Northern Territory Government

Developing an Erosion and Sediment Control Plan for a Residential Building Site

Erosion and Sediment Control (ESC) measures on residential building sites will assist in compliance with Council by-laws and Northern Territory legislation. ESC measures will also reduce repair/clean-up costs, public liability, extend site accessibility in wet conditions and improve the aestheics and marketability of a building site and the building company itself.

Best practice ESC should be implemented as part of normal site management to ensure that economic, social and environmental liabilities are minimised.

This nine-step guide provides information on how to develop an Erosion and Sediment Control Plan (ESCP) for a residential building site.

Step 1 - Assess the site conditions

An evaluation of site conditions will help to determine appropriate ESC measures, and ensure that drainage, erosion and sediment controls are appropriate for the site.

Factors to consider include:

- Site size and slope.
- Upslope and downslope drainage conditions – what run-on will the site receive from upslope land and where will site runoff flow to (road, neighbouring properties, drains, creeks)?
- What time of the year will the works be undertaken – will dust control or sediment laden runoff be the primary focus?
- Are there any features already on-site that can be used (e.g. mulch banks from subdivision works)?

Details to include in an ESCP:

- A site plan that shows property boundaries and where stormwater surface flows enter and leave the site.
- Contours, existing and proposed, or other indicators of site gradient and slope length.
- A north arrow and other location identifiers such as street names.
- Dust control management notes.
- Timing of works. Commencement and completion.
- Property details- e.g. lot/address details, size, Development Permit number (if the ESCP is a requirement of a Development Permit condition).
- Identify 'No-Go' areas in the plan – verge, footpaths, adjacent lots, etc.

Step 2 – A stabilised site entry/exit point

The purpose of a stabilised construction access is to prevent sediment from being tracked off site and onto the road.

- Generally establish one entry/exit point to the site.
- Where a site slopes towards the entry/exit, drainage and sediment control devices should be installed so that all sediment laden runoff can be fully contained and treated on-site.
- Unauthorised access should not occur across adjoining lots as erosion controls such as spray on soil binders may have been implemented and trafficking may incur considerable expense to re-establish binder.

Details to add to an ESCP:

- Nominate the location of a stabilised construction access on the drawing.
- Include a standard/typical drawing of the stabilised construction access.

Un- managed site access

Well managed site access

Step 3 – Control of upslope stormwater

Controlling upslope 'clean' water reduces the volume of run-on to the building site. This reduces the amount of "dirty water" requiring management, improves wet weather access to the site and helps to limit erosion and sediment mobilisation on the site.

- On sites greater than 1500 m^2, where reasonable and practicable, divert up-slope catchment around the working areas of the site.
- Stormwater must not be discharged into neighbouring properties.
- Up-slope stormwater can be caught and diverted through the site to a stable release point (e.g. through a temporary swale drain).
- Only clean, sediment free stormwater can be discharged to public stormwater systems.

Details to add to an ESCP:

- If catchment diversion is proposed, show location of this on the plan, including any erosion and sediment controls, diversion works, e.g. rock protection and/or check dams.
- Include typical drawings (e.g. cross section of a swale drain to show dimensions and for erosion and sediment controls where required).

Building site flooded by upslope runoff

Upslope diversion bank (sand bags)

Step 4 - Locate soil and material/waste stockpile locations

Soil and sand stockpiles need to be located within the development parcel and upslope of a sediment control.

All building waste materials should be placed in bins and disposed of appropriately.

Details to add to an ESCP:

- Nominate the location of stockpile/s in the drawing.
- If not located immediately upslope of a boundary/perimeter sediment control, indicate a sediment control on the down slope side of stockpiles.

Un-managed soil & material stockpiles

Step 5 - Control erosion on disturbed areas

- Appropriate erosion control measures should be employed to protect exposed soils to minimise erosion. Examples include: grassing, mulch, geotextile or the application of a soil binder.
- Erosion controls are best described through the use of technical notes on the ESCP.
- The extent and type of erosion control measures required will depend largely on the timing of works, i.e. if works are to commence and be completed during low rainfall months (May to September) significantly less erosion control measures are required than for works being undertaken during higher rainfall months.
- Stockpiles of clay loam or other finely sized material may need to be covered, for dust and erosion control.

- Newly formed earth batters, such as fill slopes, should be covered with topsoil and mulched, vegetated or otherwise be stabilised as soon as practicable.
- Where practicable, the site should have cover established as soon as building activities are completed and a heavy mulch layer should be placed on exposed garden beds.

Step 6 - Control of sediment runoff

- Provide a sediment trap, such as a mulch bank or a sediment fence, on the downslope boundary or boundaries.
- Plan to position mulch banks and sediment fencing on the contour where possible. Sediment fencing or mulch banks running downslope require returns at more frequent intervals.
- Add returns on mulch banks or sediment fences at approximately 10 m intervals
- All existing and proposed onsite drop inlet pits and road side entry pits should be protected prior to the commencement of works or as soon as constructed.
- Larger sites may require additional sediment control measures, such as excavated sediment traps, especially if works are planned to be undertaken during the Wet Season.

Details to add to an ESCP:

- Identify the location of perimeter sediment controls on the drawing.
- Include a typical drawing of the selected sediment control.
- Notes on dust control, e.g.cover or soil binder on exposed soils and stockpiles.

Sediment Fence- Not installed correctly

Onsite inlet pit - no sediment control protection

Step 7 - Control of roof water drainage

- Plan for installation of temporary or permanent downpipes as soon as possible after the installation of roofing and guttering, especially during periods when rain is expected.
- Roof water should be discharged away from the active work area and any disturbed soil surface.
- Roof drainage controls are best described through the use of technical notes on the ESCP.

Example of inlet pit protection. Grated pits can also be wrapped in geofabric or sediment fence material.

Step 8 - Define the installation sequence

- Flagging of ‘No-Go’ areas and establishment of site access.
- Drainage (diversion) and sediment control measures implemented prior to site disturbance.
- Setout of stockpile areas (avoid trench alignments).
- Erosion controls and progressive rehabilitaion.
- Final site rehabilitaion / landscaping.
- Removal of temporary ESC measures.

Step 9 - Prepare technical notes for the ESCP

Technical notes should be included on the ESCP to describe selected ESC methods and related maintenance requirements. This information helps to explain what is shown in accompanying drawings and plans, and provides helpful direction for contractors and site personnel responsible for implementing and maintaining ESC works.

Technical notes can be relatively brief and be presented as an insert or text box on the site plan sheet. Reference standard drawings where applicable and include these on a second drawing sheet.

Notes and typical/standard drawings can also be included as attachments if required; however in most cases an ESCP with notes and some standard drawings can be accommodated on one or two A3 format drawing sheets.

Technical notes can be set out under headings, such as:

- **General Notes** – timeframes and staging, vegetation clearing and No-Go areas, site access, and compliance with best practice guidelines (e.g. International Erosion Control Association), industry standards or Council requirements.
- **Drainage Control** – temporary interception/diversion drains, channel form and stability, discharge points and stable outfalls.
- **Erosion and Sediment Control** – methods and installations.
- **Rehabilitation and Landscaping** – development of paved/hard surface areas and cover establishment.
- **Monitoring and Maintenance** – responsible personnel, scheduled checks and response to storm events, contingency provisions.

ESCP Checklist:

Feature	Check
General	
Map/plan showing the development site with clearly marked boundaries.	
Timing of works – commencement / completion, clearing dates if applicable, installation and removal of temporary ESC measures.	
Scale/dimensions and North arrow, and other location identifiers, such as street names.	
Detail of surfacing (landscaping, driveways etc.) at completion of works (cover). Alternatively, if this information is shown in another plan, such as a landscaping plan, then reference the plan in the Technical Notes and attach the plan to the ESCP.	
Legend / Labels for all controls/features.	
Contours, existing and proposed and/or direction(s) of fall shown.	
Details on site reshaping (cut/fill works) if applicable.	
Direction of stormwater runoff flow though the site shown.	
All ESC and drainage controls are located within the property boundaries.	
No-Go areas identified on the drawing (such as grassed verges, footpaths).	
Location of all ESC and drainage control measures clearly shown in drawing.	
Sediment control	
Down-slope perimeter sediment control specified.	
Stockpile area/s and downslope sediment control shown.	
Stabilised entry/exit access detail and location.	
Stormwater runoff from entry/exit directed to sediment trap (if applicable).	
Appropriate sediment control measures are specified for all “sag” and “on-grade” kerb inlets, field (drop) inlets and for culverts and pipes.	
Excavated sediment traps	
Drawing and revision number.	
Drainage control	
Location of drainage control (e.g temporary swale drain) identified on the plan.	
Drainage outfall is stable (e.g. inlet pit with sediment control).	
Depending on length/slope of diversion, temporary velocity control measures such as rock-check dams may also be required.	

Typical drawings	
A typical/standard drawing is included for each ESC and drainage control measure proposed.	
Example typical/standard drawings can be found at: www.austieca.com.au/ (IECA Australasia).	
Other Technical Notes	
All erosion and sediment control measures to be installed prior to any site disturbance. All temporary controls are to be removed at the completion of works.	
Dust control measures.	
Maintenance/monitoring program (including site contact).	
Dewatering information (need to identify how sediment laden water will be removed from trenched and other excavations and how it will be treated prior to disposal).	
A note specifying that immediately after being constructed, all drop inlet pits and side entry pits will have temporary sediment controls installed.	

Note:

This check list includes general erosion, sediment and drainage control measures that may be appropriate for building sites. Depending on site conditions, additional measures may be required.

The use of hay bales as a sediment control is not recommended in the Northern Territory as they break down quickly during wet season months and can cause erosion through the concentration or unintended diversion of water.

References and Further Information:

This fact-sheet has been developed from the '*Best Practice Eorsion and Sediment Control'* booklets - IECA 2008. Further information about the IECA (International Erosion Control Association) Australasia can be found at www.austieca.com.au/

A more comprehensive guide to building site erosion and sediment control and generic examples of residential building site ESCPs can be sourced from the ***Erosion and Sediment Control Field Guide for Builders*** – *Version 2, 2012 – G. Witheridge, Catchments and Creeks Pty Ldt.* – this document is available at www.catchmentsandcreeks.com.au/esc_field_guide.html

Additional factsheets and information on erosion and sediment control can be found at the DLRM website: www.lrm.nt.gov.au/soil/management.

Contact Details:

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