

# STANDARD OPERATING PROCEDURE

**Equipment Working with Rip Rap Material**

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## EQUIPMENT WORKING WITH RIP RAP MATERIAL



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*The following is a step-by-step procedure on how to complete a specific task or meet a facility specific requirement. Standard Operating Procedures (SOPs) are written for all identified critical tasks. By virtue of the hazard or complexity associated with critical tasks it is paramount that the SOP be followed as written. SOPs contain a listing of high-level hazards associated with the task, for detailed hazard analysis reference the applicable Task Hazard Assessments. SOPs do not replace the requirements contained in the company Standards, Codes, and Processes nor does it replace the need to comply with required legislation. Section 8.0 references documentation that the worker shall understand before work commences.*

## 1.0 PURPOSE

- To establish a Company standard to safely and effectively carry out work as it applies to equipment working with rip rap material.

## 2.0 SCOPE AND APPLICATION

- This document applies to all Company Heavy Construction Mining operations. Ensure all site-specific requirements are being met or exceeded before performing the task.

## 3.0 HAZARDS AND CONTROLS

- Rip rap contacting loading equipment (i.e. excavators, wheel loaders) when being moved (picked and placed).
  - Install a screen or guard on the excavator windshield that is appropriate to the size of rock being handled to protect from possible flying fragments.
  - Understand the limitations of the excavator. Depending on the type of attachment, excavator buckets/rakes/thumbs can come in contact with the cab. Do not handle rip rap within 3 metres of cab.
  - Do not curl the excavator bucket inward when rocks are gripped between the bucket and thumb attachment.
  - Use controlled movements with the excavator. Aggressive movements of the boom or stick may cause the rip rap to 'slingshot' out of the bucket towards the machine through the closed thumb.
  - Only secure rocks with the thumb attachment do not pinch rocks to the maximum force of the thumb as this may create a situation where rocks can be forced out of the grip.
  - Multiple rocks can be picked and placed in larger areas; however, all rocks must be fully inside the bucket when being moved. Only one rock can be picked at a time; no other rocks may be in the bucket when there is a rock gripped between the thumb and the bucket.
  - Place rock stockpile close to the work area to minimize travel with rocks in thumb. Best practice is to have stockpile in reaching area for placing. This cannot always be done (i.e. on longer slopes) but in flat areas it is best practice.
  - Piles of rock for placement should be piled at ground level of machine. If placing is on slope, do not pull rocks into bucket from slope, walk up slope so rocks are grabbed from the "same level".
  - Excavator operation must be smooth and controlled at all times to avoid rocks moving unpredictably in all directions.
  - To reduce chance of flying debris, do not reach or drop rocks.
  - Keep bucket low to the ground when loading bucket, placing, or travelling with rocks.

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- Ground personnel in line of fire when equipment is working with or placing rip rap.
  - No ground personnel in the vicinity of the placement operation. If a grade check or rock inspection is to be done, equipment operation will stop with implements grounded to let ground personnel complete their tasks.
- Improper loading, hauling or dumping of rip rap leading to operator injury and or equipment damage.
  - When using an excavator to load haul trucks create a “perch” or bench for the excavator to sit on to eliminate having to reach above the excavator cab to drop rocks in the haul truck box (cab of excavator must be parallel or higher than truck box). Side loading is the preferred method as opposed to loading via the tail end of the haul truck.
  - Do not overload haul trucks; ensure rocks will not roll out of haul truck box while travelling.
  - Do not overload excavator bucket which can create spillage while swinging.
  - Place rip rap carefully in haul truck box; do not drop into box. Avoid jostling the haul truck operator.
  - Haul truck operators shall brace themselves to be loaded with rocks (i.e. feet placed firmly on floor; body not twisted or turned in cab).
  - When dumping, haul truck operators shall raise box slowly to slow down rock from exiting box and reduce the risk of the rock rolling too far.
  - Use of tailgated trucks must be approved by supervisor or management. Rip rap must be small enough to safely clear the tailgate when dumping.
  - No personnel permitted on ground while equipment is dumping rip rap.
- Rip rap spillage when transporting resulting in injuries to ground personnel and or damage to equipment.
  - Do not lift bucket above loader cab to eliminate chance of rocks coming back over bucket onto the cab.
  - Do not overload loader bucket to create a situation where rocks are dropping out of the bucket and falling in the equipment path while travelling.
  - Ensure travel path is reasonably smooth; adjust travel speed in rough areas.
  - Travel with bucket close to ground.
  - Ground personnel shall stay away from transporting operation.

## 4.0 CHECKLIST

- Attend all preparatory meetings (IE: daily PSI; job scope; review of JSA's and SOP's for the job).
- Complete FLRA cards before starting the work.
- Ensure all personnel involved in the task are aware of the hazards and the controls to be used, as identified in the SOP's; JSA's; and FLRA's.
- Conduct a pre-job inspection of all equipment to be worked on and tools to be used.
- Standard of Training required for working on this job: On-the job training.**

## 5.0 DEFINITIONS

### 5.1 Company

Means North American Construction Group Ltd. (NACG) and all directly or indirectly owned subsidiary companies, including joint ventures.

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## 5.2 Company Personnel

Includes the Company's employees, officers, directors, agents, associates, consultants/contractors, temporary employees, and third-party processors.

## 5.3 HSE

Refers to the Health, Safety & Environment department.

## 5.4 Rip Rap

Rock that has been crushed and screened into various stone sizes. It is typically used to prevent or control erosion in ditches, embankments, excavations or large holes.

## 6.0 PROCEDURE

- 1) Complete an FLRA for the task being conducted.
- 2) Identify travel routes, placement and loading areas. Ensure areas have adequate visibility and are not in proximity to overhead hazards.
- 3) Confirm excavators handling rip rap are equipped with a guard or screen appropriate to the size of material being handled.
- 4) Ensure loading unit is setup where cab height is equal to or greater than the height of the truck box. Where possible use side loading not tail loading.
- 5) Load haul truck (do not overload) with rip rap and travel to dump location.
- 6) Ensure no ground personnel are present in dumping area. Using slow and controlled movements, dump rip rap.
- 7) Using wheel loader (or similar equipment) transport rip rap from dump area to placement area (stockpile) for excavator to pick and place in ditch or embankment.
- 8) Ensure rip rap placement area is as close as reasonably possible to excavator to prevent overreaching and minimize the distance rocks are transported while secured in thumb.
- 9) Place rip rap in desired location; ensure only one rock is secured in thumb while placing. Do not handle rip rap within 3 metres of cab.

## 7.0 NOTES

If this task is to be done by a method different than described in this SOP, the work must **STOP** and the alternate method must be **DOCUMENTED** with an adequate hazard assessment tool such as a JSA. The document must be **APPROVED** by a supervisor before such procedures are implemented.

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## 8.0 REFERENCES

- Alberta Occupational Health and Safety Act, Regulation and Code – {Part19, Section 269 Powered Mobile Equipment Guards and Screens}
- 962C-SOP-035 Haul Truck Loading Procedures
- 962C-SOP-036 Haul Truck Dumping Procedures

## 9.0 APPENDICES

- No appendices.