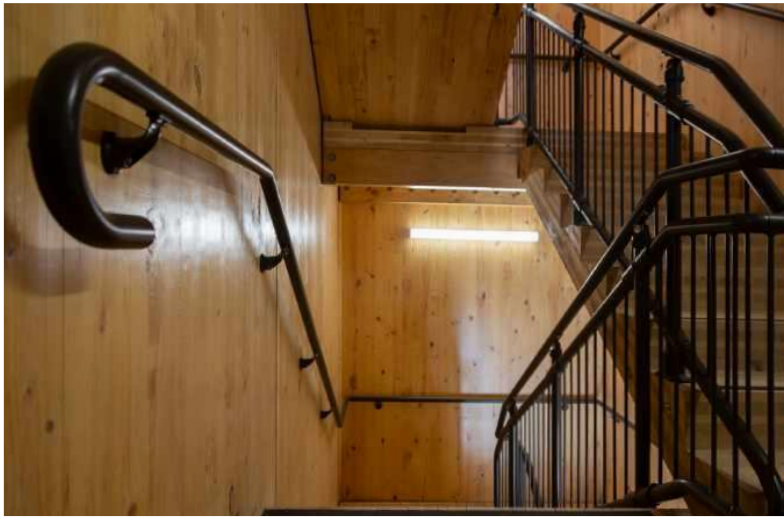
- Mitigating or eliminating falls from above one metre for public use areas.

Other features:

- Balusters at 100mm intervals to exceed standards across New Zealand Kerbrail configuration for added safety
- Crowd loadings up to C5 classification on request.

APPLICATIONS

- Retaining walls
- Car parks
- Access ramps and stairs
- Recreation centres
- Public access areas
- Footbridges
- Culverts
- Loading bays
- Mezzanines
- Fire stairs



TUFFRAIL®
INDUSTRIAL HANDRAILS

Moddex Tuffrail® Industrial Handrails ensure pedestrians, employees and site visitors are protected against corroded handrails – tough in the face of sea spray or chemical corrosion.

Moddex Industrial Handrails deliver NZS 1657 compliant protection for workers across mezzanines, stairs, service platforms, walkways and fall edges.

With four configurations available in the Tuffrail® family, Moddex Industrial Handrails offer:

- Single rail edge protection
- Top and mid rail designs / with toeboards
- Compliance with NZ Standard NZS 1657.

APPLICATIONS

- Coastal regions
- Water treatment plants
- Warehouses
- Loading bays
- Airport
- Shopping centres
- Pedestrian paths
- Bridges
- Car parks
- Recreation centres

BIKESAFE®
BIKEWAY BARRIERS

Moddex Bikesafe® Barriers ensure you protect cyclists, especially those travelling at speed, and eliminate or mitigate injury from falls. Bikesafe systems are quick and easy to install, with curved sections to flow with cycle ways.

The smooth continuous top rails help prevent or mitigate injury for both pedestrians and cyclists.

Bikesafe® Bikeway barriers are designed to integrate easily with our Conectabal and Assistrail range.

Moddex Bikeway Barriers are designed to align with Austroads Guide to Road Design Part 6A and 6B and the NZTA Bridge Manual B6.4.

With six configurations available in the Bikesafe® family, Moddex bikeway barriers offer:

- Continuous full or partial offset barriers for protection across culverts, bridges, headwalls and hazards
- Smooth and continuous top rails for injury prevention
- Curves to flow with bike paths or cycle ways.

APPLICATIONS

- Shared pedestrian paths
- Over and around culverts
- Footbridges
- Retaining walls

BRIDGERAIL™
BRIDGE BARRIERS

Moddex proprietary Bridgerail™ systems ensure balustrades on bridges can be specified and fitted effortlessly, with compliance guaranteed. This product is perfectly suited to public access areas forming part of road, rail or other elevated bridge structures.

Moddex pre-engineered designs are able to provide ultimate peace of mind to our Road and Rail Authorities, Consulting Engineers and Civil Contractors alike.

Moddex has created this unique Bridgerail™ system to comply with AS/NZS 5100.2 Clause 12.5 and the NZTA Bridge Manual Compliant to Clause B6.4.*

Bridgerail™ makes your transport infrastructure barrier systems seamless:

- Pre-fabricated kit-form systems allow for speedy installation
- No need for site welding – Modular assembly
- Tough and durable – Bridgerail™ has a 100-year design life
- Bridgerail™ is on average 30% faster to install than traditional pre-fabricated systems.

APPLICATIONS

- Road bridges
- Rail bridges
- Cycle bridges
- Concrete structures

*Excludes where the road controlling authority requires the barrier to restrain crowds or people under panic conditions

KLIPTREAD™
CLIP-ON WALKWAY SYSTEM

Moddex proprietary Kliptread™ System ensures safety and compliance on bridges by allowing walkways and handrails to be specified and fitted effortlessly.

KlipTread ™ is a fully compliant, retrofittable system that is pre-engineered and certified, allowing for a greater margin of safety.

Simple installation from above the structure, cuts downtime to a fraction of previous walkway installs and ensures safety.

APPLICATIONS

- Road bridges
- Rail bridges
- Cycle bridges

KlipTread ™ makes your bridge walkways and barrier installation seamless:

- Pre-Engineered
- Flat- Packed Kit
- Fully Compliant
- Clip-On
- Retrofittable
- Quick and easy to Install.

EZIBILT™
MODULAR RAMP,DECK & STAIR SYSTEM

Patent Pending NZ778084

The Ezibilt™ Modular Stair, Ramp & Deck System is the ultimate pre-engineered modular solution for fast-tracked construction of accessibility stairs, ramps and decks.

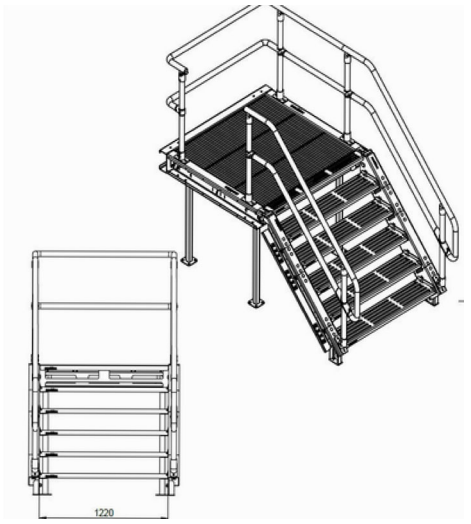
Designed for simple assembly by any builder, the Ezibilt stair, ramp and deck system provides the foundation for easily integrated installation of Moddex handrail and balustrades and allows for timber cladding to be added once installed.

Adjustable and compatible to fit sloping site terrain with ramps and platforms having adjustable legs and stairs with adjustable stringers (both in length and angle) usable from 24° through to 38°.

The Ezibilt system replaces traditional custom-built access ramps, stairs and decks and eliminates the time-consuming processes associated with site measuring, customised design, delivery and installation.

APPLICATIONS

- Schools
- Portable buildings
- Fire escape platforms & stairs
- Portacoms
- Site offices
- Parks, outdoor huts, walking tracks & viewing platforms
- Container houses
- Permanent ramp, deck & stair applications on all construction sites



MATERIAL TYPES

Within our Industrial Handrail range - Tuffrail, we have three material types, that between them cater for pretty much any environment.

When you're dealing with sites exposed to the elements and harsh chemicals, you need to know that the handrail and balustrade systems in place are tough and capable of providing maximum site safety.

Moddex innovative engineering design and technology brings renowned expertise essential to implementing the barrier solution made from the most suitable raw materials, including :

- Hot-dip Galvanised Steel
- Marine grade Aluminium
- 316 Grade Stainless Steel.

Marine-Grade Aluminium | 316 Grade Stainless Steel | Hot Dip Galvanised Steel

MOUNT TYPES

T2 - Top Mount (2 Fixings)

F2 - Face Mount (2 Fixings)

C11 - Channel Mount (2 Fixings)

C13 - Channel Mount (2 Fixings)

T4 - Top Mount (4 Fixings)

GD - Inground Mount

CD - Cored Mount

AM - Angle Mount (2 Fixings)

CM - Collabsible Mount (4 Fixings)

WHY MODDEX?

IN-LINE JOINER

Made from galvanised steel and marine grade aluminium, it comes in a range of swivel, straight and 90-degree forms and fully complies with industry standard AS 1428 and NZS 4121 governing public access areas and ramps for use by people with disabilities. The Swivel In-line Joiner provides internal expansion from 0-90 degrees. Together with Straight In-line and 90-degree joiners, we can overcome any on-site challenge and simplify any complex handrail or balustrade installation.

DEXX® LOCKING SCREW

Designed to create an automatic, long-lasting deadlock when screwed in, the unique 5-star connection is only unlockable using a specific Moddex-supplied DEXX® screwdriver. The advanced knurled-edge technology allows for deadlocks which withstand even the most rigorous vibration tests.

THE TUFFGARD® TOEBOARD

The light, flexible and structurally-tough Tuffgard® Toeboard, was created in response to AS/NZS 1657. The modular post bracket assembly allows you to easily make fine adjustments in order to meet the legal 10mm gap requirement above raised walkways. You have the control and flexibility to adjust the height of the toeboard across uneven surfaces without the need for welding tools and onsite customisation. Slotted holes in the Tuffgard® Toeboard allow for almost-infinite adjustment when fitting up to the post bracket.

ADJUSTABLE TOP RAIL FITTING

Unlike the old traditional welded ball-joint, the adjustable top-rail fitting achieves uninterrupted, continual hand flow for the end user in line with AS/NZS 1567. Fully-adjustable, the ergonomic design spans from level to 45 degrees and features rounded edges, along with strategic placement of screw beneath the rail.

SMOOTH MANDREL BENDS

To ensure smooth hand flow, strength and durability, Moddex handrail transitions are typically mandrel bent by CNC benders to suit site specific angles and dimensions. Inferior handrail transition points often are assembled with coupling rather than mandrels bends in the critical load bearing transition areas of a handrail. This increases the chance of a handrail failing or coming loose in time and doesn't provide a neat finish that fits well into the hand.

ERGONOMIC CONNECTOR

The ergonomic connector is the ultimate sleek, stylish, streamlined and safe solution when compared to traditional connectors. With the thinner-diameter form and locking screws flush underneath, the ergonomic connector ensures the flow of the hand along the rail is unimpeded in accordance with AS/NZS 1657.

THREAD PROTECTION COATING

To ensure the longevity of our product in the field, Moddex applies a thread protection coating after the hot dip galvanizing and thread cutting process. This final zinc coat covers both the previously hot dip galvanized surface and the freshly cut threads, creating a dual finish on the main body of the connector and a durable coating on the raw steel that is exposed during the thread machining process.

As a result of this additional thread protection coating, the threads hold up exceptionally well even in corrosive environments which are supported by our product warranties.

MODULAR SYSTEM CONNECTIVITY

Our modular components are designed to connect with each other to create a more streamlined ordering and installation process. Through modular system connectivity, it's now possible to achieve seamless connections from disability handrail systems to commercial balustrade systems.

END-TO-END PROCESS

Our team will manage your project, budget and reputation with New Zealand's most trusted range of handrails and balustrades.
We can assist you through the entire project process or at various stages as directed depending on your needs and in-house expertise.

1

Client Consultation

Establish a thorough understanding of scope of works, including budget, intended application, available plans & deadline for delivery.

2

Compliance Advice

Advise on compliance for intended application against all relevant standards, including New Zealand Standards, Disability Discrimination Act, New Zealand Building Code & International Standards.

3

Proposal Submission

Development and submission of a project proposal for client approval with costings, sketches or plans and specification sheets for every product recommendation.

4

Moddex Site Measurement

Attendance on-site for detailed site measurements to inform accurate development of CAD drawings.

Client Site Measurement

Supply of site measurements from the client, architects, builders, project managers or installers to inform accurate development of CAD drawings.

5

CAD Design

Review of proposal & critical compliance dimensions against relevant standards & issue design intent drawings.

6

Design Approval

CAD designs informed by site measurements, compliance & budget submitted for approval & compliance sign-off with all relevant stakeholders, including builders, architects & or project managers.

7

Shop Drawings

Final production & installation drawings supplied, including a parts supply list with instructions on where parts apply.

8

Production Management

Assembly of all required parts for scheduled delivery to site, including custom fabrication, painting, galvanizing or powder coating, if required.

9

Freight

Scheduled delivery of all required parts in alignment with client project timelines from Moddex warehouses New Zealand-wide.

10

Moddex Installation & Handover

Compliant installation on-site care of our nationwide network of accredited installers, along with the supply of our care & maintenance manual, product certification & warranty certificates.

Client Installation

Client organises self-installation on site. Moddex supplies full installation drawings, along with a Moddex Installation Guide. Moddex technical support is available if required.

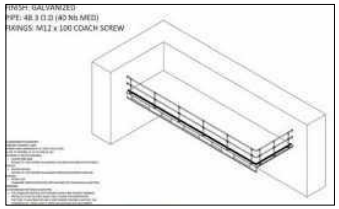
DESIGN PROCESS

The Moddex system ensures Everything Fits™. And we don't just mean the components. We're talking about the Moddex process that makes the entire experience smooth, solves problems and guarantees compliance.

1

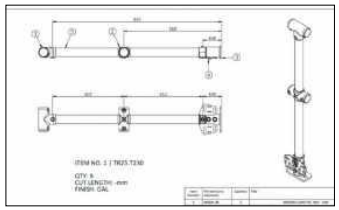
After Moddex receives a site plan, the design team identifies the different systems that will be used, matching them to the correct Moddex system configuration numbers and the plan is marked up accordingly. Moddex's plan mark-up system is unique in the industry and enables you to see exactly how the modular barrier system will fit into the overall design.

2



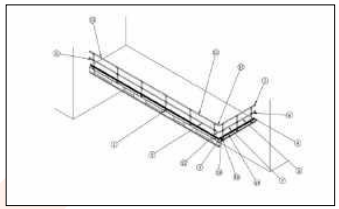
Using site measurements or the client's 3D model, a Design Intent (DI) is created. The DI is a snapshot of the proposed installation that quickly identifies any misconceptions.
The process provides enormous flexibility for customers to have input at an early stage and surfaces all potential compliance issues before committing resources to shop drawings.

3



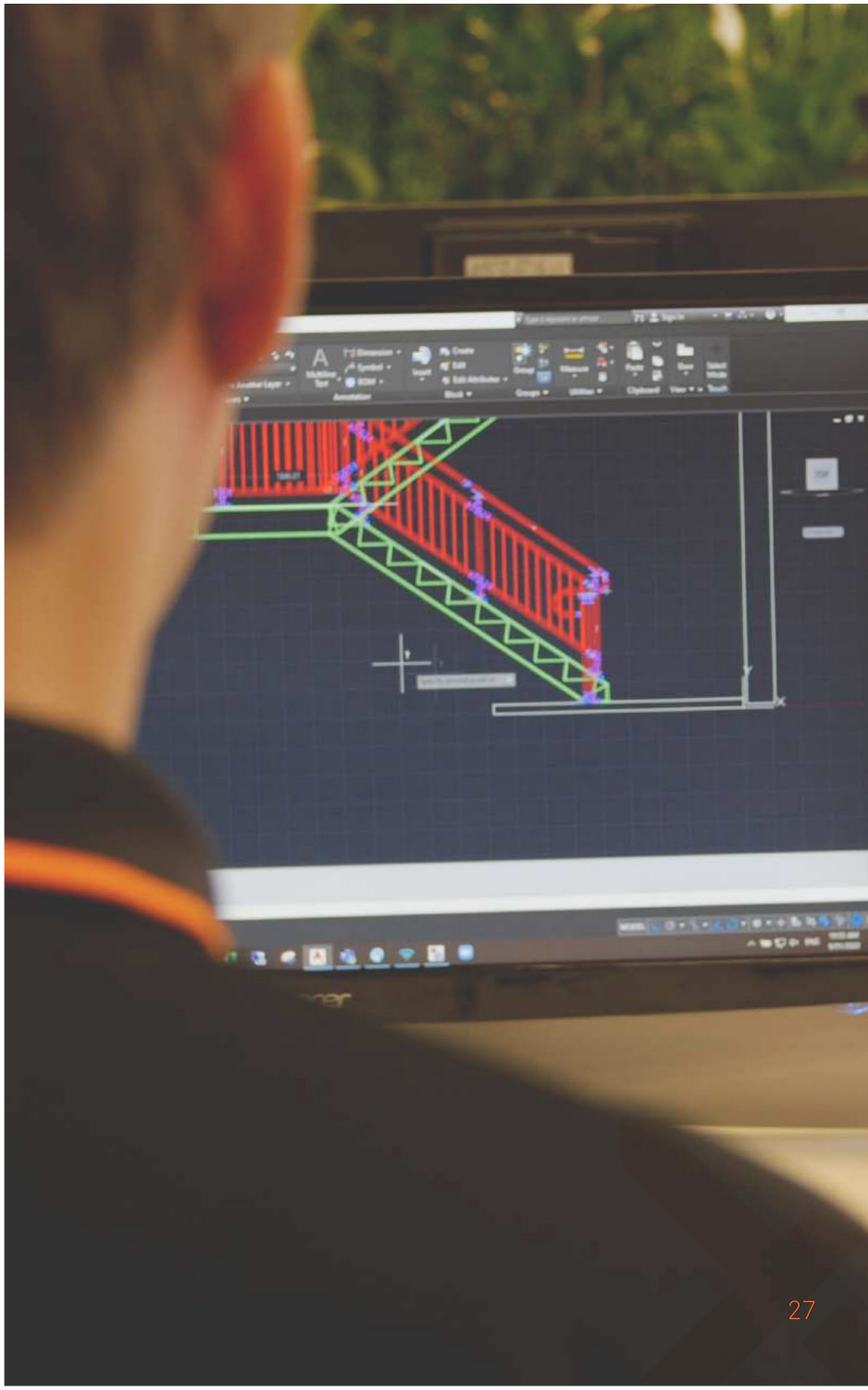
Once DI is reviewed by the project team and signed-off by a compliance certifier, the Moddex drafting team create and finalise the shop drawings.
All necessary components according to the section being installed, and then picked, packed and shipped to the site.

4

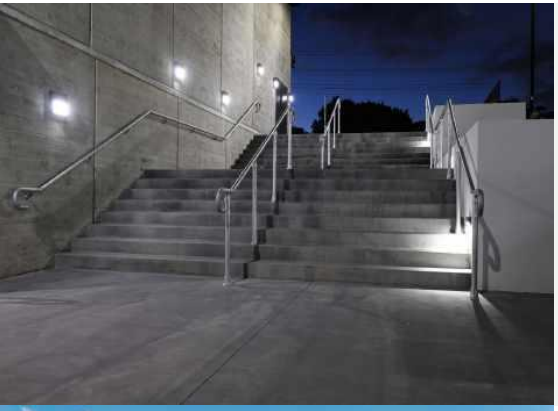


The product arrives on site with detailed drawings, allowing installers to work with fewer tools, less dust and noise; reducing their installation time.
Variations invariably come up on projects, and the benefit of a modular design means these changes can be made on the fly quickly and efficiently.

The net result of Moddex planning disciplines, innovative design and Everything Fits™ philosophy is simple – no surprises.

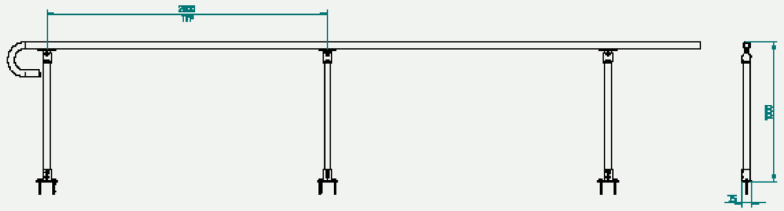


ASSISTRAIL®
CONFIGURATIONS



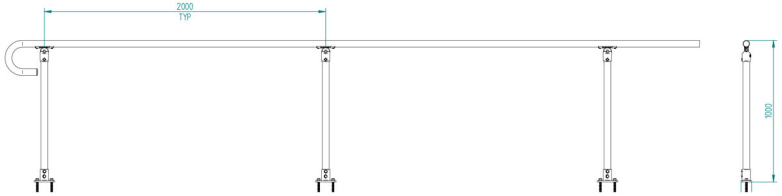
AR10

SINGLE INLINE HANDRAIL
For stairs and level applications under one metre (FFL)



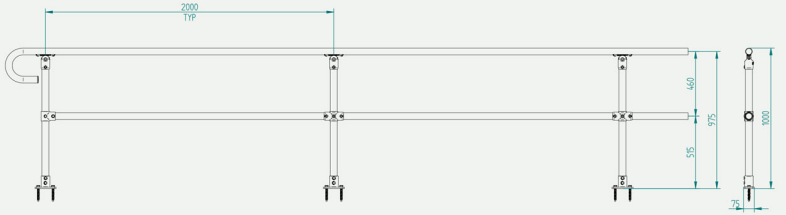
AR20

SINGLE INLINE HANDRAIL | KERBRAIL
For disabled ramps under one metre (FFL)



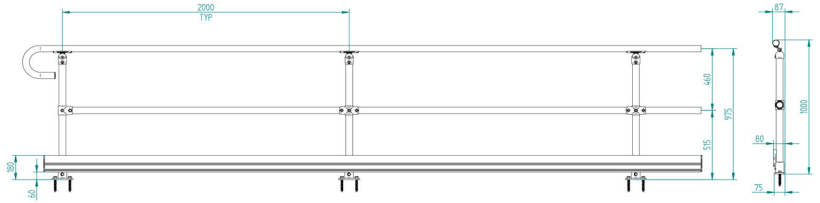
AR30

SINGLE INLINE HANDRAIL | MIDRAIL
For stairs and level applications under one metre (FFL) & midrail for extra protection



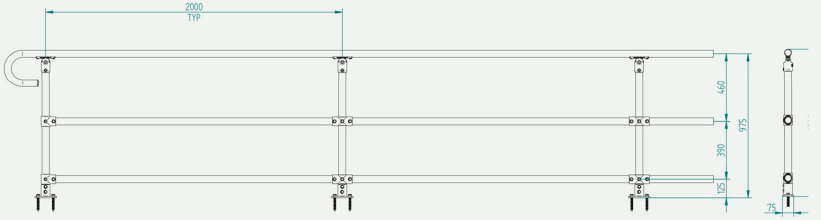
AR40

SINGLE INLINE HANDRAIL | MIDRAIL & KERBRAIL
For disabled ramps under one metre (FFL) and midrail for extra protection



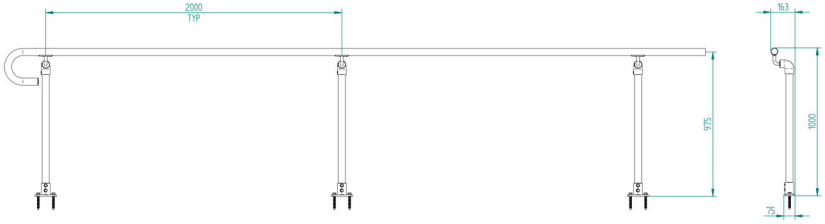
AR45

SINGLE INLINE HANDRAIL | MID & BOTTOM RAILS
For stairs and level applications under one metre (FFL)



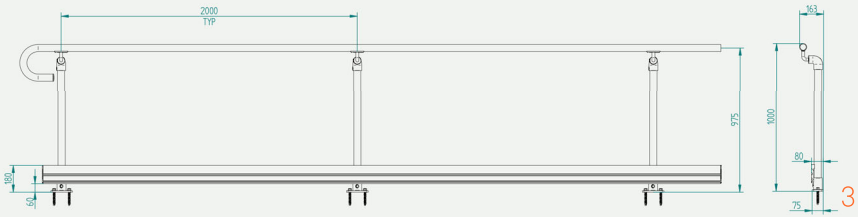
AR50

SINGLE OFFSET HANDRAIL
For stairs & level applications under one metre (FFL) with offset (often used on concrete nibs)



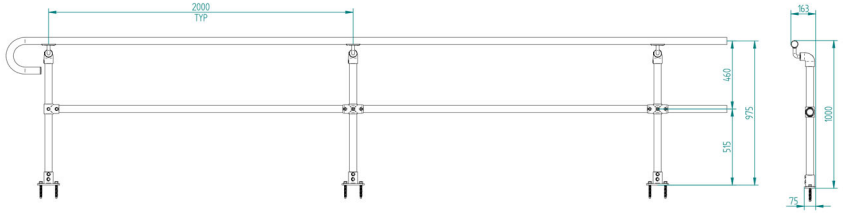
AR60

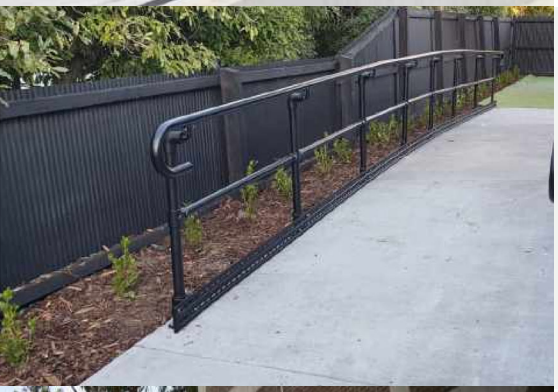
SINGLE OFFSET HANDRAIL | KERBRAIL
For disability ramps under one metre (FFL) with offset



AR70

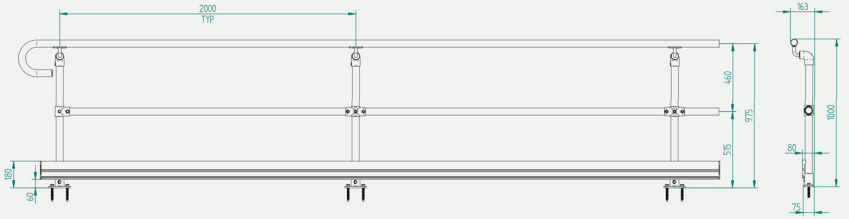
SINGLE OFFSET HANDRAIL | MIDRAIL.
For level, ramp and stair applications under one metre (FFL) and midrail for extra protection

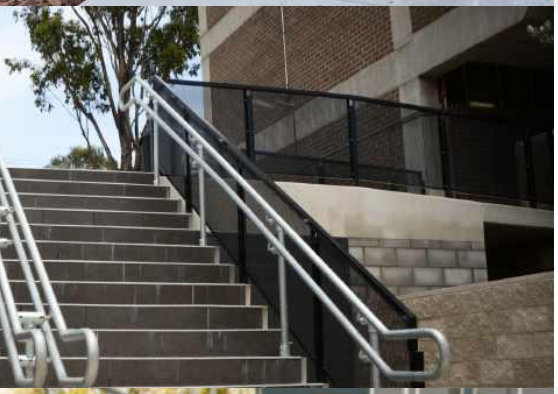




AR80

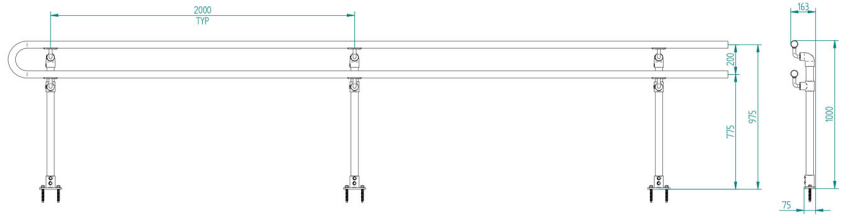
SINGLE OFFSET HANDRAIL | MIDRAIL & KERBRAIL
For disabled ramps under one metre (FFL) with offset and midrail for extra protection

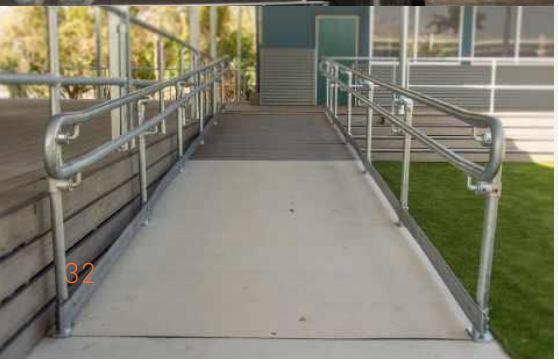




AR110

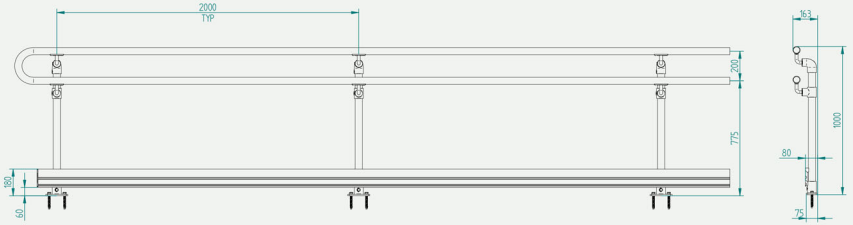
DOUBLE OFFSET HANDRAIL





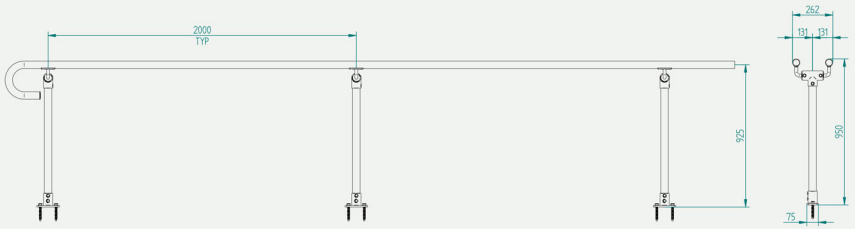
AR120

DOUBLE OFFSET HANDRAIL | KERBRAIL



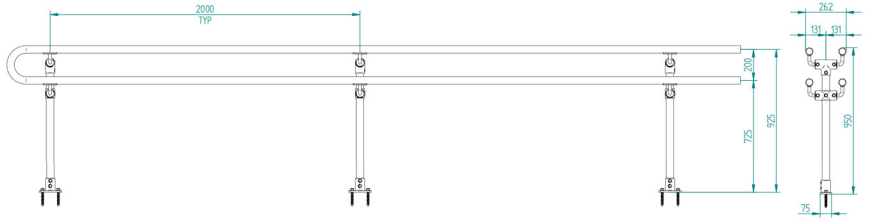
AR130

SINGLE INLINE HANDRAIL | KERBRAIL
For stairs



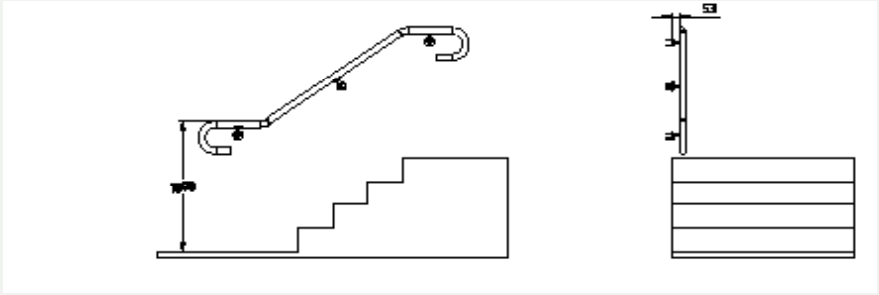
AR140

TWIN DOUBLE OFFSET HANDRAIL



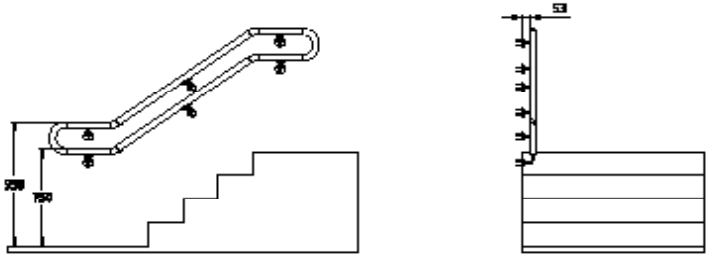
AR150

SINGLE OFFSET HANDRAIL | WALL MOUNTED
For level, ramp and stair applications with suitable substrate for mounting



AR160

DOUBLE OFFSET HANDRAIL | WALL MOUNTED

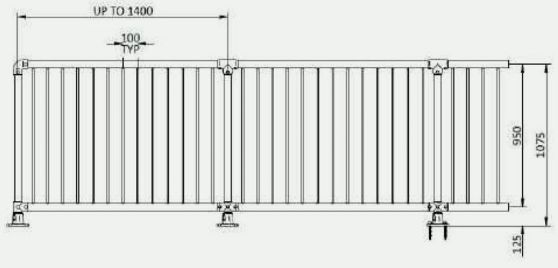


For full compliance details go to moddex.com/products/assistrail-disability-handrails

CONECTABAL®
CONFIGURATIONS

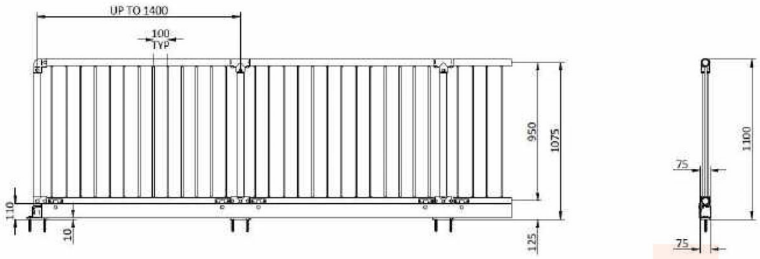
CB10

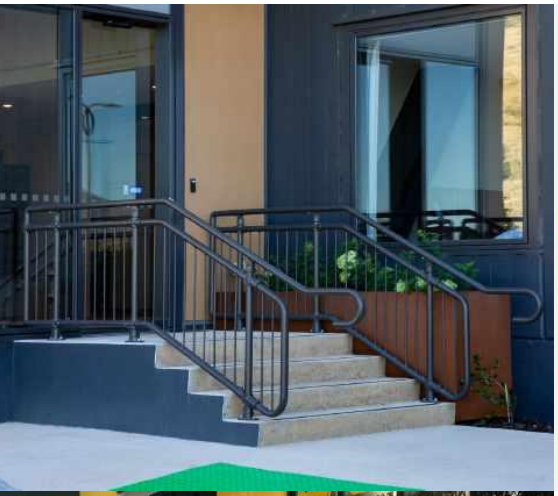
STANDARD BALUSTRADE
For level applications above one metre (FFL)



CB20

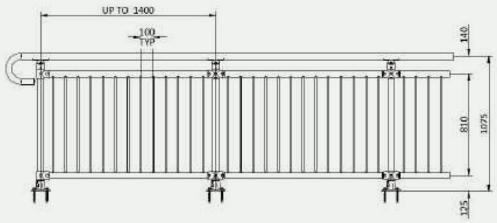
BALUSTRADE | TOEBOARD
For level applications above one metre

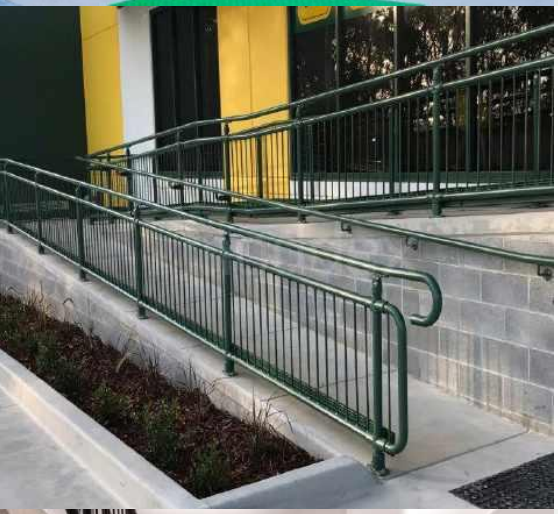




CB30

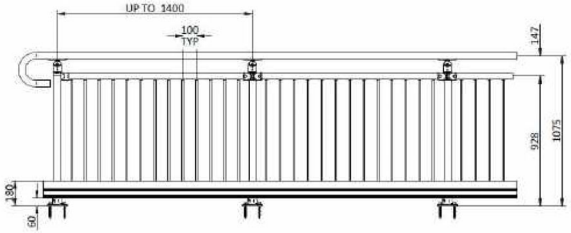
BALUSTRADE | SINGLE INLINE HANDRAIL
For level and stair applications above one metre (FFL)

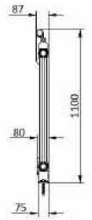


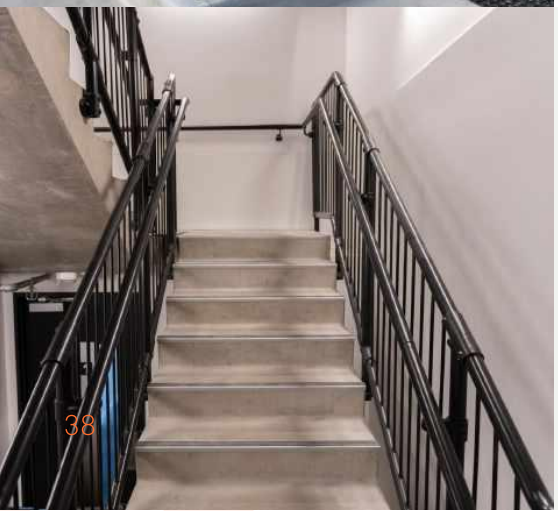


CB35

BALUSTRADE | SINGLE INLINE HANDRAIL & KERBRAIL
For level and ramp applications above one metre (FFL)

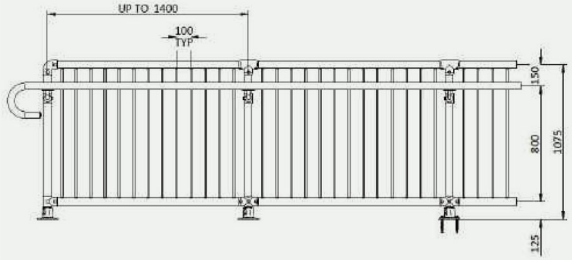






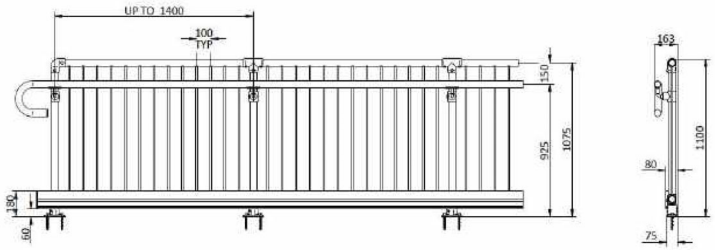
CB40

BALUSTRADE | SINGLE OFFSET HANDRAIL
For level and stair applications above one metre (FFL)



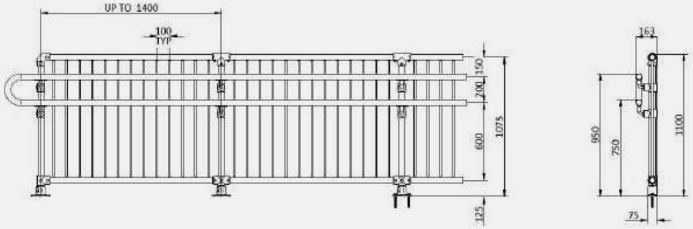
CB45

BALUSTRADE | SINGLE OFFSET HANDRAIL & KERBRAIL
For level and ramp applications above one metre (FFL)



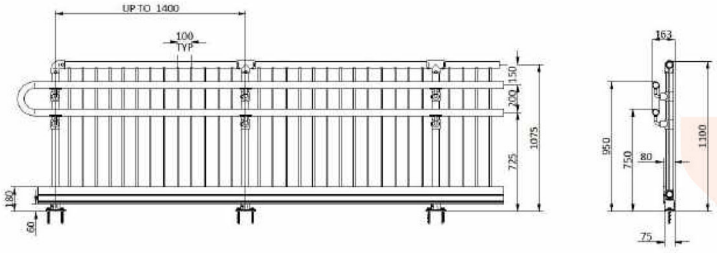
CB50

BALUSTRADE | DOUBLE OFFSET HANDRAIL



CB55

BALUSTRADE | DOUBLE OFFSET HANDRAIL & KERBRAIL

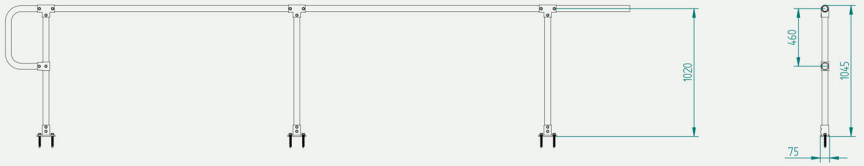


For full compliance details go to moddex.com/products/conectabal-commercial-balustrades/

TUFFRAIL®
CONFIGURATIONS

TR10

SINGLE TOP RAIL
For level and rake

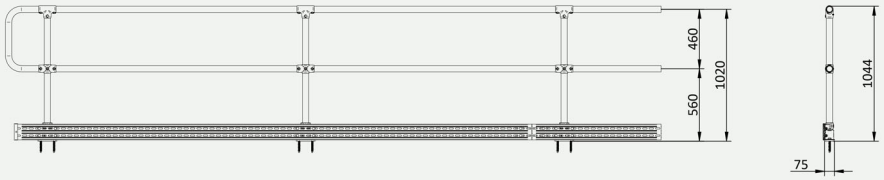


TR20

TOP & MIDRAIL
For level, rake or stair applications with no access beneath, or where there is a permanent structure within 10mm of the edge

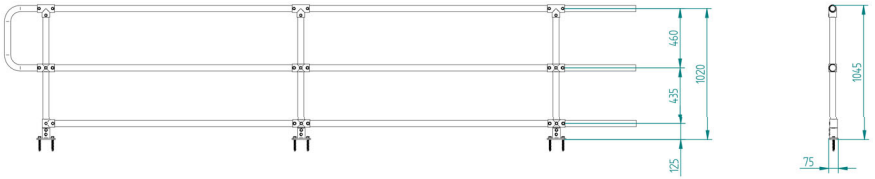
TR25

TOP & MID RAIL | TOEBOARD. FEATURING TUFFGARD TOEBOARD
For level or rake applications with open access beneath, where an object could fall from a platform, landing or structure



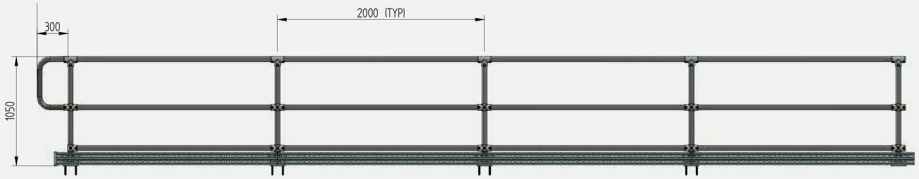
TR30

TOP | MID & BOTTOM RAILS
For level, rake or stair applications with no access beneath, or where there is a permanent structure within 10mm of the edge – with a bottom rail for additional fall protection



TR35

TOP | MID & BOTTOM RAILS WITH TOEBOARD
For level or rake applications with no access beneath, or where there is a permanent structure within 10mm of the edge – with a bottom rail for additional fall protection

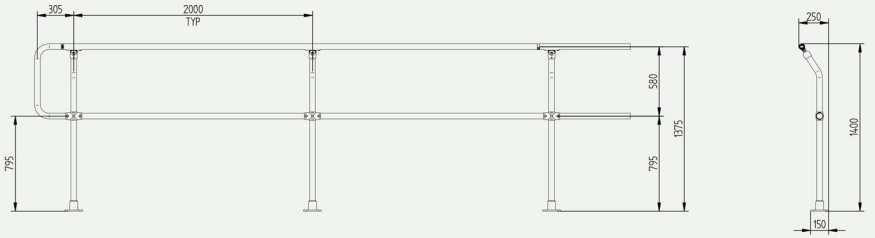


For full compliance details go to moddex.com/products/tuffrail-industrial-handrails/

BIKESAFE®
CONFIGURATIONS

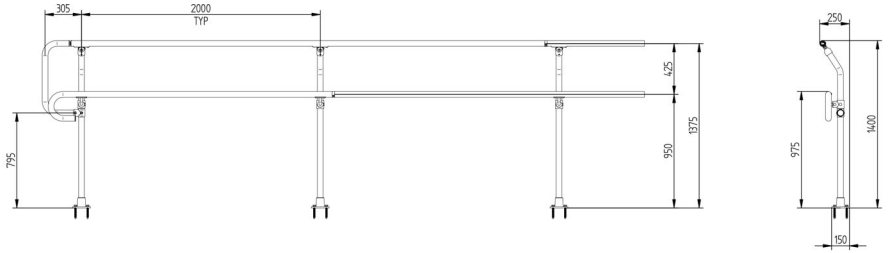
BS20

TOP RAIL | MIDRAIL
A standard partial barrier with smooth deflection rail for Austroads and NZTA compliance.



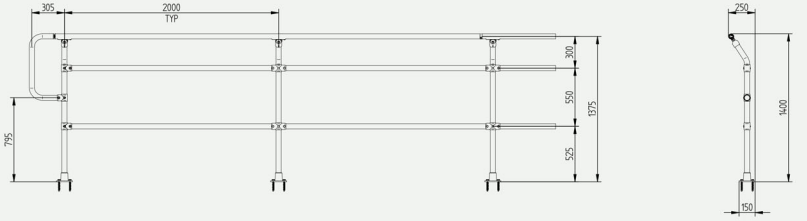
BS25

TOP RAIL | HANDRAIL
Bikeway barrier with offset top rail and handrail for level and rake.



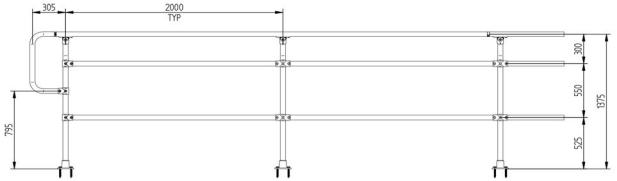
BS30

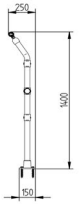
TOP RAIL | MIDRAIL & BOTTOM RAIL
A partial barrier with smooth deflection rail for Austroads and NZTA compliance and bottom rail for added protection.



BS35

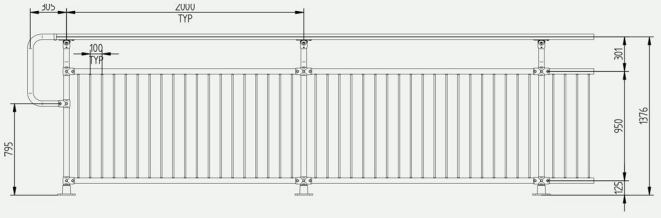
TOP RAIL | HANDRAIL & BOTTOM RAIL
Bikeway barrier with offset top rail, handrail and bottom rail for level and rake.

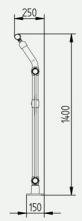




BS40

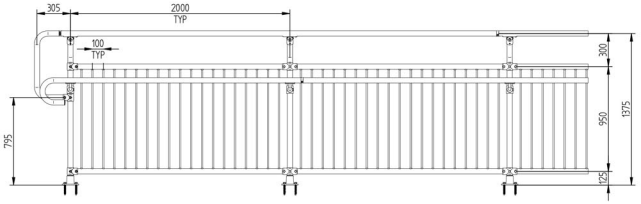
TOP RAIL | HANDRAIL & BALUSDRADE INFILL
A standard full barrier with smooth deflection rail for Austroads and NZTA c ompliance.

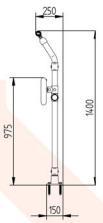




BS45

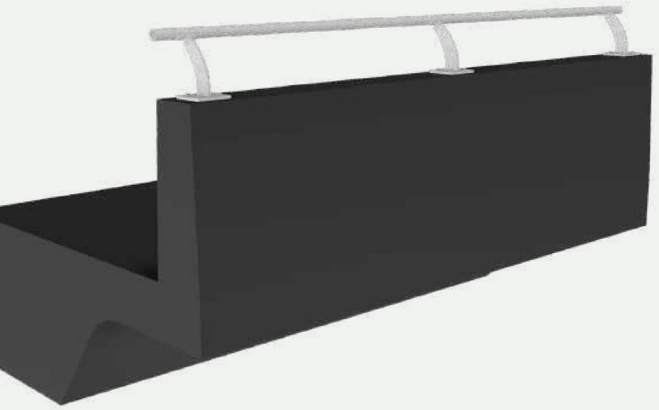
TOP RAIL | HANDRAIL & BALUSTRADE INFILL
A full barrier with smooth deflection rail, incorporating a handrail for additional assistance.





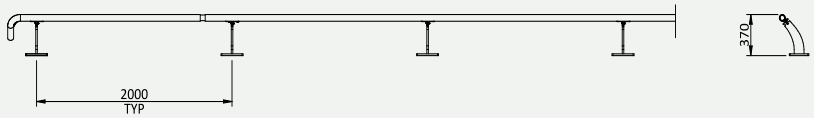
For full compliance details go to moddex.com/products/bikesafe-bikeway-barriers/

BRIDGERAIL™
CONFIGURATIONS

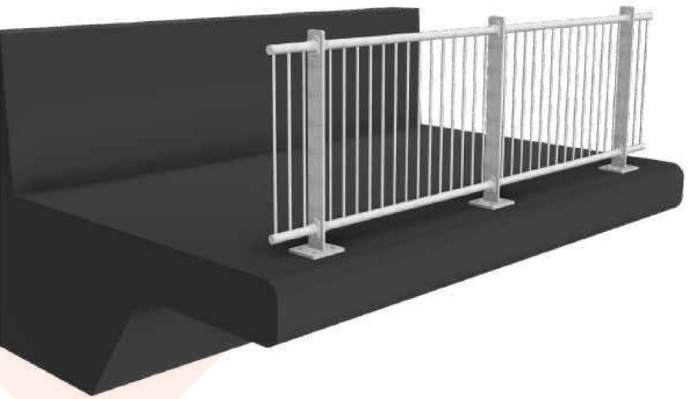


BR10

AS5100.2 CL12.5 AND NZTA BRIDGE MANUAL B6.4* COMPLIANT OFFSET CYCLE RAIL
Level - Standard 2.0 Mtr Spacing

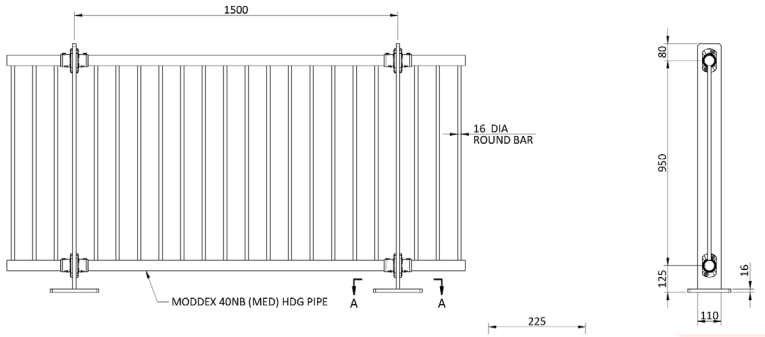


*Excludes where the road controlling authority requires the barrier to restrain crowds or people under panic conditions

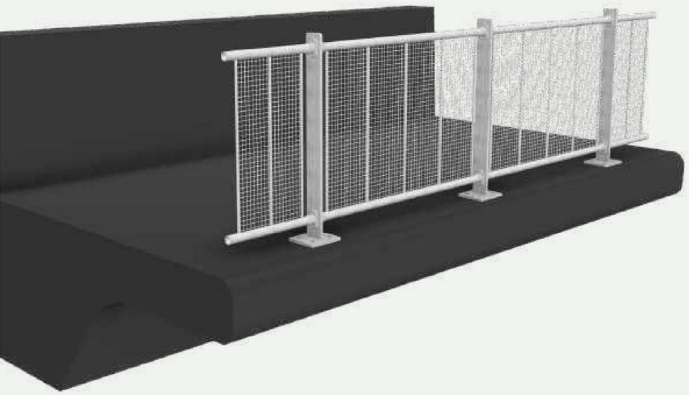


BR20

AS5100.2 CL12.5 AND NZTA BRIDGE MANUAL B6.4* COMPLIANT BALUSTRADE
Level - Standard 1.5 Mtr Spacing

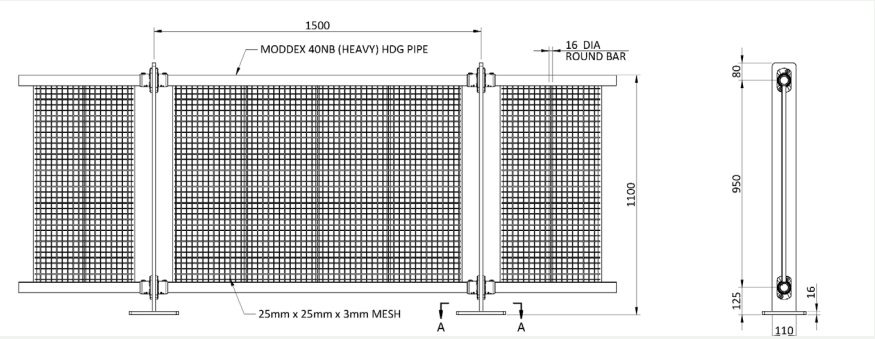


*Excludes where the road controlling authority requires the barrier to restrain crowds or people under panic conditions

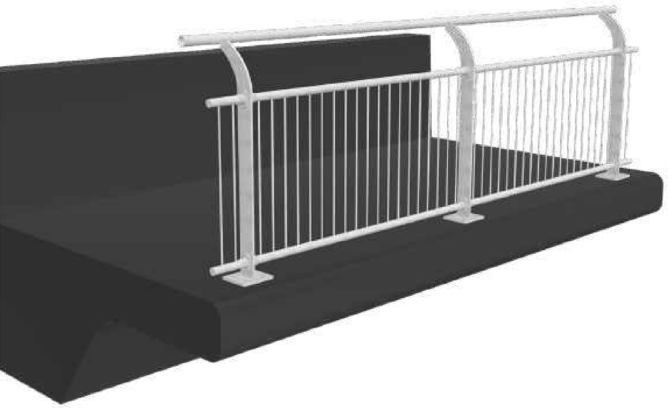


BR20M

AS5100.2 CL12.5 AND NZTA BRIDGE MANUAL B6.4* COMPLIANT BALUSTRADE
Level - Standard 1.5 Mtr Spacing

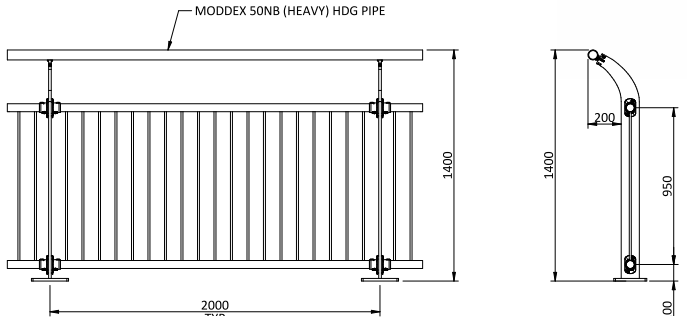


*Excludes where the road controlling authority requires the barrier to restrain crowds or people under panic conditions

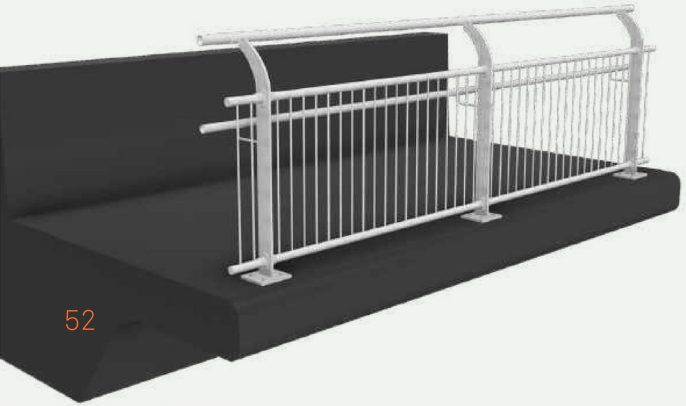


BR40

AS5100.2 CL12.5 AND NZTA BRIDGE MANUAL B6.4* COMPLIANT BALUSTRADE
Level - Standard 2.0 Mtr Spacing
with Offset Cycle Rail

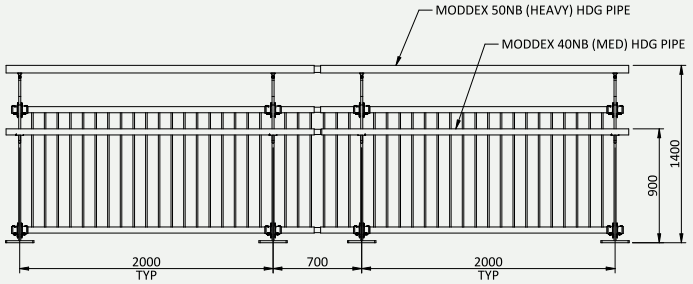


*Excludes where the road controlling authority requires the barrier to restrain crowds or people under panic conditions



BR45

AS5100.2 CL12.5 AND NZTA BRIDGE MANUAL B6.4* COMPLIANT BALUSTRADE
Level - Standard 2.0 Mtr Spacing
with Offset Cycle Rail

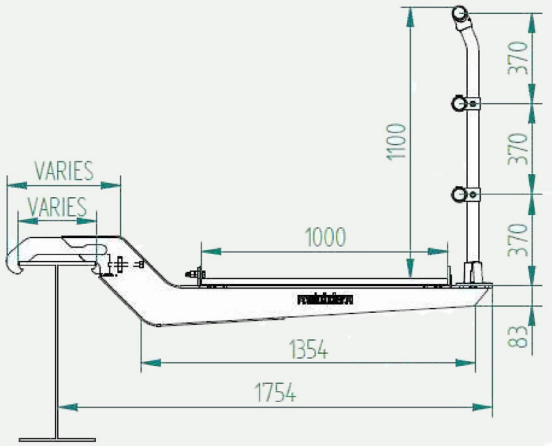


For full compliance details go to **https://moddex.com/products/bridgerail-bridge-barriers/**

KLIPTREAD™
CONFIGURATIONS

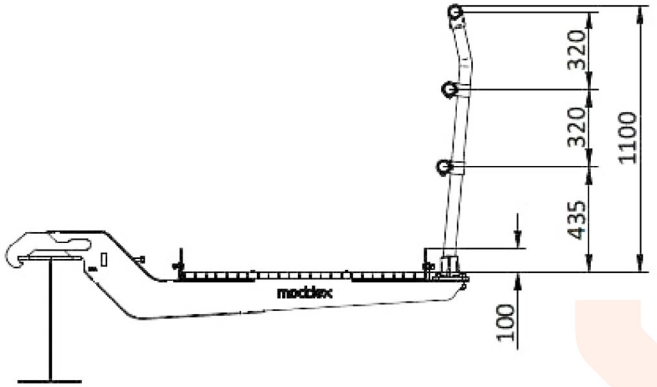
KT30

CLIP-ON CANTILEVER ARM WITH A WALKWAY | TOP, MID & BOTTOM RAIL
Patent Pending 767353



KT35

CLIP-ON CANTILEVER ARM WITH A WALKWAY | TOP, MID & BOTTOM RAIL WITH KICKPLATE
Patent Pending 767353

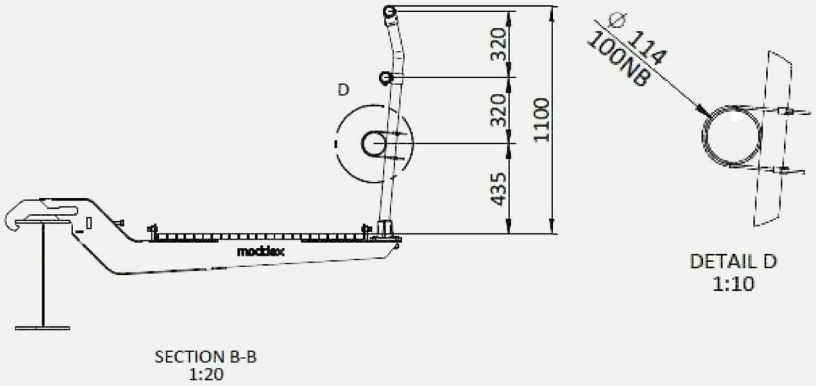


SECTION A-A
1:20

For full compliance details go to **https://moddex.com/products/kliptread-walkway-system/**

KT40

CLIP-ON CANTILEVER ARM WITH A WALKWAY | TOP & MID RAIL WITH COMMS TUBE
Patent Pending 767353

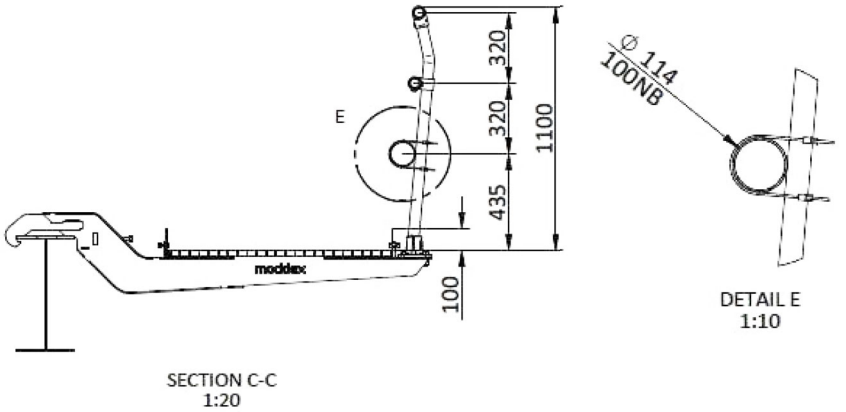


SECTION B-B
1:20

DETAIL D
1:10

KT45

CLIP-ON CANTILEVER ARM WITH A WALKWAY | TOP & MID RAIL WITH COMMS TUBE & KICKPLATE
Patent Pending 767353



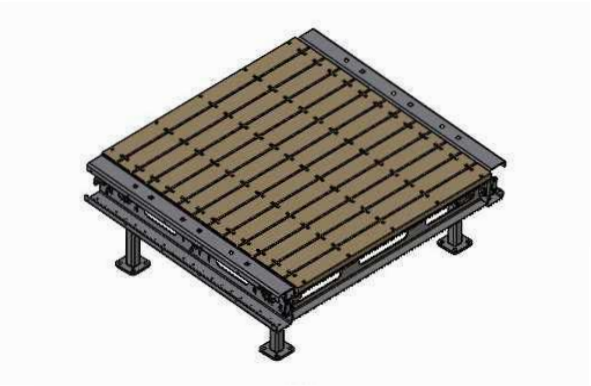
SECTION C-C
1:20

DETAIL E
1:10

For full compliance details go to **https://moddex.com/products/kliptread-walkway-system/**

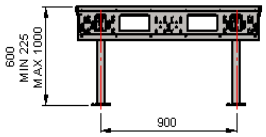
EZIBILT™
CONFIGURATIONS

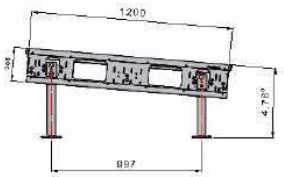
Ezibilt can be put together with a combination of the following configurations:

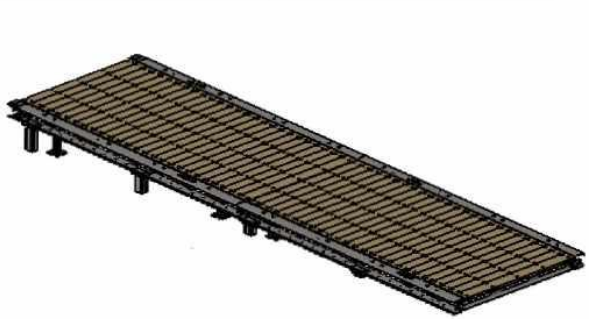


EB110

1200MM PLATFORM MODULE
Available as a level or ramp module

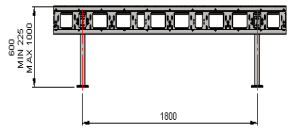


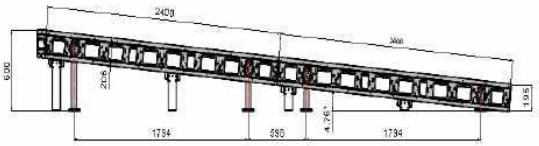




EB120

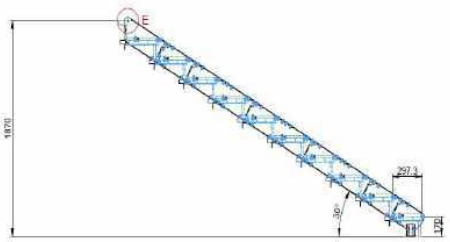
2400MM PLATFORM MODULE
Available as a level or ramp module





EB120

STAIR MODULE



For full compliance details go to **https://moddex.com/products/ezibilt/**

LOCALLY MANUFACTURED

We deliver a comprehensive, affordable range of balustrades and handrails to suit your project!

Ensure your civil engineering or construction job is of the highest quality and well above industry standards by investing in Moddex's range of unrivalled steel modular safety systems. Available at competitive prices, manufacutred locally in New Zealand and easily tailored to suit your specifications, you can be sure that your expectations will be surpassed!

Simply choose the modular fabrications for your project, measure your specifications, and once Moddex delivers to your site, you can assemble as your project unfolds.

Tailored solutions available for delivery nation-wide.

Regardless of your project needs, whether it's assistance rails at a medical clinic, or safety handrails at a public convention centre, Moddex is the name you can trust, to seamlessly cater for any industrial application.

For assistance with your order, please contact us on 0800 663 339 or info@moddex.co.nz today.

NOTES

moddex.com
0800 663 339

Appendix 6.3 – Alternative Bridge Crossing

Disclaimer.
Boundary information and photographic imagery has been imported from external sources. Areas and dimensions may be subject to scale error. Use of this drawing for other purposes is at the user's risk.

CPS
Civil Project Solutions
1 Te Maanga Drive
PO Box 460
Gisborne, NZL
Project Management Specialists
0800 PROJECT
www.civilprojects.co.nz

GENERAL NOTES
1. Coordinates in terms of : NZTM 2000.
2. Elevations in terms of : NA
3. Contour interval is : NA

15 0 75m
SCALE 1:1500

NO	DATE	REVISION	BY	CHK	APP
.	.	.	.	.	.

PRINCIPAL

SURVEYED	NA	-
DRAWN	P.FLAUGERE	20/08/2024
CHECKED	P.PIERARD	22/08/2024
APPROVED		.

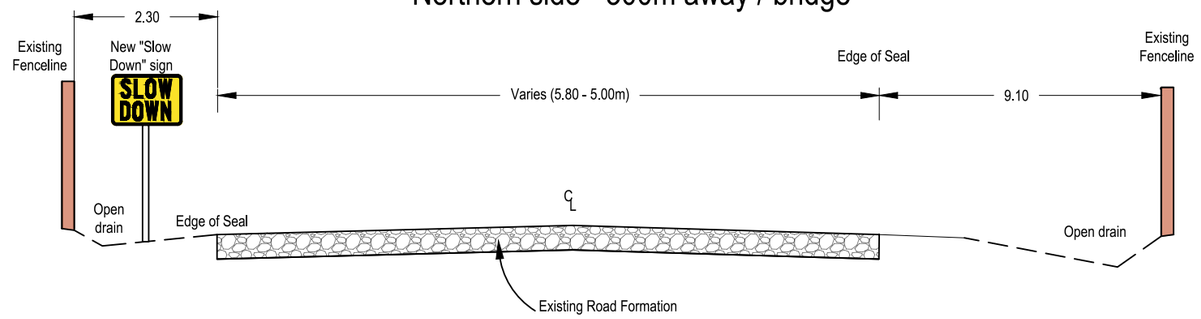
SCALE 1:1500 @A3 | ORIGINAL SIZE A3

TITLE
TAT CHARITABLE TRUST - MAIN TRACK
BRIDGE CROSSING CONCEPT
LOCATION PLAN

DRAWING No J2004 - 01 - 001
REVISION 0

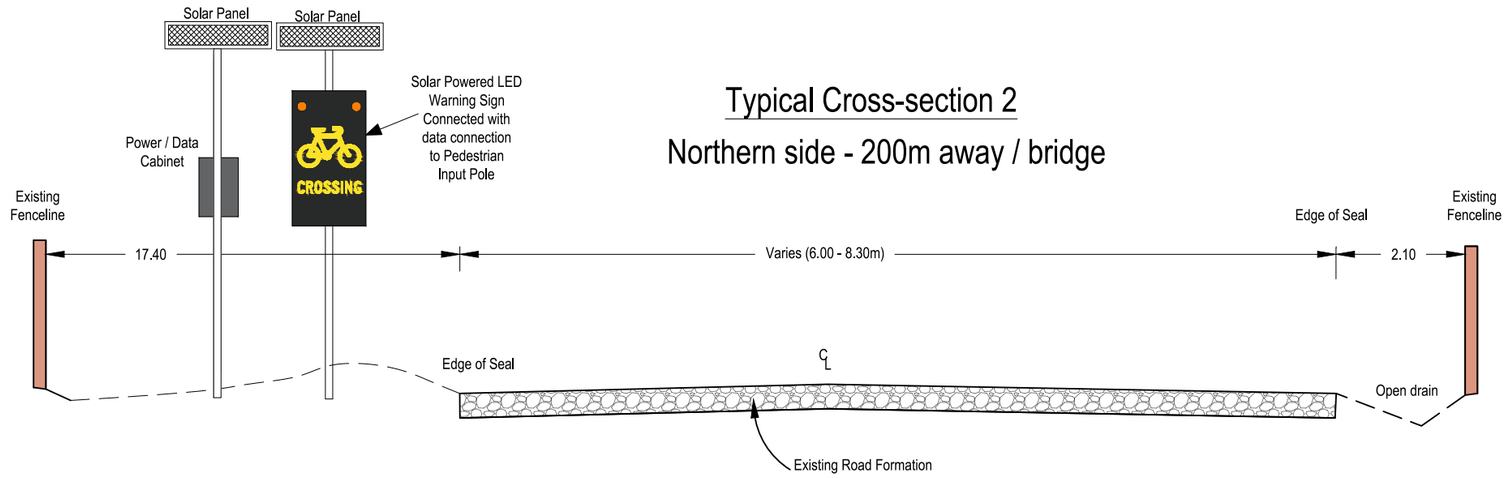
Typical Cross-section 1

Northern side - 300m away / bridge



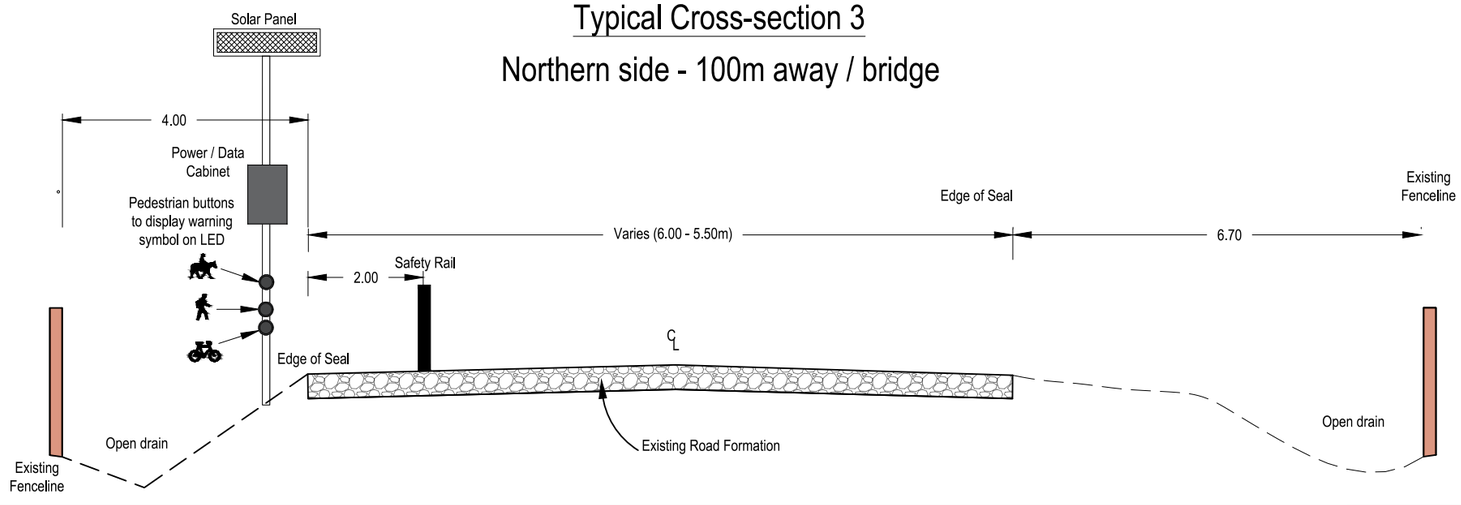
Typical Cross-section 2

Northern side - 200m away / bridge



Typical Cross-section 3

Northern side - 100m away / bridge



CPS Civil Project Solutions

1 Te Maanga Drive
PO Box 460
Gisborne, NZL
Project Management Specialists
0800 PROJECT
www.civilprojects.co.nz

GENERAL NOTES
1. Coordinates in terms of : NZTM 2000.
2. Elevations in terms of : NA
3. Contour interval is : NA

1 0 5m
SCALE 1:100

NO	DATE	REVISION	BY	CHK	APP

PRINCIPAL

SURVEYED	NA	-
DRAWN	P.FLAUGERE	20/08/2024
CHECKED	P.PIERARD	22/08/2024
APPROVED		-

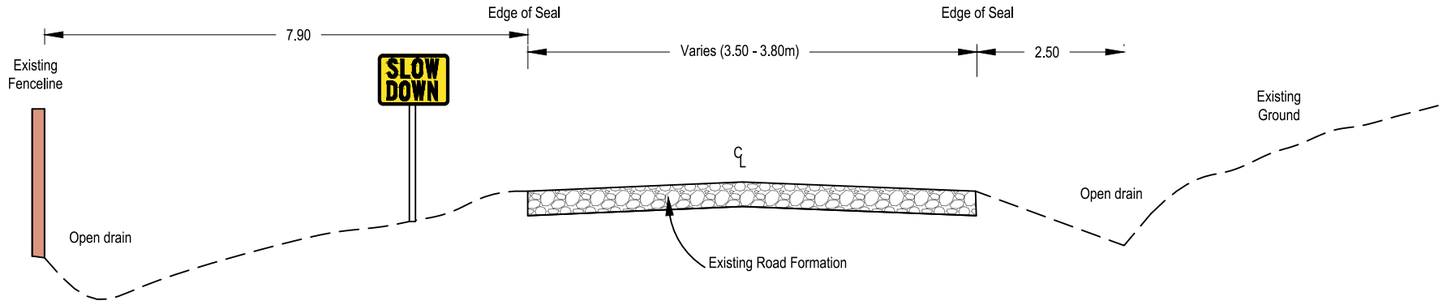
SCALE 1:100 @A3 | ORIGINAL SIZE A3

TITLE
TAT CHARITABLE TRUST - MAIN TRACK
BRIDGE CROSSING CONCEPT
CROSS SECTIONS - NORTHERN SIDE / BRIDGE

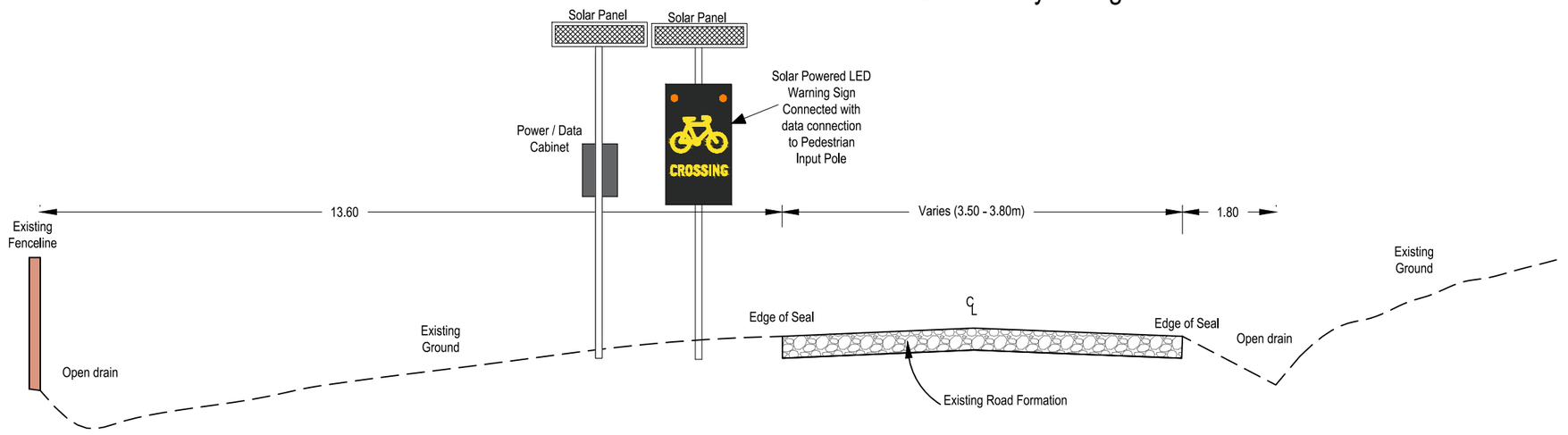
DRAWING No J2004 - 01 - 002

REVISION 0

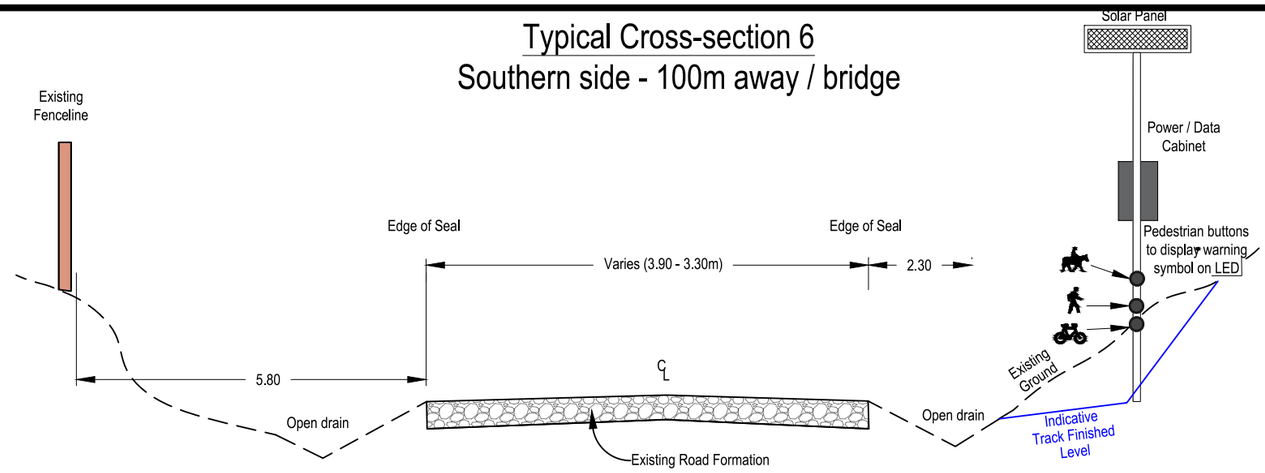
Typical Cross-section 4
Southern side - 300m away / bridge



Typical Cross-section 5
Southern side - 200m away / bridge



Typical Cross-section 6
Southern side - 100m away / bridge



CPS
Civil Project Solutions

1 Te Maanga Drive
PO Box 460
Gisborne, NZL
Project Management Specialists
0800 PROJECT
www.civilprojects.co.nz

GENERAL NOTES
1. Coordinates in terms of : NZTM 2000.
2. Elevations in terms of : NA
3. Contour interval is : NA

1 0 5m
SCALE 1:100

NO	DATE	REVISION	BY	CHK	APP

PRINCIPAL

SURVEYED	NA	-
DRAWN	P.FLAUGERE	20/08/2024
CHECKED	P.PIERARD	22/08/2024
APPROVED		-

SCALE 1:100 @A3
ORIGINAL SIZE A3

TITLE
TAT CHARITABLE TRUST - MAIN TRACK
BRIDGE CROSSING CONCEPT
CROSS SECTIONS - SOUTHERN SIDE / BRIDGE

DRAWING No J2004 - 01 - 003
REVISION 0