

TECHNICAL SPECIFICATION

Client

DOC – GISBORNE AREA

Project Title

**OLD MOTU ROAD CYCLEWAY
TOROHANGA RESERVE**

Project No

FGL 10/063

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Prepared by



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TECHNICAL SPECIFICATION

1.0 SCOPE OF WORK

1.1. Project Outline

- 1.1.1. This project includes the following works:
 - Supply and installation of a new cycle bridge.
- 1.1.2. The bridge has been designed in accordance with the standards defined in SNZ HB8360:2004 standards for Short Stop Traveller (SST) user group.

1.2. Location and Access

- 1.2.1. The work is located on the Old Motu Road Cycleway, Gisborne.

2.0 GENERAL REQUIREMENTS

2.1. Preliminary

- 2.1.1. Refer to the Special Conditions of Contract for this Contract which shall be equally binding on all trades. All sections of the specification shall be read in conjunction with all other sections.

2.2. Materials and Labour

- 2.2.1. The Contractor shall supply the whole of the materials, plant and labour necessary for the Contract. Work shall be carried out according to best trade practice by skilled and experienced personnel to the standards hereinafter specified.
- 2.2.2. The Contractor is to arrange his own access for plant and materials and all necessary transportation of plant and materials to the site.

2.3. Design Variations

- 2.3.1. Variations to the design of the structure made without the written approval of the Engineer may have the effect of invalidating any Producer Statement, and preventing the issue of a Code Compliance Certificate. The Contractor shall obtain written authorisation for each and every variation before it is made.

2.4. Standards

- 2.4.1. Each section of the Specification shall be read in conjunction with the principal standards listed therein and related documents. In the event of this Specification being at variance with a standard, the requirements of this Specification will take precedence.
- 2.4.2. Reference to any standard shall include any amendments to or substitution for that standard.

2.5. Work Area

- 2.5.1. The works shall be confined to the immediate site only allowing the room necessary to carry out the works.

- 2.5.2. The Contractor shall be responsible for security of the site and shall, if required by the contract, make allowance in his price for the erection and maintenance of temporary barriers to prevent inadvertent access to the site.
- 2.5.3. The Contractor shall be responsible for locating and avoiding services such as power cables, communication lines and water lines, at the site and on access routes. If any of these services are damaged during construction, the Contractor shall reinstate these at his own expense.

2.6. Site Establishment

- 2.6.1. The Contractor shall make allowance in his price for the provision of all facilities required at the site for his own use. The position of these facilities shall be approved by the Engineer and shall comply with Government and Local Authority requirements for health and safety.
- 2.6.2. The Contractor shall make allowance in his price for the establishment of any stockpiles or dumpsites required.
- 2.6.3. The Contractor shall make allowance in his price for the provision of all site services he may require (e.g. communications, sanitation, water, electricity etc).

2.7. Requirements from Other Parties

- 2.7.1. Any requirements that involve changes to the design communicated to the Contractor by other parties, including (but not restricted to) arborists, archaeologists, council inspectors and NZ Historic Places Trust personnel shall not be taken by the Contractor as an instruction under the contract.
- 2.7.2. If such a communication is received, then prior to the work being undertaken such requirements shall be forwarded by the Contractor to the Engineer for review and subsequent issue of contract instruction if appropriate.
- 2.7.3. Any such work carried out by the Contractor without the written approval of the Engineer is undertaken at the Contractor's risk.
- 2.7.4. Where other parties enforcing Acts of Parliament and Regulations (e.g. OSH, NZ Historic Places Trust, RMA) instruct the Contractor to stop work immediately, the Contractor shall comply with the instruction and advise the Engineer immediately.

2.8. Public Access

- 2.8.1. The track will be closed to the public during the construction period.
- 2.8.2. The Contractor shall utilize temporary rigid barriers (minimum 1.0 metre height with solid top and bottom rail and with durable infill) to prevent members of the public from entering the work site or using the structures, even when complete, until such time as a Code Compliance Certificate has been issued for the structure.
- 2.8.3. The contractor shall install signs at all points for pedestrian access to the structures. The signs shall be formed from suitable durable materials and include the following text:

“Under the Building Act 2004 it is an offence for this structure to be opened for public use until this structure is complete and a Code Compliance Certificate has been issued by the consenting authority. Please keep out.”

2.9. Building Consents

- 2.9.1. The Contractor shall comply with all conditions of Building Consent relating to the structure.
- 2.9.2. If inspections are required by the Council building inspectors, it shall be the Contractor's responsibility to ensure that the Council is kept informed and given sufficient notice as to when inspections are needed.
- 2.9.3. Work requiring Council inspection shall not be covered over until the inspections have taken place.

2.10. Producer Statements

- 2.10.1. The Contractor shall, on completion of the works, provide the Engineer with a Producer Statement-Construction (PS3). The issuing of a Certificate of Practical Completion is subject to the receipt of the PS3.

2.11. Inspections

- 2.11.1. Inspection of the work will be carried out by the Engineer or their Representative.
- 2.11.2. The Contractor shall provide at least 24 hours notice for inspection of excavations for foundations any and other work requiring inspection.
- 2.11.3. If the Contractor requests an inspection and on arrival for inspection, the Engineer or their Representative finds that the work is not yet ready for inspection, the Engineer reserves the right to deduct the cost of time for that inspection from the contract price.

3.0 ENVIRONMENTAL ISSUES

3.1. General

- 3.1.1. While undertaking any works the Contractor shall at all times comply with the obligations, provisions and requirements of the Resource Management Act.

3.2. Protection and Reinstatement of Area

- 3.2.1. The Contractor's activity shall be confined to the track zone. Damage to the vegetation or ground beyond the track zone shall be rectified at the Contractor's expense.
- 3.2.2. The Contractor shall not disturb, modify or remove any items or materials at the site other than that necessary to carry out the work.
- 3.2.3. The Contractor is to take particular care not to damage any native vegetation, natural features or other structures at the site other than those that are approved by the Engineer for modification or removal. Any damage as a result of the Contractor's work shall be rectified at the Contractor's expense.

- 3.2.4. The Contractor shall not bring any dog, cat or other animal on to the site without the express approval of the Principal or Engineer.
- 3.2.5. The Contractor shall reinstate all land areas affected by the works, including the re-establishment of working areas, to a condition at least equal to that at the commencement of the works.
- 3.2.6. Reinstatement shall be finished within one week of the completion of works and all excess materials shall be removed from site.
- 3.2.7. No fires are permitted on site.

3.3. Materials Brought on Site

- 3.3.1. All materials brought onto the site are to be of an approved type and from an approved weed-free source.
- 3.3.2. Materials are to be contained on approved stockpile sites on a geotextile or tarpaulin to prevent spillage onto the site and to facilitate complete removal after completion of the works.

3.4. Removal of Waste Material

- 3.4.1. Waste is defined as all foreign material on the site. This includes, but is not limited to aggregate, spilt concrete, nails, wood, plastic and metal off-cuts.
- 3.4.2. All waste is to be removed from the site at the completion of the work.
- 3.4.3. Waste or rubbish being held at the site prior to removal is to be stored in such a fashion that it can not be blown about by the wind.

3.5. Excess Material from Excavations

- 3.5.1. All surplus material generated from excavation work associated with the work is to be contained and used for site restoration purposes as approved by the Engineer or is to be removed from the site at the Contractor's expense.

3.6. Vegetation

- 3.6.1. Trimming of native vegetation shall only be permitted where there is no other reasonable alternative.
- 3.6.2. The Contractor shall obtain approval from the Engineer before any significant indigenous vegetation removal or cutting of major tree roots is carried out.
- 3.6.3. Tree roots less than 50mm in diameter are to be cut according to best arboricultural practice. If indigenous tree roots greater than 100mm in diameter are encountered, the Engineer shall be advised and any instructions from the Engineer shall be followed. If the instructions require work other than cutting the root, the Contractor will be entitled to a variation.

3.7. Refueling and Fuel Storage

- 3.7.1. The Contractor shall exercise due care and responsibility to minimise the potential for leakage or spillage of fuels, lubricants and/or any substance that could be spilled. Spillages shall be cleaned up immediately and contaminated material taken from the site. All spillages shall be reported to the Engineer.
- 3.7.2. Bulk fuels and oils are only to be stored in approved storage areas surrounded by a bunded area capable of containing the contents of the bulk fuel container.

3.7.3. Oil changes are not permitted on vehicles or machinery on site.

3.7.4. No machine shall be allowed to work on site with an oil leak.

3.8. Work Area

3.8.1. The Contractor is to take particular care not to damage any trees, plants or natural features at the site other than those trees and plants and features that are approved by the Engineer for modification or removal.

3.8.2. The Contractor's activity shall be confined to the bridge site. Damage to vegetation or ground beyond the track zone shall be rectified at the Contractor's expense.

3.8.3. The Contractor shall not disturb, modify or remove any items or materials at the site other than that necessary to carry out the work.

3.9. Reinstatement of Area

3.9.1. The Contractor and any Sub-contractors employed by the Contractor shall reinstate all land areas affected by the works, including the re-establishment of working areas, to a condition at least equal to that at the commencement of the works.

3.10. Archaeological Evidence

3.10.1. If any archaeological evidence in the form of mining relics, shell, bone, charcoal, greenstone, hangi stones or artefacts are uncovered during any construction, work in the area must cease in that particular area and the Engineer must be notified immediately.

4.0 EXCAVATIONS

4.1. Scope

4.1.1. This section of the work includes:

- Bridge post holes

4.2. Nature of the Ground

4.2.1. The expected ground is sand. It is unlikely that solid rock will be encountered at the base of the excavations.

4.3. Setting out

4.3.1. The Contractor is responsible for setting out the work from the information provided on the Drawings.

4.4. Excavations Generally

4.4.1. Excavations for foundations are to be built to the dimensions and details shown on the drawings, allowing for working room as necessary.

4.4.2. Each individual foundation shall be proved to the satisfaction of the Engineer or their Representative.

4.4.3. Storm water runoff from all excavated material or aggregate stockpiles is to be discharged through a silt fence or settling pond.

4.5. Inspection

4.5.1. The Contractor shall give the Engineer reasonable notice to enable inspection of the foundations to be done before concreting or hard-filling. Approval shall be obtained from the Engineer before any back-filling, hard-filling or concreting is done.

4.6. Obstructions

4.6.1. Excavate and remove any obstruction that is encountered which may interfere with the specified shape and size of the foundations as detailed.

4.7. Over-Excavations

4.7.1. Any excavation caused solely by encountering poor ground conditions or other natural weakness shall be treated as an extra provided such extra work has been authorised by the Engineer.

4.8. Maintenance of Excavations

4.8.1. Provide and erect all temporary casing, underpinning, needling, shoring, strutting, sheet piling, timbering and any other form of support or stabilisation that may be necessary to prevent collapse, subsidence or displacement of any excavation.

4.8.2. Should any excavation become filled with water during construction, the Contractor shall pump this water out before pouring concrete. The costs of pumping will be deemed to be included the Contractor's tender price.

4.8.3. The Contractor shall be responsible for the safety of operations, the structural sufficiency, and standards of construction of all temporary work.

4.9. Concrete for pole foundations

4.9.1. All concrete for filling pile foundation holes shall be 17.5MPa.

5.0 STRUCTURAL TIMBER

5.1. Standards

5.1.1. The principal standards relevant to this section are

- NZS 3601 Metric Dimensions of Timber
- NZS 3603 Timber Structures
- NZS 3604 Light Timber Frame Buildings
- NZS 3605 Timber Piles and Poles for use in Buildings
- NZS 3631 Timber Grading Rules
- NZS 3640 Timber Preservation

5.2. Scope

5.2.1. This section of the work shall consist of all carpentry work shown on the drawings or specified herein. This includes:

- Construction of bridge

5.3. Timber

- 5.3.1. The species, grade, sizes, finish, treatment and moisture content of timber and wood based products shall comply with the requirements of this specification and relevant standards, at the time of enclosure or installation.
- 5.3.2. The timber shall be sound, well seasoned and maintain figured dimensions.
- 5.3.3. The Contractor shall not use any portions of timber containing pith on the surface.
- 5.3.4. All timber shall be rough sawn to the sizes shown on the drawings unless specified otherwise.
- 5.3.5. Timber shall comply with the following, according to use and environment:

Location	Species	Grade	Treatment
Sawn timber no contact with ground/ concrete	Pinus Radiata	G8 or VSG8	H3.2
Sawn timber contact with ground/ concrete (or within 150mm)	Pinus Radiata	G8 or VSG8	H5
Round or sawn piles contact with ground/ fresh water	Pinus Radiata	NZS 3605	H5

5.4. Treatment

- 5.4.1. Treatment shall comply with the current requirements of the Timber Preservation Council. All treated timber shall be branded with the appropriate woodmark. It is preferred that timbers be treated at least 2 months prior to installation.
- 5.4.2. All timber shall be cut to the required length before preservation treatment, unless this is not possible due to the need to make allowance for site variation.
- 5.4.3. Cut faces of timber sections greater than 50mm thick shall be treated with Metalex or similar field applied preservative treatment if cutting is carried out after preservative treatment.

5.5. Nails

- 5.5.1. All nails shall be galvanised steel, unless specified otherwise.

Use	Size	Type
Deck plank fixing (50mm thick deck)	100 × 4.0mm	FH
Decking plank fixing (100mm thick decking boards)	150 × 4.5mm	FH
General structural use	100 × 4.0mm	FH

3.1. Bolts, Washers and Miscellaneous Brackets and Fittings

- 3.1.1. Bolts, washers, miscellaneous brackets and fittings shall be Type 316 stainless steel, as specified on the drawings.
- 3.1.2. Bolts shall be Grade 4.6/S (metric, grade 4.6, Snug tight) engineers bolts of the diameters and sizes shown on the drawings and fitted with square washers of the same material.

3.1.3. Washers shall comply with the following minimum standards:

Bolt Size	Washer
M12	50 x 50 x 3.0
M16	60 x 60 x 3.0

3.1.4. Bolts may consist of a stainless steel threaded rod cut to length on site.

3.1.5. Thread protrusion past the nut shall be a minimum of one thread pitch after tightening.

5.6. Workmanship

5.6.1. Work generally shall be in accordance with the best trade practice, and this shall be deemed to include those methods, practices and processes contained in current syllabuses for the NZQA courses in carpentry.

5.6.2. Details not shown on the drawings shall be formed according to the principles of NZS 3604. A thorough knowledge of the principles set out in “Builders Guide to NZS 3604” is recommended.

5.6.3. Accurately set out all work. Attend on other trades to provide cutouts penetrations, blocks, fillets etc required by them.

5.6.4. All decking plank packers (150×50) are to be secured to the timber pole beam with 100×4.0mm FH nails before decking planks are nailed to the packers.

5.6.5. Fix all members true to line.

5.7. Temporary Works

5.7.1. All temporary staging, scaffolding etc shall comply with the provisions of section F5 of the NZBC.

6.0 NON – SLIP MESH

6.1. General

6.1.1. Non – slip mesh shall be Tensar SS20 Geogrid.

6.1.2. The mesh shall cover the whole deck area and shall extend to within 50mm of the deck ends and edges.

6.2. Fixing

6.2.1. Geogrid shall be fixed along the edges at 100mm maximum spacing and internally at 200mm maximum spacing.

6.2.2. Geogrid shall be butt joined and fixed at every square each side of the join.

6.2.3. Fixing staples shall be stainless steel and be at least 19mm long and shall straddle the mesh ribs, not penetrate them.

6.2.4. Geogrid netting shall be stretched tight during fixing so that there are no bulges or movement in the fixed mesh once in position.

6.2.5. Cuts shall be made cleanly with a sharp knife or snips to avoid unravelling of the mesh.