



# **Erosion, Sediment & Dust Control Monitoring Plan**

Southern Seawall Project

Wellington International Airport Limited

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## Document Control

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## 1. INTRODUCTION

The purpose of this Erosion, Sediment & Dust Control Monitoring Plan (**ESDCMP**) is to detail the erosion and sediment control (ESC) management and monitoring system that will be implemented for the duration of the site preparatory earthworks activities associated with Wellington International Airport Limited Southern Seawall project (**the Project**). The ESDCMP includes details of process and procedures that will be followed and confirms how the ESC management and monitoring will be undertaken and the methods used in the context of the Project to ensure that effects and performances are managed appropriately.

This monitoring plan has been written to detail how the Project proposes to manage and monitor ESC measures during construction and of the Miramar Golf Club Construction Yard (**MGC Yard**) and Moa Point Construction Yard (**Moa Point Yard**), to ensure the performance of the Project ESC and to provide rapid and real time information and control to the Project management team.

The ongoing monitoring and reporting that is proposed in this plan creates a continuous feedback loop of the performance of the Project ESC site and device management. This plan provides the approaches to be followed regarding ESC maintenance, monitoring, and reporting.

The ESDCMP covers:

- Site management structures, practices, and procedures
- Weather Monitoring
- Erosion, Sediment & Dust Control Monitoring
  - Scheduled site visits, pre and post rain event monitoring and water sampling.
  - Rainfall event triggered water clarity and pH monitoring.
- Reporting
  - Rainfall trigger event reporting following a rainfall trigger event.
  - Recommendations of changes that need to be implemented onsite and modifications to any ESC will also be included.

Chemical treatment if required, will be monitored in accordance with the Project's Chemical Treatment Management Plan (Appendix B to the Project Erosion, Sediment & Dust Control Assessment Report (**ESCDAR**)).

## 2. SITE SPECIFIC EROSION AND SEDIMENT CONTROL IMPLEMENTATION

The construction of all erosion and sediment controls will be managed as follows:

- An ESC Technical Specialist will prepare the Site-Specific Erosion, Sediment & Dust Control Plans (**SSESDCPs**) in conjunction with the relevant construction Project Engineer and the Environmental Manager. Draft Site Specifics are included in Appendix C of the Erosion and Sediment Control Assessment Report.
- Each SSESDCP will be approved by the Environmental Manager and then submitted to Greater Wellington Regional Council (**GWRC**) for certification against the ESC Guidelines.
- Once certified, the Environmental Manager will issue the certified SSESDCP to the Project Manager (staff member) responsible for the implementation.
- A pre-construction meeting will be held by the Environmental Manager where the erosion and sediment controls to be built will be discussed and specific direction given on construction.

- The location of the controls and requirements of the relevant SSESDCP will be confirmed on site with the construction team and the Environmental Manager.
- The construction of the controls will be overseen by the Environmental Manager and / or the ESC Technical Specialist.
- Hold points for construction will be established for each control whereby the Environmental Manager (or ESC Technical Specialist) will inspect the work completed, for example the installation of anti-seep collars or the installation of the primary outlet.
- Each control will be 'as built' certified by the Environmental Manager (or ESC Technical Specialist) to confirm compliance with the certified SSESDCP prior to bulk earthworks commencing in the catchment of the device(s).
- Copies of the 'as-built' certifications will be submitted to GWRC.

### 3. WEATHER MONITORING

#### 3.1. Rain & Wind Forecast

Rain and wind forecasts relevant to the site will be checked daily using the MetService / MetVuw online / NIWA forecasting systems. Close monitoring of the rain forecast will be necessary to ensure the appropriate site works can be implemented prior to rainfall trigger events.

During working days, daily weather forecast checks will be forwarded to all Project Engineers and recorded in the daily prestart job sheets.

If the forecasts show more than 20mm of rainfall over a 24-hour period, then this will trigger the pre-rain event inspections (rain event with forecast >20mm over 24 hours), refer to Section 4.1 for further details. The purpose of these inspections is to check that the ESC devices and controls are set-up and ready for the rain event. This is in addition to the routine pre-rain event inspections undertaken by Project Engineers.

#### 3.2. Rain Gauges

Rainfall will be recorded at the existing weather stations located 'Newtown at Carmichael Reservoir' and 'Miramar at Miramar Bowling Club'. The Environmental Manager will monitor rainfall recorded at those sites. Rainfall trigger responses will be based on recorded events at those locations, which is sufficiently close to the various earthworks packages to be undertaken during the Project.

### 4. EROSION AND SEDIMENT CONTROL MONITORING

The Environmental Manager or nominated environmental staff will conduct routine inspections of the sites. These inspections will take place with adequate time allocated and will be thorough and systematic. Members of the project construction team including the Project Engineer, will accompany the Environmental Manager or ESC Technical Specialist on these inspections so that the Environmental Manager or ESC Technical Specialist can better understand the work occurring at that time and that is programmed to take place. It is also useful for the Project Engineers to be reminded of their ESC obligations and for both parties to recognise good performance and outcomes, and where performance has not been to the standard expected or required by consents. This is particularly relevant in identifying how communication between personnel can be improved to avoid a recurrence of an issue.

Communication is critical to the successful implementation of SSESDCPs. Internal inspections will cover all areas of the Project, even those that may have been dormant for some time, to ensure that the erosion and sediment controls are still operating properly. These internal inspections will be captured in writing and will include actions and timeframes for close out.

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## 4.1. Site Inspections

### 4.1.1. Internal Site Inspections

Routine inspections are undertaken during and post instalment of ESC devices. During construction, certain stages are identified for inspection, such as during the installation of anti-seep collars, level spreaders, and T-bars.

Post construction monitoring is undertaken once a sediment retention pond (SRP) or decanting earth bund (DEB) is operational. Monitoring will take place as soon as practicable following the first rainfall event that generates runoff to the ESC device. This is to assess the performance of the device and the resulting quality of treated water being discharged from the site.

The site will be inspected weekly as a minimum by the Environmental Manager (or nominated person) and / or ESC Technical Specialist during the course of the works. These inspections will ensure that all ESC devices are installed correctly and then operate effectively throughout the duration of the works. This inspection programme will provide certainty to all parties that appropriate measures are being undertaken to ensure compliance with conditions of consent and the certified SSESDCPs. The inspection regime will keep ESC management at the forefront of works on site. Any potential problems will be identified immediately, and remedial works will be promptly carried out.

The inspection programme shall consist of:

- **Weekly** site walkovers involving the environmental team to inspect all ESC measures, identify any maintenance or corrective actions necessary, assign timeframes for completion, and identify any devices that are not performing as anticipated through the certified SSESDCP. Any maintenance actions will be undertaken that day where practical. Actions will be recorded and issued to the Environmental Manager with specific actions required and closeout timeframes. Once completed, the Environmental Manager will inspect the works and close-out the item.
- **Pre-rain event:** Prior to all forecast rainfall events, checks will be made of ESC devices, to ensure that they are fully functioning in preparation for the forecast event. These will be undertaken by the Project Engineers, Site Supervisors or Environmental Team.
- **Pre-rain event with forecast >20mm over 24 hours:** These inspections are additional to the 'business as usual' pre-rain inspections. They must be undertaken by the Environmental Manager or nominated and sufficiently experienced person.
- Prior to forecast rainfall "trigger" events, specific site inspections will be undertaken, targeted at any additional ESC measures that are required to be installed to ensure that the site's ESC management system performs effectively during an expected larger event. Such measures may include, additional stabilisation, temporary cut off drains and sealing exposed areas.
- **Rainfall Trigger Inspections:** During or immediately after a rainfall trigger event of >7mm within 1 hour and >20mm rainfall over any 24-hour period (subject to health and safety restrictions) inspections will be made of all discharging SRPs and the following actions taken:
  - Water clarity of the water within the device adjacent to the decant outlet, or taken from the outlet pipe will be measured using a turbidity meter.
  - pH testing of the inlet and outlet flows undertaken along with a general inspection of the sediment control devices.
  - The rainfall trigger alerts will be monitored by the Environmental Manager.

- Any issues identified will be remedied as soon as practicable, and remedial measures will be recorded.

The purpose of these inspections is to confirm the performance of devices under the stress of heavy rainfall and obtain a spot check efficiency of the device.

- **Post-rain event:** Following all rainfall events including rainfall trigger events, inspections will be made of all ESC measures to ensure that all controls have performed as expected and to identify any maintenance requirements. Any remedial works will be documented during these monitoring inspections and immediately addressed where practical.

#### 4.1.2. External (Regional Council) Site Inspections

The Environmental Manager or Project Manager will accompany the GWRC inspector in all programmed GWRC audits. All ESC maintenance actions identified by the GWRC inspector will be recorded and issued to the Project Manager for actioning, based on GWRC instruction. The Project Manager will report back the completion of those actions to the Environmental Manager will inspect the works and confirm that those actions have been completed. Confirmation will be emailed to the GWRC inspector.

### 4.2. Water Quality Monitoring

Water quality monitoring will be undertaken during rainfall trigger events (>7mm within 1 hour and >20mm of rain within a 24-hour period), including site walkovers to provide a snapshot of the ESC performance.

Water quality will be monitored by:

- Turbidity – NTU (measured at the outlet end of all discharging devices)
- pH (measured at the outflow of each device)

The following water quality targets apply to the site's ESCs and will be measured during/after each rainfall trigger event (>7mm within 1 hour and >20mm in a 24 hours period):

- 170 NTU; and
- pH between 5.5 and 8.5.

If either of the targets/thresholds identified are breached, then the management actions identified within Section 5.3 will be implemented.

### 4.3. Dust Monitoring

Education of site staff on potential dust sources, effects and management requirements will form part of the site induction procedures required to be undertaken by all staff working at the site.

Dust monitoring throughout the project will be the responsibility of all workers and plant operators at the site with overall responsibility lying with the Project Manager. Dust monitoring methods will occur through daily monitoring of weather forecasts/conditions and active works areas and through visual observations to check dust for any mobilisation within the site over the course of daily construction activities.

Site weather conditions and operative works areas will be monitored each morning by the Contractor and discussed at toolbox meetings to identify any areas at risk of creating dust effects and the required management measures to prevent effects occurring. Wind strength, wind direction, type of works, soil conditions and proximity to affected parties will be taken into account in making these decisions. Ongoing monitoring will also be undertaken by site staff throughout the day as conditions will change.

Frequency of site inspections for dust and air quality issues will be increased when activities with a high potential to produce dust are being carried out, and during prolonged dry or windy conditions

Should a high potential for dust effects be identified through routine weather monitoring and site working conditions, the first response will be to deploy a water cart to wet down potential dust generating surfaces to prevent any dust effects from extending beyond the site boundary where it may impact neighbouring properties.

While unlikely, should dust suppression through water cart deployment be unsuccessful, with ongoing adverse dust effects being experienced, contingency methods to control dust effects will be employed to ensure that the effects cease. Contingency methods will include:

- Deployment of additional water carts;
- Further limiting vehicle speed/numbers within the subject area;
- Covering of problematic dust generating surfaces with topsoil, aggregate, geotextile, hydroseeding as required;
- Ceasing works within problematic areas until wind speed decreases or changes direction; and
- The use of dust suppression agents for example, chloride salt additives or polymers.

## 5. MANAGEMENT RESPONSES

### 5.1. Regular Monitoring Responses

The key to successful implementation of ESC devices and minimising sediment yield will be through the daily and weekly visual monitoring of the site and maintenance of controls. This monitoring will be undertaken by the Site Foreman. The responses to that monitoring will be as follows:

- A checklist record will be made of each device inspected and its condition, noting any maintenance requirements and timeframes of that to be undertaken. Maintenance will be based on ensuring compliance with ESC Guideline requirements.
- Ensuring all sediment retention devices are cleaned out before they reach 20% full of sediment.
- Completion of maintenance actions as soon as possible, and typically within 24 hours for standard issues and 8 hours for urgent issues.
- Emphasis on maintenance necessary prior to forecast rain.
- Sign-off of all completed maintenance and reporting to the Environmental Manager.

### 5.2. Incident Responses

If one of the following occurs:

- i. A failure of an erosion and/or sediment control (e.g. perimeter control, SRP or DEB) that results in visible discharge of sediment to the CMA or the stormwater pond adjacent to the MGC Yard.
- ii. Slumping / mass movement or erosion associated with the works, but which is outside the catchment of a sediment control device or has resulted in a device being over-topped by sediment, where that sediment has discharged to a stream.

The responses will be:

- Inform GWRC.
- Remedy the failure or event to prevent further uncontrolled discharges.
- Determine if the discharge is an isolated case or is likely to be repeated; and
- Investigate and implement modifications. Modifications could include:

- Make alterations to erosion and sediment control measures and methodologies;
- Consider additional ESC;
- Refinement of chemical treatment systems;
- Progressive stabilisation in sub catchments;
- Increase maintenance of controls; and
- Amendments to methodologies and sequencing of works and refinement of controls necessary.

### 5.3. Threshold / Target Exceedance Responses

If either of the water quality targets or thresholds detailed in Section 4.2 are not met the following management responses will occur:

- Within 24hrs of a threshold exceedance, a full audit of the condition of the control device and its contributing catchment will be carried out and recorded in writing.
- Remedy and record any obvious causes on site that may have contributed to a threshold exceedance as soon as practicable.
- Identify any additional reasons for the exceedance and opportunities to modify the management of the site to improve overall performance which may include:
  - Consider additional ESC;
  - Increase maintenance of controls;
  - Progressive stabilisation in sub-catchments; and
  - Make amendments to methodologies and sequencing of works and refine controls if necessary (check that a further approval is not required from the GWRC).

## 6. REPORTING

### 6.1. Rainfall Trigger Event Report

Following a rainfall trigger event (>7mm within 1 hour and >20mm in a 24 hours period), a summary report of the performance of the overall ESC system observed during the rainfall event report will be provided to GWRC. The report will include:

- A summary of the rainfall (total and intensity)
- A summary of the manual monitoring undertaken and comparison of manual monitoring results to previously recorded results.
- A summary of the site performance against the performance targets.
- A record of any other matters which may have compromised the overall ESC performance during the rain event and the identified mitigation, maintenance, and management response.

The Rainfall Trigger Event Report will be provided to GWRC within 10 working days of the rainfall trigger event.

### 6.2. Dust Complaints

Any dust complaints received will be taken seriously and matters raised shall be investigated and responded to as quickly as possible