HBRC Ngatarawa Stop Bank

Construction Upgrade

Job Number G 22011

EROSION & SEDIMENT CONTROL PLAN

FOR

EARTHWORK ACTIVITY

CMP Revision No.	Date	Created By	Approved By
1 Draft	4th August 2022	Dan Mepham	

2. INTRODUCTION

1.1. PURPOSE

- Gair Contracting Ltd has been engaged by Hawkes Bay Regional Council for the Ngatarawa stop bank contract. This being the construction upgrade of the Ngatarawa stop bank along the Ngaruroro River

- To meet the requirements of HBRC Sediment & Erosion Control Guidelines

1.2. ENGINEERING CONDITIONS

Earthworks Construction

1) *Before Gair Contracting commences the works as authorised by the Stopbank Upgrade program, the holder shall submit to Hawkes Bay regional council a Sediment and Erosion Control Plan. The plan shall as a minimum:*

   - *This ESCP Outlines the mechanisms used to ensure that waterborne sediment does not depart the subject site, during and/or after construction.*
   - *Outline the mechanisms used to control dust.*

2) *The best possible means shall be employed to ensure that windblown dust and soil and associated wind erosion are minimised, and that adequate drainage and silt controls are in place during and following the earthworks to avoid, remedy, or mitigate any adverse environmental effects.*

3) *All earthworks shall be undertaken in accordance with: Hawkes Bay Waterway Guidelines Erosion and Sediment Control*

4) *That all areas of earthworks shall be re-grassed or stabilised as soon as possible to the satisfaction of the HBRC Team*

2. LOCATION

The Proposed works are located 500meters away from the river channel and within the riparian zone, on the East side of the Ngaruroro River. The address is off state highway SH50 Fernhill Hawkes Bay

The site entrance will be located at 2950 Roys Hill road SH50 (Winstone Quarry Entrance)

Site description

- ***a)*** *The site is situated in the riparian zone of the Ngaruroro river.*
- ***b)*** *Stop bank upgrades run along the HBRC Boundary.*
- ***c)*** *The site is predominantly flat excluding the stop bank itself*
- ***d)*** *This site is adjacent to vineyards and a quarry operation*
- ***e)*** *Ngaruroro river is adjacent to the area of the proposed work. There is dense brush and trees on the river's edge separating river from the paddocks.*

3. ACTIVITY DESCRIPTION

The area of the proposed construction consists of two main operations, spread over 2800 LM of the Riparian zone between the trees and the Stopbank.

Activity areas:

1. Borrow set up, excavation, reinstatement
   - Clearing
   - Topsoil stripping
   - Topsoil stockpiling
   - Cut to stockpile for blending
   - Placement of unsuitable materials into the borrow
   - Re-spreading topsoil upon completion over the borrow and battered sides
   - Hydroseeding of all disturbed areas

2. Stop bank construction upgrades
    - Clearing
    - Topsoil stripping
    - Excavating key
    - Stockpile unsuitable materials.
    - Benching
    - Blended borrow fill placement and compacting
    - Trimming to design
    - Re-spread topsoil to area
    - Hydroseeding off all disturbed areas

The Duration of the project will take place over the summer months and will include a shutdown period for summer break.

4. EROSION AND SEDIMENT CONTROL

4.1. Sediment control

- Sediment runoff is to be contained within the working area, mitigating the risk of any sediment discharge into in the Ngaruroro river catchment

4.2. Responsibility of the ESCP

Monitoring of ESC measures and practices is aimed at detecting and addressing any problem areas that have the potential to have a significant adverse environmental effect and the frequency of the device monitoring will vary during construction and at different times of the year, it will also adapt to changing activities and risk associated with inclement weather, construction activity and areas at particular risk associated with sedimentation.

Responsibilities for changing this ESCP will be done by the Project Manager in consultation with the Engineer. Any amendments will be submitted for approval.

The responsibilities for the ESCP on this site are summarised in the following table:

Contact details are included

Name	Company	Position	Responsibilities
Ed Goody	Gair Contracting	Project Manager **027 4067089**	Overall responsibility for the project and the project team including site works set out and quality testing
Dan Mepham	Gair Contracting	Site Supervisor **027 2597762**	Responsible for overall construction and for ensuring all activities comply with resource consent conditions. Overall responsibility for environmental management compliance and contract compliance onsite: • Reviewing environmental performance. • On-site compliance with any specific conditions. • Adherence to ESCP; • Record Daily Inspections and weekly reporting (as required). • Receives complaints for inclusion in the public feedback record and responds. • Ensuring training is undertaken. • Ensuring all sub-contractors know the requirements of EMP • Maintains a register of any documents and plans

All staff and sub-contractors involved with the site works will be inducted to the site and will be required to read the ESCP. A copy of the ESCP with be available in the documents on the QR Code and site manuals.

4.3 Erosion and Sediment Control Measures

The development shall employ the most effective means of erosion and sediment control available. These controls shall be actively managed to ensure the deposition of silt and debris is minimised as much as practicable to current industry best practices.

It is important to note that ESC measures are not restricted to physical structures, such as silt fences and soakage pits but will also include working practices and methodologies, such as mulching, stabilisation, surface roughening of exposed embankments, and stockpiled material.

General controls

- All control measures shall be installed prior to earthworks being started. (see proposed plan below)
- We shall suspend earthwork operations during heavy rainfall or predicted rainfall that may cause silt runoff.
- The earthwork area shall be rolled and sealed at the end of the day or when work stops.
- If the bank is in a vulnerable stage and heavy rain is forecasted and topsoiling is not possible large plastic sheets will be used to protect the vulnerable areas.
- If serious heavy rainfall/ cyclone like event is predicted where there is a risk of flooding all resources will be tasked in a bulk reinstatement of the current stripped stage to protect the existing stripped bank from erosion. All resources will remain available during the event for emergency reinstatement.

Minimise Disturbance

- Operational areas will be kept to the minimum required, reducing the impact on soil Stability and consequential runoff.
- The site will be progressively "opened up" in 200-meter sections as the construction progresses.
- Dust generated by the earthwork's operation, plant, and vehicles will be controlled by permanently on site-based water carts; both on haul tracks and in areas yet to be hydro seeded.
    - Reduced speed to reduce dust
    - Stabilise site entranceway
- The site entrance and the access roads will be monitored for silts, and debris deposited from vehicles leaving the site and swept with a broom tractor to eliminate spreading further maintaining a tidy entrance
- Use of aggregate on the entranceway to reduce dust and tracking of soils
- Other methods to reduce dust will be Grassing and irrigation

Staged Construction

- The ESCP will be constructed before any earthwork proceeds within that zone
- Bunding and silt fences to be installed throughout the riparian zone below all haul roads and earthworks stages
- The borrow will have the topsoil area stripped to a stockpile and stored within a bunded area in the riparian zone.
- The stop bank will progressively be stripped and stockpiled within the bunded stage on the riparian zone
- All stockpiles will be kept within the bunded areas
- All fill being placed on the bank will be compacted and sealed up at the end of each day
- As each 200m section of the bank is constructed and trimmed to design the topsoil will be reinstated. And, then next 200m stage can begin keeping the exposed area to a maximum 200 meters.
- Hydroseeding will be arranged to spray the freshly finished stage Immediately after completion or as soon as physically possible. The hydroseed mix consists of Polymer Soil Cement for dust capping, dust suppression, Erosion Control for stabilisation.
- Hydro seeded areas will be watered to aid the seed strike and reduce the risk of windblown dust.
- Seeding the borrow pit will take place as soon as it can be rehabilitated which involves filling it with all excess waste materials and topsoil helping to fill the borrow before shaping up

Maintenance

- Inspection of sediment control installation meets the specified plan
- Monitoring checks of silt fences/sediment controls will occur weekly or as required
- Silt control measures shall be inspected after every rainfall event to check that they still function correctly, and any silt build-up over 25% removed prior to work re-commencing.
- Repaired immediately if required to ensure that the design capacity is maintained.
- Remove any accumulated sediment deposited
- Carefully check outlets to ensure that these remain free from scour and erosion
- Any ESC measures or working practices that require attention or adjustment will be identified, and if necessary, relevant team members consulted to ensure continual compliance and improvement of working practices. This may include undertaking a further assessment of risk. In the circumstance of higher risk areas being identified more stringent controls will be considered, in particular more progressive stabilisation.
- Visual assessment of the receiving environment is defined as the immediate receiving environment adjacent to the area of works. Any noticeable change in water clarity or sediment deposition from that before the rainfall event, or upstream of the site of works occurring as a result of the earthworks activity will require a review of the ESC measures and a change in ESC and/or working practices as necessary.
- Weather forecast monitoring will also ensure that critical works such as those associated with the stock water race diversion works only occur during a suitable weather window. HBRC continue to notify us of any weather events and the impact they may have on site. Past and forecast weather is recorded weekly as part of the weekly report and taken from the daily site diary record.

Perimeter Controls

Using the borrow pit as a sediment pond and earth bunds will be used as perimeter controls. Refer to ESC plan for location of these controls.
The controls will be constructed as per the standard details are shown below.

Spill Management

- Spill kit to always be kept onsite
- All machinery will be inspected and in good working order before entering the site
- Machine prechecks are carried out daily with records kept on Nimbus for the duration of the project
- Any oils will be stored in a secure specific oil shed onsite next to a spill kit
- Diesel refueling will be carried out by a specialist contractor delivering diesel to each machine daily. Eliminating the need for storage of any diesel onsite
- If a spill does occur, contact the with site manager/ project manager will be made immediately and the spill kit used. The incident will be reported as an accident or near miss
- Access the size of the leak and any immediate threat of the spill reaching the river
- Call 111 in an event of injury, fire or spill that gives rise to an emergency situation
- If a hazardous substance spill exceeds 75 litres or if any amount has been released to soil, surface water, or storm
  drains, notify the following agencies:
  REPORT POLLUTION
  TO REPORT POLLUTION, CALL HAWKES BAY REGIONAL COUNCIL TEAM ON THE
  POLLUTION HOTLINE: 0800 108 838
- If there is an immediate threat of safety concerns, then an attempt to block the spill from spreading using a spill kit or earth bund if necessary.

- Once the spill has been contained, depending on size then use of a spill kit or a specialised spill clean-up contractor can be used to mop up the spill.

Scenario – Major rain event for 200-meter open section

The first defense before a weather event, and after consultation with the Engineer and principal, is to raise the height of the stop bank in the area that is under construction. Using materials from the borrow site, place, and compact in front of the stop bank using equipment available.

Material can be placed at the rate of 150m3 per hour using the equipment on site raising a 200 meter section ¾ meter an hour. This addition would be temporary and require removal after an event.

Protection for a completed Section

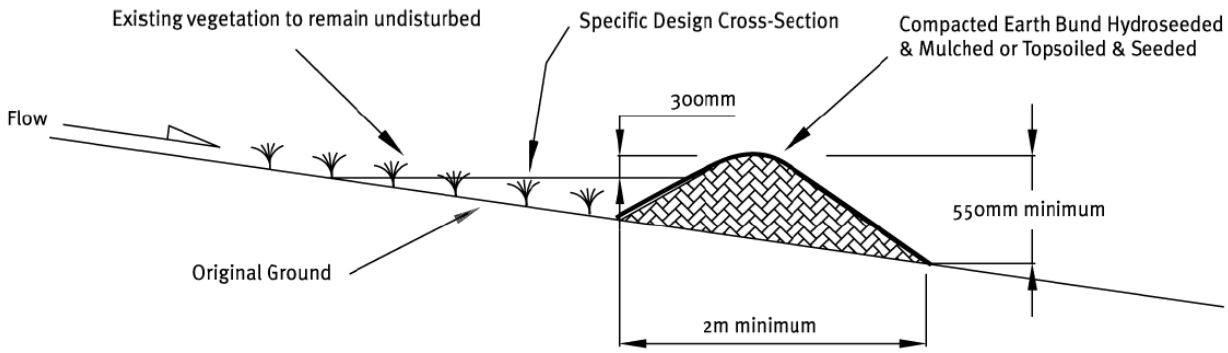
To prevent soil erosion and Rilling during a large rain event, and in an emergency to protect the Stopbank before topsoil can be placed, plastic can be rolled out to cover the exposed area.

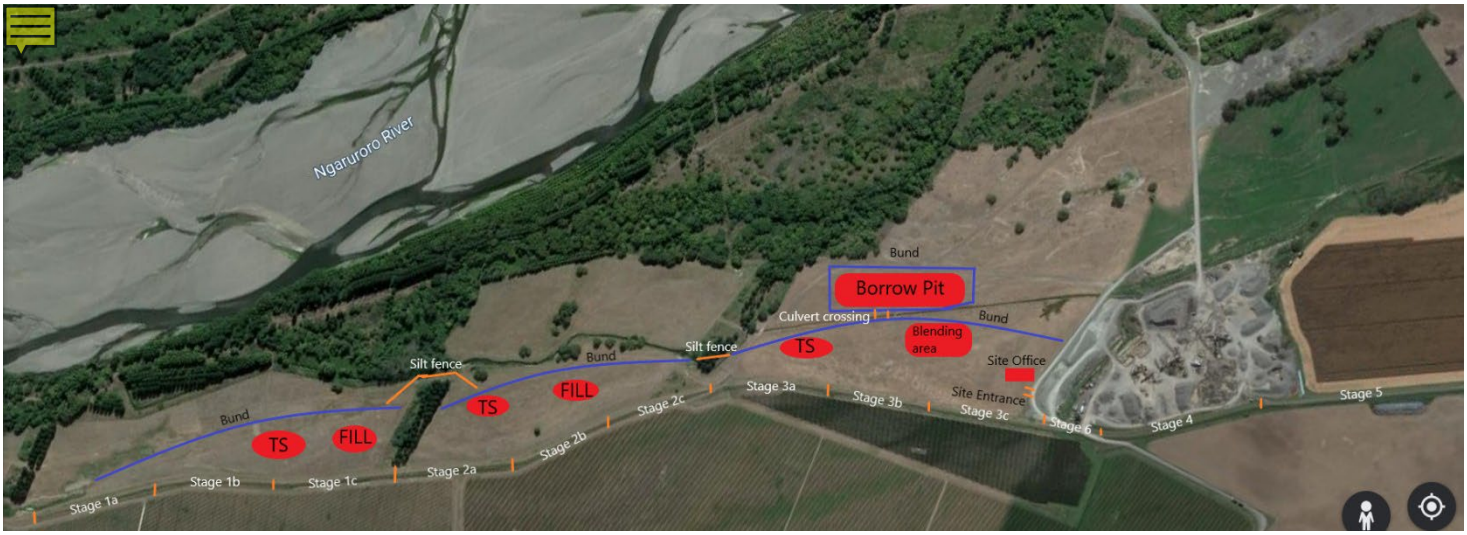
Method:

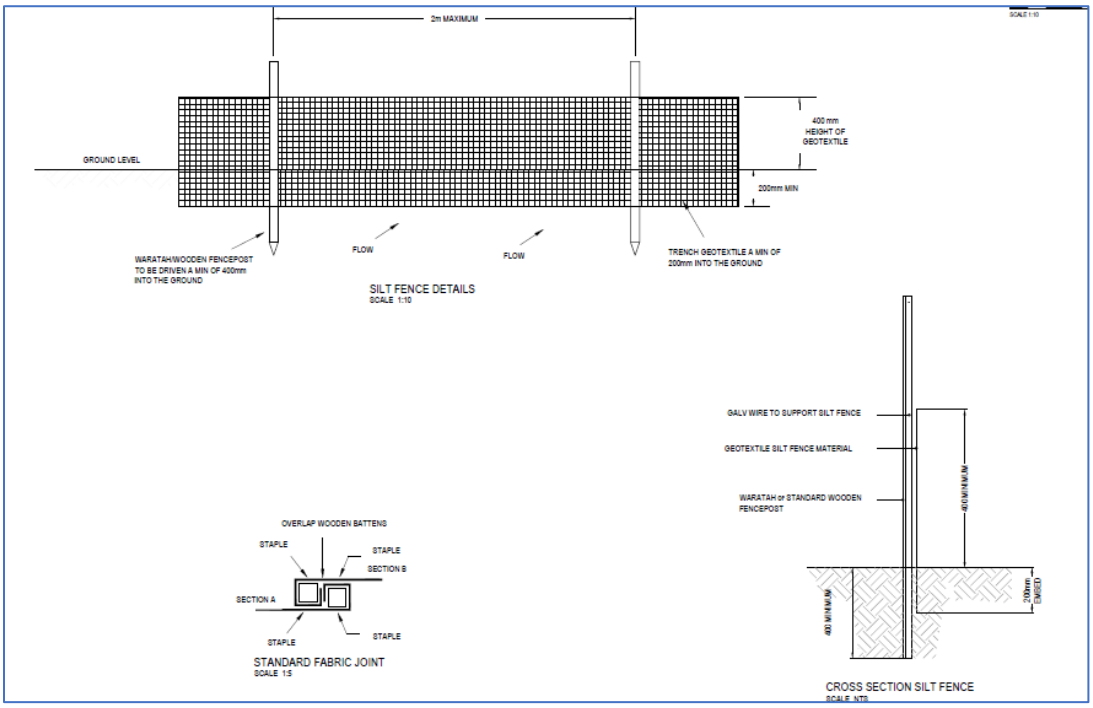
- Roll out silage plastic 50 meters by 18 meters
- Lay out plastic along the exposed face of the stopbank
- Use digger to bury foot of plastic at the base of stopbank
- Concrete blocks and sandbags to secure plastic at the top of bank
- Overlap plastic on vertical runs with 2 meter overlap – tape joint
- Remove upon completion

Figure 1Example of batter protected with Plastic

Cleanwater Runoff Diversion Bund






2m MAXIMUM
SCALE 1:10
400 mm
HEIGHT OF
GEOTEXTILE
GROUND LEVEL
200mm MIN
WARATAH/WOODEN FENCEPOST
TO BE DRIVEN A MIN OF 400mm
INTO THE GROUND
FLOW
FLOW
TRENCH GEOTEXTILE A MIN OF
200mm INTO THE GROUND
SILT FENCE DETAILS
SCALE 1:10
GALV WIRE TO SUPPORT SILT FENCE
GEOTEXTILE SILT FENCE MATERIAL
WARATAH or STANDARD WOODEN
FENCEPOST
400 MINIMUM
200mm
EMBED
400 MINIMUM
OVERLAP WOODEN BATTENS
STAPLE
STAPLE
SECTION B
SECTION A
STAPLE
STAPLE
STANDARD FABRIC JOINT
SCALE 1:5
CROSS SECTION SILT FENCE
SCALE NTS