

# STANDARD OPERATING PROCEDURE

**Road Maintenance Using Graders**

Document Number: 962C-SOP-041

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Revision Number: 3

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Latest Revision Date: Jun 14, 2023

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## ROAD MAINTENANCE USING GRADERS



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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 road maintenance.

## 2.0 SCOPE AND APPLICATION

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

## 3.0 HAZARDS AND CONTROLS

- Interaction with heavy equipment.
  - Positive communication must be achieved prior to passing graders. Examples of acceptable communication methods include two-way radio, hand wave, and/or flashing flood lights.
  - Grader operators must always acknowledge when permission to pass has been requested. Check the area ahead to ensure it is clear prior to giving permission to pass.
  - Passing equipment uphill and on blind turns is not permitted. Always follow site specific rules for passing graders as they may differ from this SOP.
  - When passing graders, equipment must slow to an acceptable speed. In ideal conditions the acceptable speed to pass is no greater than 25 km/hr. Speed may need to be reduced if weather and road conditions are not favorable (i.e. dust, snow, slippery roads).
  - When passing graders, a minimum distance of 5 metres must be maintained.
  - When passing graders, oncoming traffic has the right of way. Three pieces of equipment abreast is not permitted on haul roads.
  - Graders may only be passed if they are actively blading or working in the area and have their four-way flashers on.
  - Graders will request permission to enter shovel pits; shovel operators are to be aware of grader's activity in the work area.
  - Equipment will follow the safe approach to equipment rule. Equipment will be approached from the front cab side and will follow the 50 m / 10 m rule for safe approach when parked or stopped.
- Contact with or damage to shovel power cable.
  - Do not push windrows next to shovel power cable.
  - Maintain a minimum of 3 metres away from shovel power cables.

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- Tire and equipment damage due to windrows.
  - Do not flare or pull the windrow across the travel path. Leave all windrow material in line with the windrow and in the direction of the road.
  - Do not pull material across the road during a turn as it puts the material directly in the pathway of the traffic.
  - Windrows shall be no longer than 300 metres.
  - Never leave a windrow across an intersection or road access.
  - The loaded side of the haul road should be given top priority for grading. It is important to give the loaded trucks the best running surface possible as tire, suspension and frame damage are more likely to occur with a loaded truck.
  - Where possible, equipment will avoid driving over windrows.
  
- Equipment damage due to improper operation or abuse.
  - When ripping, only use first gear and begin at low throttle. Always raise the ripper before turning the machine to avoid damage to the shanks or ripper frame. Only make penetration as deep as the ripper tooth; do not drive the complete ripper shank into the ground.
  - Avoid driving over windrows by ensuring material is cast far away from the machine.
  - Do not turn grader too tight such that the blade touches the tires.
  - Operate the machine within OEM guidelines.
  - Complete walk around and equipment pre use inspection prior to operating the equipment.
  - Slowly cycle hydraulics prior to operating in cold weather.
  - No sharp turning with differential locks engaged.
  - Avoid wheel spin so no damage occurs to differential, pump and chain drive system.
  - Avoid running up on top of material to avoid damage to drawbar ball socket.
  - On M series Motor Graders (equipped with shuttle shift design meaning transmission looks after itself), avoid turning circle drive with loaded blade of material or damage to circle motor will occur.
  - H series Motor Graders need to be stopped completely before shifting from forward to reverse or abusive shifts will occur.
  - No excessive speed blading on roads.
  - Grader operators are to be aware of GPS equipment and ensure it does not come in contact with the grader cab, door or other equipment. When leaving the grader, ensure the GPS posts are not in the line of fire to contact GPS towers.
  
- Congested areas.
  - Ensure equipment operators are aware of grader's presence when working in congested areas. Equipment operators are to maintain a safe distance from graders.
  - Grader operators must perform a visual check over both shoulders prior to reversing equipment.
  - Prior to turning left or right the grader operator must check for oncoming traffic. This includes completing a proper shoulder check over both shoulders. When changing direction, grader operators are to lift their blade and ripper and remove their four-way flashers.
  
- Limited visibility due to dust, fog, snow, and other adverse weather conditions.
  - Ensure equipment operators are aware of grader's presence on haul roads, pits and dumps.

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- Limit grader operation in active areas when visibility is poor (i.e. when other equipment may have difficulty identifying the grader).
- Ensure lights, flashers, and windows are clean and operational.
- All equipment must have a legible identification number visible from all sides.
- Use caution when opening doors in windy conditions. Ensure operator has a firm grip on handle.
- Uncontrolled movement of equipment.
  - Park on level, smooth ground.
  - Ensure blade and ripper are grounded.
  - Ensure park brake is applied as well as hydraulic lock (if equipped).
  - Follow 962C-SOP-037 Securing Disabled and Parked Equipment in an Operating Environment.
- Damage caused by moving skid mounted equipment:
  - Follow 962C-SOP-038 Moving Skid Mounted Equipment.

## 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.

### 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.

## 6.0 PROCEDURE

- 1) Complete FLRA prior to task.
- 2) Complete pre use inspection prior to operating the equipment. Report any mechanical or safety issues to supervisor prior to operating equipment.

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- 3) Turn on master switch; ensure transmission is in neutral and park brake applied. Sound horn and wait 5-10 seconds. Turn key to on position to allow the monitoring system to perform a self-test, then to start position.
- 4) Travel to work area. Notify operators when entering work area.
- 5) Set blade and ripper as required. Road grading should be completed with the flow of traffic where possible. Ensure windrow length does not exceed 300 m and does not cross intersections.
- 6) Maintain a safe speed for operation. Do not use excessive speed when blading roads.
- 7) Acknowledge with a permission to pass when communicated with.

## 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.

## 8.0 REFERENCES

- Alberta Occupational Health and Safety Act, Regulation and Code – {Part 19, Powered Mobile Equipment}
- 962C-SOP-037 Securing Disabled and Parked Equipment in an Operating Environment
- 962C-SOP-038 Moving Skid Mounted Equipment
- 962C-SOP-040 Claiming Equipment and Pre Operation Inspection

## 9.0 APPENDICES

There are no appendices.