METROLINX

METROLINX GENERAL ENGINEERING INSTRUCTIONS

Document Title: Metrolinx General Operating Instructions	Published Date: April 14, 2023
Document Number: MXSD-SSP-L1-MAN-0012	Compliance Date: May 1, 2023

General Notice

The instructions and procedures contained within this document are issued for the information, guidance and adherence of all employees and contractors engaged in the inspection, maintenance and construction of track, roadway, signals, bridges, buildings and other structures and are applicable on all Metrolinx Railway Corridors.

Except as provided herein, all Canadian Railway Operating Rules (CROR) and Special Instructions remain in force.

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DEFINITIONS & ACRONYMS

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1 DEFINITIONS AND ACRONYMS

1.1 DEFINITIONS

The following are in addition to the definitions and occupational terms outlined in the CROR.

Access Point – The area through which Workers and Construction/Maintenance Equipment access the Railway Corridor.

Adjacent Track – Tracks shall be considered adjacent when the measured distance between track centers is less than 25 feet (7.6 meters) and/or is accessible to any traffic next to a Work Site location in or on the Right of Way.

Automatic Warning Devices (AWD) – An automated system, other than an interconnected traffic signal, that indicates the approach or presence of railway equipment at a grade crossing and that is composed of any combination of light units, bells, gates, operating mechanisms and circuits.

Certified – Having undergone and passed approved training and certification specific to the role being carried out prior to achieving qualification/competence.

Clear – All Employees and Workers are in the predetermined Position of Safety as determined and discussed in the job briefing and/or supplemental job briefings. When clearing for a Movement or storing Track Units, all booms, wings, etc., must be retracted, secured with all locking devices put in place, and clear of the live (main) track. Tools and other materials must also be removed and secured to avoid being struck by a passing Movement.

Clear Block – A term used to advise Employees/Workers that there are no Movements within the defined limits of the protection identified in the GBO or authority.

Clearing List – "The List" is the Protecting Foreman's listing on the 842 confirmations of all Sub-Foremen and Visual Work Groups they are responsible for clearing or a Sub-Foreman's listing on their copy of the 842 confirmation of all Visual Work Groups they are responsible for clearing.

Clearing Sheet – Prescribed document held by both Protecting Foreman and Sub-Foreman to keep track of clearing either Sub-Foreman or Visual Work Groups along with a record of all Movements authorized through Rule 842 limits.

Competence – The ability and quality of having sufficient knowledge, judgment, skill, experience, and strength, which includes a willingness to undertake responsibilities in accordance with agreed standards, rules and procedures.

Compliance Officer – A nominated Officer within Metrolinx who will lead all compliance requirements in their respective department.

Construction/Maintenance Equipment – Vehicles, machinery, and tools used for infrastructure-related activities, as described in the scope of this document.

Continuous Work Zone (CWZ) – An identified and clearly delineated work zone that permits the continuous operation of construction/maintenance activities while a Movement is passing on an adjacent live track.

Contractor – An individual, person, or entity engaged under contract by Metrolinx or a third party to provide Construction or Maintenance services within Metrolinx Property. A Contractor can include a General Contractor or a Project Company.

Constructor – Defined in the OHSA as a person who undertakes a project for an owner and includes an owner who undertakes all or part of a project by himself or by more than one employer.

Dynamic Envelope – The outer limits of the space occupied by a Movement or Track Unit when in motion, including the effects of tilt, sway, track cant, etc. See GTTS (GO Transit Track Standards) Appendix X for technical specifications.

Employee In Charge (EIC) - The term "Employee in Charge or EIC (name)" will be used by the employee in charge of the Rule 842, and the term "Sub-Foreman (Name)" will be used for those being protected by the EIC and when communicating with each other.

Engineering Conformance Certificate – Is provided to document compliance with a specified standard (used to verify that equipment is compliant and tested).

Fence – A means of creating a demarcation of limits around a Work Site to delineate between the Work Zone and a live track. It can also identify the boundaries of a property.

Foreman's Crossing – At-grade crossing (timber planks, rubber crossing, or approved Metrolinx material).

Foul – Any incursions by Construction/Maintenance Equipment, attachments, or load into the Dynamic Envelope of all Movements and Track Units that may operate on a live track (infringing the Fouling Point).

Fouling Point – The outermost limit of the Dynamic Envelope of all conventional gauged Movements and Track Units that may operate on main track, either calculated using a gauging system tool or estimated using the guidelines set out in this document. The calculation tools can be used, but in Movement Limiting Devices (MLD) settings, absolute measurements must be understood.

Height Limiter – A purpose designed device which limits the vertical arc to which a boom/jib/dipper can reach.

Hi-Rail - A road vehicle or construction machinery designed and capable of operation both on and off track. When operated on a track they will be referred to as "Track Units". All rules, procedures, and instructions governing their operation are applicable.

Lone Worker – A form of protection where an employee is working alone, where no form of positive protection is in place and adequate sightlines and procedures must be followed.

Movement Limiter – A purpose designed device which limits the physical movement of a machine.

Movement Limiting Device (MLD) – Movement limiting devices protect against any inadvertent exceedance of lateral and vertical limits of work.

Night – The period of time from one hour before sunset to one hour after sunrise.

Operating Crew – Locomotive Engineers, Conductors, Transportation Officers, Utility Employees, and Supervisors whose duties are the care and control of a movement.

Peer-to-Peer – a method to ensure more consistent communication between Employees.

Person in Charge (PIC) – A person involved in the planning and who is on-site where the work is being undertaken and has the overall accountability of supervising and overseeing construction works and workers. They must hold a valid supervisory competence and ensure planned controls are put in place to keep persons safe from Movements of Construction Equipment, activities, and site risks.

Planned Limit of Work – The closest distance from a live track to the machine or its load during the planned operation.

Position of Safety – A place not foul of any live track(s) where it is safe to stand when a Movement is passing. When possible, Employees and Workers should be a minimum of 15 feet from the live track.

Positive Protection – The track(s) is protected in accordance with CROR Protection of Track Work (Rules 41, 42, 841, and 842) or Track Occupancy Permit (TOP Rules 849 to 864 inclusive).

Project Site – Synonymous with the geographic boundaries of a specific project's Work Zone.

Property – Also referred to as "Metrolinx Property,"; means real estate, owned or leased, including but not limited to the USRC, Rail Corridors, train and bus facilities, train and bus stations, and parking lots.

Protecting Foreman – An Employee named in the track authority and in possession of Positive Protection and the Employee In Charge (EIC) of a work project protecting Employees/Workers, Visual Work Groups, Separated Work Groups, and Track Units.

Railway Corridor or Rail Corridor or Right of Way (ROW) – Refers to the Metrolinx-owned and operated subdivisions of the railway infrastructure, rail/maintenance/layover yards, and all property between property fences, or if no fences, everywhere within 30 feet of the outermost rails.

Reach Limiter – A purpose-designed device that limits the distance that a boom/jib/dipper can reach.

Roadway Grade Crossing – A location where a public highway, road, street, or unrestricted private roadway, associated sidewalks and any pedestrian or bicycle pathway cross one or more railway tracks at grade.

Safety Barrier - A Permanent or Temporary Barrier made of rigid or tensioned material or plastic netting.

Safety Watch – A form of protection where an employee is in charge of a group of employees/workers, where no form of positive protection is in place and required sightline distances and procedures must be followed.

Separated Safety Zone – Created by a separation distance of over 30 feet between the Work Site limit and the Adjacent Track.

Separated Work Group (SWG) - When the nature of the work, size of the work crew, or the length of the work limits are such that the Foreman named in the track authority (Protecting Foreman) cannot visually confirm and personally supervise all persons engaged in the work directly related to the Protecting Foreman's work project, they must assign a Sub-Foreman in charge of the Separated Work Group as per CROR Rule 855 special instructions, "Procedures for the Protection of Sub-Foreman Work Groups."

Site Access Control – A designated administration center for a Work Site, which includes but is not limited to the following activities:

- Responsible for controlling access/egress to the site
- Collating all reporting
- Single point of contact from the Work Site to the outside world.

Slew Limiter – A purpose-designed device that limits the horizontal rotation in which a boom/jib/dipper can be slewed/moved.

Three-Point Contact – A procedure which always requires continuous contact of two hands and one foot or two feet and one hand; especially when entraining, detraining or riding equipment.

Three-Point Protection - A procedure used to protect employees when fouling equipment with the absence of blue flag protection. This procedure requires both the employee being protected and the Operator providing the protection to act together when providing and releasing the protection.

Track Closure – Track(s) are not open to any Movement, and the track(s) are under a form of Positive Protection by a competent Protecting Foreman.

Traffic Control Person – A worker trained in accordance with Ontario Traffic Manual (OTM) Book 7, whose main role is to stop, slow, and direct public traffic/pedestrians through a Roadway Grade Crossing or an Access Point to a work or construction zone. A Traffic Control Person may also be referred to as a flag person (flag woman/flag man) or signaler.

Traffic Management Plan (TMP) – The plans or written procedures detailing the traffic accommodation activities for a grade crossing project. Traffic Control Plans must be approved through the proper authorities.

Visual Work Group (VWG) – Employees/Contractors working on the list under the direct protection and within visual range of the Foreman named in authority (Protecting Foreman) or the assigned Sub-Foreman. The Visual Work Group must be cleared by either radio, voice, or a reliable sounding device.

Watch Person – An Employee assigned to warn of an approaching Movement to personnel working under Safety Watch protection.

Work – The design, construction, maintenance, installation, testing, commissioning, and completion of the scope of the project assignment.

Worker – A non-CROR Rules qualified individual or contractor performing work within the Rail Corridor.

Work Block – A continuous block of time when rail corridor access is required at a site, lasting no more than 24 hours (excluding Major Track Closures). A work block should have one continuous form of protection.

Work Plan – A method statement describing how work is to be carried out.

Work Site – Means one of the multiple work areas within a Work Zone under the control of a General Contractor for that Project Site. A Work Site can be further defined by the presence of the General Contractor's personnel carrying out work.

Work Zone – Defined as a specific area (zone-delimited) within the Metrolinx Property, the primary area of operations for a particular General Contractor.

1.2 ACRONYMS

In addition to CROR General Rule N, the following abbreviations and acronyms may be used on prescribed forms issued by Metrolinx.

CWZ	Continuous Work Zone
COP	Code Of Practice
CPG	Capital Projects Group
DTS	Distance to Stop
DTMF	Dual Tone Multi-Frequency
GTTS	GO Transit Track Standards
GTS	GO Transit Standard plans
IBT	Initial Break Test
MLD	Movement Limiting Device
NOC	Network Operations Control
OHSA	Occupational Health and Safety Act
PIC	Person in Charge
PSO	Permanent Slow Order
PTS	Personal Track Safety
RCAC	Rail Corridor Access and Control
ROW	Right of Way
RTC	Rail Traffic Controller
SDS	Safety Data Sheets
SSWP	Site-Specific Work Plan
SWG	Separated Work Group
TCP	Traffic Control Person
TIG	Track Inspection Guidelines
TMD	Train Movement Director

TMP	Traffic Management Plan
TTR	Toronto Terminals Railway
UHF	Ultra-High Frequency (Metrolinx Radio System)
USRC	Union Station Rail Corridor
VHF	Very High Frequency
VWG	Visual Work Group
WHMIS	Workplace Hazardous Material Information System
WRMF	Whitby Rail Maintenance Facility
WOCC	Willowbrook Operations Control Centre
YCC	Yard Control Centre at WRMF

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GENERAL - JOB BRIEFINGS, PPE, RADIO INSTRUCTIONS

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2 GENERAL/JOB BRIEFING/PPE/RADIO INSTRUCTIONS

2.1 GENERAL RULES

a) In addition to CROR General Rule A (vii), Employees are required to carry valid record(s), on their person, of all qualifications, certifications, and licenses applicable to the duties at which the Employee is responsible to perform while on duty. The following are some examples of some positions or required training courses that require proof of qualification or certification:

- Machine Operators (excavator, Pem-Lem, tamping machine, ballast regulator, dynamic stabilizer, Rail Car Mover (RCM), etc.)
- Safety Requirements (first aid, fall protection, etc.)

b) Every CROR qualified Employee and Metrolinx designated contractor engaged in flagging services, or the inspection, maintenance or construction of track, roadway, signals, bridges, and other rail corridor structures and infrastructure, must understand and follow these instructions.

c) Except where specifically noted, the rules and regulations included in this document apply equally to all Metrolinx Employees and Metrolinx designated contractors and consultants. Going forward, in this document the term Employee will apply to all individuals from the groups mentioned above who are CROR-qualified. Non-CROR-qualified individuals will be referred to as Workers.

d) When local conditions necessitate, instructions in addition to those included in this document may be issued, providing further specific guidelines.

e) All Employees are required to follow these instructions and are responsible for understanding all conditions and special instructions applicable to the territory in which they work.

f) Employees governed by these instructions must have a copy of this document accessible while on duty.

2.2 INSPECTING PASSING MOVEMENTS

When practicable, all Employees must perform a CROR Rule 110 inspection on a passing Movement. Movements must be notified and/or stopped if any of the following defects are observed:

Defects to observe on a Passing Movement	
• Hot journal	• Dragging equipment
• Skidded wheel	• Load shifted over the side or end of the car
• Broken wheel	• Defective truck/truck hunting
• Sticking brake	• People riding outside of the locomotive or coaches on passenger equipment
• Swinging door on freight car or trailer	• Any other unsafe condition observed
• Open doors	

2.3 REPORTING FOR DUTY

Employees must:

- Be fit and rested to comply with Metrolinx Fit for Duty Policy
- Be familiar with their duties and the territory in which they will operate
- Be dressed in all required personal protective equipment (PPE) and be ready to perform their duties on time
- Participate in and confirm their understanding of Job Briefing(s)

2.4 WHILE ON DUTY

Employees must:

- Be vigilant to avoid the risk of injury to themselves or others
- Expect a Movement, Equipment or Track Unit to move at any time, on any track, in either direction
- Read and understand all issued Engineering Bulletins and Notices
- Have a copy of the current CROR and GEI, including any current Engineering and General Bulletins accessible while on duty
- Have a copy of the current Timetable and Summary Bulletin accessible while on duty

Note: When a new Summary Bulletin takes effect, all previously issued engineering bulletins not contained in the new version become void.

- Communicate as quickly as possible to the Proper Authority and the NOC any condition that is or could affect the safety of operations, Employees, or thepublic
- Obtain assistance promptly when required to control a harmful or dangerous condition

2.5 JOB BRIEFING

a) Job Briefings **must**, at minimum, follow the Metrolinx Job Briefing Template. When delivering a Job Briefing, the briefing must follow the same format to avoid confusion when protecting multiple contractors. Companies may add sections to the end of the template, if required, but may not adjust or alter the minimum content.

b) Protecting Foremen must understand the nature of the Work they are protecting and any risks or hazards that will affect the safety of the work site and its Employees/Workers, along with the safety of railway operations.

c) All relevant sections of the Job Briefing Template must be completed by the Protecting Foreman and Person in Charge (PIC) of the work.

d) Before starting any Work, all Employees required to enter the Rail Corridor must participate in and be in possession of a documented Job Briefing.

In addition, the following applies:

i) Any Workers engaged in planned work activities must also be included in the Job Briefing process before starting work and must sign the briefing form.

ii) Employees must accurately record briefing information.

iii) All records of the Job Briefing must be retained by the Employees for thirty (30) days.

e) The Job Briefing session must cover all relevant information identified in the Metrolinx Job Briefing Template related to the Work being performed, the track protection in place, and work site hazards/controls relevant to the tasks being performed. At a minimum, the briefing session must include:

Minimal Job Briefing Information	
• Date, time and headcount	• Location of signals installed (if applicable)
• Location and emergency information	• Identification of work and rail hazards
• Communication information and radio channel information	• The controls in place to mitigate the identified hazards
• Weather details	• Any additional information that may affect the safety or the operation of Movements.
• Applicable track protection information	• Overview of planned work activities and tasks

g) If the planned activities and track protection in place require Separated Work Groups, the designated Sub-Foreman must hold and document an additional briefing with their Visual Work Groups to ensure all information is clearly understoodand to discuss any additional or unique safety information.

h) At any time during the shift, the Protecting Foreman/Sub-Foreman may decide if a supplemental Job Briefing is required. Should this briefing be required, all work must stop, and Employees must document all changes to the original briefing in their personal Job Briefing Book.

A supplemental Job Briefing must be completed when at least one of the following occurs:

- Method of protection is changed
- Method of protection is extended or about to be cancelled
- Job tasks, identified hazards or conditions have changed
- Work/travel activity did not begin within one (1) hour of the initial briefing.

2.6 PERSONAL PROTECTIVE EQUIPMENT (PPE) AND CLOTHING

All Metrolinx and contractor Employees working in the Rail Corridor, including non-CROR qualified Workers, must wear the minimum required PPE as defined in the Metrolinx PPE Standard.

Additional PPE must be selected appropriately for the hazards associated with the work being performed.

When PPE is used as a control, the following conditions must be met:

- The PPE is appropriate to protect against the hazard
- The PPE is used/worn properly
- The PPE is maintained properly.

For questions on how to properly use/wear and maintain PPE, speak with your immediate supervisor, or consult the Metrolinx PPE Standard.

2.7 CLOTHING, HAIR AND JEWELRY

Everyone must wear clothing appropriate for the weather and the duties they perform. Consider cold, heat, rain, snow and sun exposure. In addition to the Metrolinx PPE Standard the following minimum requirements apply:

a) In order to prevent the possibility of clothing being caught on equipment or machinery:
   i) Pants or coveralls must be ankle length and must not be flared, loose or torn
   ii) Pants or coveralls equipped with a hammer loop or side leg pocket must have them removed or secured; all work clothing must be examined for similar hazards
   iii) Reflective apparel is required to be worn, properly fastened and closed around the body.
   iv) At no time shall reflective clothing be covered up or obstructed.

b) Shirts must cover the torso and have at least 1/4 length sleeves (see the Metrolinx PPE Standard for minimum requirements). Sleeves must not be loose or torn.

c) Long hair must be secured by a hairnet or appropriate headgear approved for use under hard hat equipment if there is a danger of entanglement in machinery or on equipment.

d) Facial hair must be of a style, not posing a hazard, and allowing full use of personal protective equipment.

e) Neckwear, wristwatches, and jewelry must not be worn if there is a danger of catching in machinery or on equipment.

f) Clothing with rips or tears must be replaced or repaired.

g) Hand protection and clothing contaminated with any hazardous substance (e.g., fuels, solvents, herbicides, etc.) must be cleaned or replaced before use.

h) Fingernails must be kept at an acceptable length to prevent interference when performing duties or causing potential injury.

2.8 DUTIES OF EMPLOYEES/WORKERS

An Employee/Worker must:

- Comply with the Metrolinx PPE Standard and the Ontario OHSA and its regulations.
- Use or wear protective devices and clothing that, at a minimum, meet the Metrolinx PPE Standard.
- Report to their employer or supervisor the absence of, or defect in, any equipment, protective device or clothing that may endanger themselves or another Employee/Worker.

An Employee/Worker cannot:

- Remove or make ineffective any protective device required by the regulations or by his or her employer.
- Work, use or operate any construction/maintenance equipment, machine, tool or device without the required PPE.

Notes:

- Only manufacturer approved liners may be worn under a hard hat. Toques, hoodies, baseball caps, etc., must not be worn as these items can reduce the fit and effectiveness of the hard hat and restrict both hearing and visibility.

- When high-visibility safety apparel is required to be worn, it must be properly fastened and closed around the body to prevent garments from being caught in or snagged on passing equipment, machinery, tools, etc.

Exceptions to these PPE requirements are as follows:

- When inside an enclosed vehicle, Track Unit or construction/maintenance equipment. However, if the window is open, safety glasses must be worn.
- These PPE requirements do not apply to external first responders entering a work site due to an emergency.

2.9 ADDITIONAL PPE PROTECTION

In addition to the mandatory PPE listed above, other types of protection may be necessary depending on the tasks being performed and the hazards identified from a risk assessment for the planned work. These additional types of protection may include:

i) Environmental Protection (e.g., cold weather, insects, poison ivy)
ii) Respiratory Protection (e.g., hazardous chemicals, biological agents)
iii) Flame-Resistant Clothing (e.g., flash fire, electrical arc flash)
iv) Skin Protection (e.g., hot/cold material, chemical absorption, needles)
v) Task-Specific PPE (e.g., face shields, safety goggles, cutting chaps, gloves).

Note: If hazards have been identified that require any of these additional protections, please review with your immediate supervisor and consult the Metrolinx PPE Standard for more detailed information.

2.10 RADIO INSTRUCTIONS

2.10.1 RADIO EQUIPMENT

When communicating with the Protecting Foreman/Sub-Foreman and to coordinate activities along the Right of Way, Employees and Construction Workers must only communicate on the prescribed radios and radio frequencies approved by Metrolinx.

2.10.2 RADIO COMMUNICATION

When communicating with the Protecting Foreman/Sub-Foreman and coordinating activities along the Right of Way, Employees and Construction Workers must follow the required communications as referenced in Module 5.

2.10.3 LOCATION FOR TRANSMITTING/RECEIVING

The Protecting Foreman/Sub-Foreman must choose the best location to transmit/receive before starting any work and confirm that it is free of obstacles and in a prominent/elevated area in order to maintain visual contact with all Workers on their Visual Work Group clearing list.

2.10.4 ALTERNATE COMMUNICATION DEVICES

When a Personal Electronic Device or specific Railroad-Supplied Electronic Device is used in lieu of a radio, all radio rules and special instructions are applicable, as per CROR General Rule A (xii).

On Metrolinx-owned property, this Rule is applicable when unforeseen radio issues prevent communication that must normally be performed over the radio. Every effort must be taken to obtain a replacement radio and once replaced, communication using a Personal Electronic Device or specific Railroad-Supplied Electronic Device must not be continued.

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FORMS OF PROTECTION

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3 FORMS OF PROTECTION

3.1 GENERAL

All Employees required to Foul or occupy tracks must be protected by one of the following means:

a) Positive protection as per CROR Rules (TOP, 41/841 and 42/842)
b) Safety Watch protection
c) Lone Worker protection.

Note: An Employee/Worker is foul of the tracks when:

- The individual is on track.
- The individual is within four (4) feet (1.2 metres) of the nearest live rail.
- The individual is between the Safety Barrier and the live track.
- The individual is using Construction/Maintenance equipment/tools within four (4) feet (1.2 metres) of the nearest live rail.

3.2 CROSSING TRACKS

Note: The instructions below are not applicable if crossing tracks at a Roadway Grade Crossing equipped with Automatic Warning Devices (AWD).

On Foot:

a) Track(s) may be crossed on foot without protection by an Employee or individuals accompanied by an Employee if the Employee has adequate and unobstructed sight lines in both directions.

b) Employees must cross in a straight line (when possible) at a steady, consistent pace, and must not stop to perform any work tasks.

c) In the absence of adequate sight line distance, positive protection must be used for any class of track.

d) Do not cross tracks at power-operated and dual-controlled switch locations because they can move at any time and may cause serious injury.

Road Vehicles:

a) Tracks may be crossed without protection if the Employee operating the vehicle has adequate and unobstructed sight lines in both directions or if they are under the direct supervision of a Protecting Foreman.

Construction/Maintenance Equipment:

a) Large (over 30ft) and/or, lowbed, or slow-moving (less than 5mph) road vehicle or construction/maintenance equipment, or any vehicle or construction/maintenance equipment with small wheels that may get caught in a flangeway, requires Positive Protection.

3.3 TRACK OCCUPANCY PERMIT (TOP) INSTRUCTIONS

When working with Work Groups under TOP protection and clearing for a Movement, Employees/Workers must report clear as per Module 5.

Note: The utilization of the Metrolinx authorized TOP form is mandatory and required on all Metrolinx territories as identified in applicable Timetables.

3.4 ENTERING FOREMEN'S CROR RULE 42/842 LIMITS

Foremen under separate authority looking to enter and travel through CROR Rule 42/842 limits must be conversant with the content provided by the Daily Operating Bulletin (DOB) and must contact the Foreman named in the authority for instructions.

i) Each Foreman must obtain a definite understanding, in writing on Rule 42 Clearing Sheet and comments section on the TOP form, as to each other's movements and the protection to be provided.

ii) Each Foreman must maintain a written record of the original and any new understandings, including confirmation of any conflicted routes and the restrictions present between overlapping work limits.

iii) If the Foreman is unable to contact the Foreman named in the authority, the Foreman may enter the limits; however, they must continue attempting to contact the Foreman named in the authority while using extreme caution and must be on the lookout for and prepared to stop for Workers and machinery that may be foul within the CROR Rule 42/842 limits.

iv) Regardless of understandings between Foremen, the provisions of Track Unit speed must be followed at all times.

3.5 ADDITIONAL INSTRUCTIONS REGARDING CROR RULE 42/842 PROTECTION

a) Should any planned work activities extend beyond the expiration time stated in the Rule 42 Confirmation/GBO, a TOP must be requested and completed with the RTC at least one hour prior to the expiration time stated in the confirmation/GBO.

b) CROR Rule 42/842 signals must be placed and removed in the following order:

- When erecting signals at the start of a CROR Rule 42/842, place the Yellow over Red signal in the direction of travel first, followed by the Red signal.
- When removing signals at the end of a CROR Rule 42/842, remove the Red signal in the direction of travel first, followed by the Yellow over Red signal.

c) CROR Rule 42/842 Advance Signals must be placed at the prescribed distance (two (2) miles), outside the limits identified in the confirmation/GBO. Advance signals that cannot be placed at the prescribed distance, must be placed at the nearest identifiable location, not exceeding three (3) miles outside the limits identified in the confirmation/GBO and must be indicated in the GBO in compliance with CROR Rule 842 (d).

d) Advance signals that cannot be placed within 100 feet (0.02 miles) of the prescribed location(s) must be indicated in the GBO in compliance with CROR Rule 842 (d), and CROR General Rule O.

e) In addition to CROR Rule 855 SI, no adjoining CROR Rule 42/842 protection is permitted, and must be separated by at least two miles between opposing authority limits. Should there be a request for abutting CROR Rule 42/842 protection, a Risk Assessment must be performed and approved by Metrolinx Rail Corridor Access and Control/Operating Practices and include provisions for combining all abutting CROR Rule 42/842 protection, when possible.

3.6 CROR RULE 42/842 ROUTING ARRANGEMENTS

3.6.1 PLANNED PROTECTION WITH NON-PRESCRIPTIVE ROUTING ARRANGEMENTS

The following provides examples of the standard communication expectations between Foremen and Movements when administering CROR Rule 42/842 planned protection with Non-prescriptive Routing Arrangements in place:

a) Non-prescriptive Routing Arrangements are acknowledged between the applicable RTC, and Protecting Foreman named in the GBO (CROR Rule 42/842 confirmation) for which track protection is applied. These Routing Arrangements are documented through the initial CROR Rule 42/842 confirmation process. Non-prescriptive Routing Arrangements allow Movements to occupy any track section within the governing CROR Rule 42/842 limits.

An example of Non-prescriptive Routing Arrangement instructions:

Operating Crew Instructions

EXAMPLE: Non-Prescriptive	*"GO 211W, permission to enter and proceed through the entire limits between mile 7 and mile 9 Oakville Sub. Movements may use any track, over".*

b) Instead of Section A of the Metrolinx prescribed CROR Rule 42/842 Confirmation form, an electronically issued CROR Rule 42 Confirmation (printed as hard copy) from the RTC may also be accepted.

c) However, when using an electronically issued CROR Rule 42/842 Confirmation provided by the RTC, sections B to F of the Metrolinx prescribed CROR Rule 42/842 Confirmation form must always be completed and documented, when applicable.

d) Once the RTC provides the complete time and initials of the CROR Rule 42 Confirmation, section B must be communicated by the Rule 42 Foreman and acknowledged by the RTC.

e) In addition, as it relates to Sub-Foreman instructions, the Employee in receipt of the CROR Rule 42/842 Confirmation **must** repeat it back to the Protecting Foreman, who will check and underscore it as it is repeated back. Once repeated correctly, the Protecting Foreman will advise the Employee it was correct and will compare time.

f) If Prescriptive Routing Arrangements are necessary, section 3.6.2 is applicable.

3.6.2 PLANNED PROTECTION WITH PRESCRIPTIVE ROUTING ARRANGEMENTS

a) A Prescriptive Routing Arrangement is a written arrangement between the applicable RTC, and Protecting Foreman named in the GBO (CROR Rule 42/842 confirmation) for which track protection is applied.

i) A Prescriptive Routing Arrangement **DOES NOT** provide positive protection of the worksite; rather, it is a written agreement (documented on the Prescriptive Routing Arrangement form) mutually acknowledged and agreed upon by the applicable RTC and Protecting Foreman. It will provide prescriptive instructions on which track **must not** be used.

ii) Prescriptive Routing Arrangements must not be requested before the CRORRule 42/842 start time of the GBO (CROR Rule 42/842 confirmation) for which track protection is applied.

An example of Prescriptive Routing Arrangement instructions:

EXAMPLE: Prescriptive	*"GO 633E, permission to enter and proceed through the entire limits between mile 7 and mile 5 Weston Sub. Movements MUST NOT use no. 2 (two) track, over".*

b) All communications must take place over the Very High Frequency (VHF) radio, so that all rules-qualified personnel involved in the Work will reach a clear understanding of the limits, tracks, effectiveness, and removal acknowledgment provided by the RTC. The Sub-Foreman must not act upon these instructions until complying with Section 3.6.5.

c) Prescriptive Routing Arrangements may be requested for various reasons, including but not limited to:
   i) Providing occupancy of a track section for Employees working foul of, or adjacent to, all applicable tracks under CROR Rule 42/842 protection.
   ii) Providing occupancy for working or travelling equipment.
   iii) Providing occupancy of track conditions which could impede the safety of a Movement or render the track impassable.
   iv) Work which will affect the signal system.

d) The CROR Rule 42/842 Foreman must communicate the removal of all Prescriptive Routing Arrangements prior to the expiration of their planned CROR Rule 42/842 protection.

e) Prescriptive Routing Arrangements are only effective between the prescribed times indicated by the GBO (CROR Rule 42/842 confirmation) for which track protection is applied.

f) The CROR Rule 42/842 Foreman's instructions to a Movement must be identical to the Prescriptive Routing Arrangement established with the RTC.

g) The CROR Rule 42/842 Foreman's instructions will not be considered compliant unless they are repeated by the Operating Crew exactly as issued by the Foreman and are identical to the Prescriptive Routing Arrangement established with the RTC.

Exception: When a Foreman and Operating Crew have reached a clear understanding of a Movement's intended route of travel:

- where the limits of authority encompass a junction and the intended track(s) the Movement will operate on does **not** conflict with the Prescriptive Routing Arrangements
- instructions to the Movement do not need to include the Prescriptive Routing Arrangement details as established with the RTC.

3.6.3 PLANNED PROTECTION WITH A DEFINED RESTRICTION

a) When a Movement is authorized to proceed through the Protecting Foreman's limits, the word "**Restriction**" in the instruction between a Movement and a Protecting Foreman is only referring to **Speed** in mph.

b) A restriction can be applied under CROR Rule 42/842 while in effect and can accommodate any Routing Arrangement detail (Prescriptive and/or Non-prescriptive) already acknowledged between the RTC and Protecting Foreman named in the GBO (CROR Rule 42/842 confirmation) for which track protection is applied.

Example of Operating Crew instructions with **Non-prescriptive** Routing Arrangements inclusive of a restriction

EXAMPLE: Non-Prescriptive	*"GO 633E, permission to enter and proceed through the entire limits between mile 7 and mile 5 Weston Sub. Movements may use any track, with a restriction of 30, "3-nought" mph on no.1 (one) track at mile 6.33, 6.3-3, over".*

Example of Operating Crew instructions with **Prescriptive** Routing Arrangements inclusive of a restriction

EXAMPLE: Prescriptive	*"GO 633E, permission to enter and proceed through the entire limits between mile 7 and mile 5 Weston Sub. Movements MUST NOT use no. 2 (two) track, with a restriction of 30,"3-nought" mph on no. 1 (one) track at mile 6.33, 6.3-3, over".*

3.6.4 REQUESTING A PRESCRIPTIVE ROUTING ARRANGEMENT

a) After the start of a CROR Rule 42/842, the Protecting Foreman may request, on the designated RTC standby channel, Prescriptive Routing Arrangements within the limits of their CROR Rule 42/842.

A clear understanding must be reached between the RTC and the Protecting Foreman.

The Protecting Foreman must confirm, at a minimum, the following:

i) The limits being requested are entirely encompassed within the limits of the CROR Rule 42/842.
ii) The limits being requested are approved and are in alignment with the limits prescribed under Metrolinx pre-approved work block events.

iii) Confirm the execution of the work in detail through peer-to-peer communication, including but not limited to:

- The track(s) and limits required for the work to be performed (including entry and exit points)
- The usage of any switches within the limits requested
- The scope of work to be undertaken
- If the work will affect the signal system
- If the track/route will be impassable
- The time required by the Workers/equipment to clear the track(s) and remove all Routing Arrangements should meet the operational needs.

b) The Protecting Foreman, using appropriate radio procedures, will repeat all transmitted instructions back to the RTC to confirm accuracy and that a clear understanding has been reached.

c) All CROR Rule 42/842 Prescriptive Routing Arrangements must be documented on Metrolinx prescribed forms.

d) If the CROR Rule 42/842 Prescriptive Routing Arrangement includes a controlled location and requires switches to be operated in the hand position, permission must first be obtained from the RTC and must be documented on the Prescriptive Routing Arrangement form.

e) Prescriptive Routing Arrangements are in effect when acknowledged and confirmed by the RTC's initials on the Metrolinx Prescriptive Routing Arrangement form.

Example 1
Standard Prescriptive Routing Arrangement (CROR Rule 42/842 between mile 5–7 Weston Sub)

Operating Crew Instructions

EXAMPLE: Instructions	*"GO 211 W, permission to enter and proceed through the entire limits between mile 5 and mile 7 Weston Sub. Movements MUST NOT use no. 1 track, over".*

Example 2

Foreman only using a portion of track within specified limits (CROR Rule 42/842 between mile 10-14 Oakville Sub)

Operating Crew Instructions – Westbound

EXAMPLE: Instructions	*"GO 211W, permission to enter and proceed through the entire limits between mile 10 and mile 14 Oakville Sub. Movements MUST NOT use no. 1 track between Mile 10 and Sig 135T1 at Port Credit, over".*

Operating Crew Instructions – Eastbound

EXAMPLE: Instructions	*"GO 633 E, permission to enter and proceed through the entire limits between mile 14 and mile 10 Weston Sub. Movements MUST NOT use no. 1 track, over".*

Example 3

Using the fouling point of a switch within the CROR Rule 42/842 Routing Arrangement (CROR Rule 42/842 between mile 8–9 Oakville Sub)

Operating Crew Instructions – Westbound

EXAMPLE: Instructions	*"GO 211W, permission to enter and proceed through the entire limits between mile 8 and mile 9 Oakville Sub. Movements MUST NOT use no. 3 and no. 4 track between Mile 8 and the fouling point of Swt 5A at Canpa, over".*

Operating Crew Instructions – Eastbound

EXAMPLE: Instructions	*"GO 633 E, permission to enter and proceed through the entire limits between mile 9 and mile 8 Oakville Sub. Movements MUST NOT use no. 3 and no. 4 track between the fouling point of Swt 5A at Canpa and Mile 8, over".*

Example 4
Encompassing a junction point within CROR Rule 42/842 Routing Arrangements (CROR Rule 42/842 between mile 325–326 Kingston Sub and mile 60 Uxbridge Sub)

Operating Crew instructions – Westbound operating on the Kingston Sub

EXAMPLE: Instructions	*"GO 211W, permission to enter and proceed through the entire limits between mile 325 and mile 326 Kingston Sub. Movements MUST NOT use no. 1 track between mile 325 and the fouling point of Swt. 11A at Scarborough, over".*

Operating Crew instruction – Eastbound operating on the Kingston Sub

EXAMPLE: Instructions	*"GO 633E, permission to enter and proceed through the entire limits between mile 326 and mile 325 Kingston Sub. Movements MUST NOT use no. 1 track between the fouling point of Swt. 11A at Scarborough and mile 325, over".*

Note: In this situation, if Movements are calling to enter the prescriptive routing limits to and from the Uxbridge Sub, ask the Movement to standby. The 42/842 Foreman must then contact the RTC immediately for clarification (a new Prescriptive Routing Arrangement may be required).

Example 5
Foreman occupying multiple tracks with varying limits within the same CROR Rule 42/842 Routing Arrangement (CROR Rule 42/842 between mile 26 – 28 Oakville Sub)

Operating Crew Instructions – Westbound

EXAMPLE: Instructions	*"GO 211W, permission to enter and proceed through the entire limits between mile 26 and mile 28 Oakville Sub. Movements MUST NOT use no. 1 track between mile 26 and mile 28,and no. 2 track between Mile 26 and the fouling point of Swt 7A at Burloak, over".*

Operating Crew Instructions – Eastbound

EXAMPLE: Instructions	*"GO 633E, permission to enter and proceed through the entire limits between mile 28 and mile 26 Oakville Sub. Movements MUST NOT use no.1 track between mile 28 and mile 26, and no. 2 track between the fouling point of Swt 7A at Burloak and Mile 26, over".*

Example 6
Foreman occupying all tracks within CROR Rule 42/842 authority limits
(CROR Rule 42/842 between mile 26–28 Oakville Sub)

Note: In this situation, providing instructions to a Movement under this Prescriptive Routing Arrangement **is not** required as the 42/842 Foreman has Prescriptive Routing Arrangements on all tracks within their authority limits where Movements are **not** authorized.

3.6.5 PRIOR TO STARTING WORK UNDER PRESCRIPTIVE ROUTING ARRANGEMENTS

3.6.5.1 FOR 42/842 FOREMAN

The duties of the Protecting Foreman named on the documented Prescriptive Routing Arrangement include but are not limited to:

a) Read the Routing Arrangement – on a prescribed work channel or through peer-to-peer Job Briefing – to all Sub-Foremen listed under the governing CROR Rule 42/842 protection.

b) Enter the name(s) of the Sub-Foremen in charge of the Separated Work Group(s) in the applicable sections of the prescribed Metrolinx CROR Rule 42/842 forms.

c) All Sub-Foremen copying a Prescriptive Routing Arrangement must repeat it back to the Protecting Foreman, who will check and underscore as it is repeated correctly regardless if the prescriptive routing arrangement was copied electronically.

d) Once repeated correctly, the Protecting Foreman will acknowledge the correct repeat of the Prescriptive Routing Arrangement by the Sub-Foremen and will document the applicable time(s) at which it was repeated correctly.

3.6.5.2 FOR SUB-FOREMAN

The duties of the Sub-Foreman include but are not limited to:

a) Sub-Foreman listed under CROR Rule 42/842 protection may utilize Prescriptive Routing Arrangements only after ALL appropriate steps have been taken to confirm the governing limits, duration, completion times, RTC initials, and special instructions (if applicable), are appropriately documented as a Sub- Foreman.

b) Sub-Foreman must acknowledge, confirm, and be in written possession of all Prescriptive Routing Arrangements as they were agreed between the RTC, and Protecting Foreman named on the Form Y – CROR Rule 42/842 (CROR Rule 42/842 confirmation) for which track protection is applied.

c) A Sub-Foreman CANNOT act upon or use Prescriptive Routing Arrangements without being listed under the governing CROR Rule 42/842 protection.

d) Once repeated correctly, the Sub-Foreman will acknowledge the correct repeat of the Prescriptive Routing Arrangement and will document the applicable time(s) at which it was repeated correctly as instructed by the Protecting Foreman.

e) The Sub-Foreman shall document all Prescriptive Routing Arrangements on the prescribed Metrolinx form.

3.6.6 TRANSFERRING A PRESCRIPTIVE ROUTING ARRANGEMENT

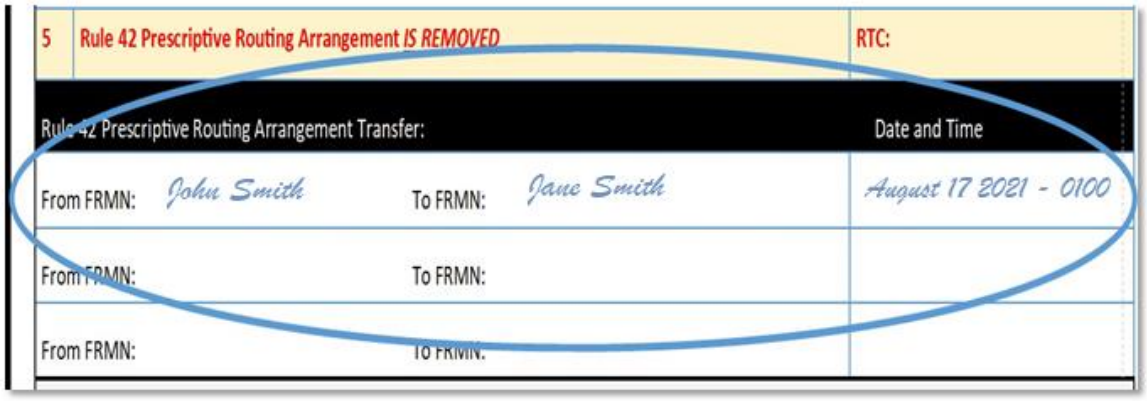
During a continuous CROR Rule 42/842, multiple Foremen named in the CROR Rule 42/842 Confirmation may transfer Prescriptive Routing Arrangements between shifts. This must be done using the following steps:

a) The incoming Foreman will contact the RTC on the designated RTC standby channel during the Foreman-to-Foreman transfer at the start of their shift.

b) The Foreman will read the current Prescriptive Routing Arrangement from their CROR Rule 42/842 Prescriptive Routing Arrangement form that is being transferred to them.

Note: Should the incoming Protecting Foreman require different limits than the existing Prescriptive Routing Arrangement in effect, the RTC and Foreman must establish a new Prescriptive Routing Arrangement prior to the removal of the old one.

Example 1: Prescriptive Routing



3.6.7 REMOVING A PRESCRIPTIVE ROUTING ARRANGEMENT

3.6.7.1 Upon completion of planned work or when the Prescriptive Routing Arrangement is no longer required, the Protecting Foreman and all Sub-Foremen must:

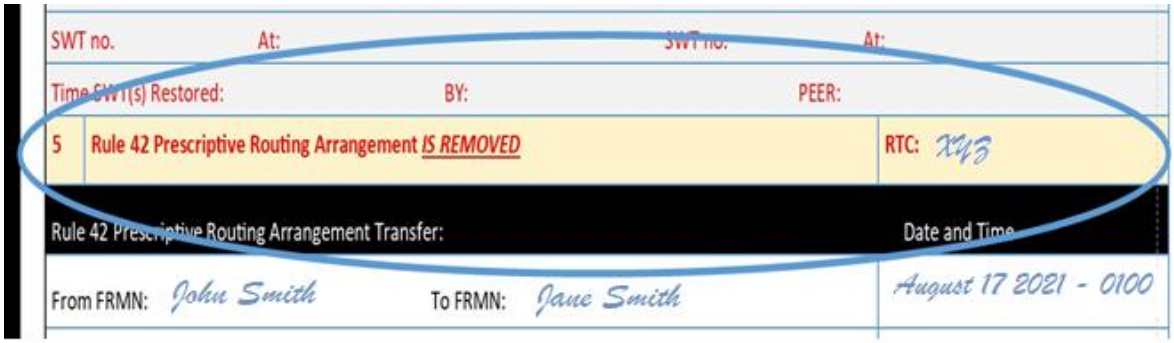
a) Ensure that all workers and equipment are no longer fouling track(s) and have reported clear of the Prescriptive Routing Arrangement.
b) Inspect all affected railway infrastructure/conditions to ensure the track(s) is safe for appropriate speeds and is passable for all Movements.
c) Ensure that all switches are back on power and are lined and locked in the normal position (if applicable).
d) Contact the RTC on the designated RTC standby channel to cancel the routing arrangement.

3.6.7.2 Once the RTC receives the request from the Protecting Foreman to remove the Prescriptive Routing Arrangement within the limits of their CROR Rule 42/842:

a) Prescriptive Routing Arrangements are removed when confirmed by the RTC's initials after completing the prescribed form.

b) All removed Prescriptive Routing Arrangements must be marked with an "X" on the prescribed form.

Example: Prescriptive Routing



3.7 PROTECTION ON NON-MAIN TRACK

Refer to Module 7 for instructions on handling switches and portable derails.

3.7.1 GENERAL REQUIREMENTS

Prior to fouling non-main track, Employees must be protected by one of the following methods:

a) CROR Rule 41/841
b) CROR Rule 105(c) *
c) Safety Watch
d) Lone Worker

* Not applicable for track work on non-main track, Track Units and track work must be protected by CROR Rule 41/841 and the governing CROR Rule 41/841 special instructions.

Track Units may be protected by CROR Rule 105(c) when the Track Unit is powered on, lights are illuminated, and the Track Unit is being used to travel, perform inspections (e.g., visual, rail flaw, geometry verifications, etc.). The operator of the Track Unit must always stay close to the Track Unit to move the unit, if required, in a timely manner.

3.7.2 CROR RULE 41/841 PROTECTION

a) In the application of CROR Rule 841(a), the departments responsible for occupancy of non-main track on Metrolinx property are listed below:

   i) Willowbrook Yard and Mimico South Layover Facility – WOCC
   ii) Whitby Yard – YCC
   iii) Lower Yard at Mimico South – TMC and NOC
   iv) All Layover Facilities – NOC
   v) USRC – TMD
   vi) All other non-main tracks – RTC

b) When CROR Rule 41/841 protection is applied, the responsible controller for the location as identified above must be notified and the use of red signals, special locks, or portable derails must be communicated and documented on the prescribed forms.

c) After completion of the Job Briefing and the prescribed form(s), at least one other Employee must initial the prescribed form(s) validating the protection in place.

d) When required to lock a switch, derail, or a Special Derail as defined by CROR Rule 104.5, a private lock or a Metrolinx-approved over clasp – in accordance with the specifications outlined in GO Transit Standard GTS plans – must be placed and secured. All locks must have a waterproof tag with the following information:

   i) Company name/initials and name of the Foreman responsible for the protection
   ii) Foreman's phone number
   iii) Foreman's radio work channel

e) All CROR Rule 41/841 signals within the Right of Way must be installed and secured to the rail with the prescribed signal staff and must not be hammered into the ballast. The signal and staff must be positioned and secured to withstand adverse weather conditions.

f) If the protection requires the use of portable derails, CROR Rule 41/841 instructions prevail, and the information must be documented on the prescribed CROR Rule 841 Form.

g) A Special Derail as defined in CROR Rule 104.5 may be secured to support the requirements of CROR Rule 41/841 track protection provided the following conditions and requirements are met:

   i) The Special Derail must already be in the derailing position.
   ii) The work zone must not be between the Special Derail and the equipment.
   iii) Engineering Employees are not permitted to place a Special Derail in the derailing position to support CROR Rule 41/841 requirements.

h) When work is completed, the responsible party must be notified that the CROR Rule 41/841 protection has been removed.

i) When one or more Track Unit(s) are required to be stored on a non-main track, the Track Units must be secured from rolling away as indicated in Module 6, section 6.2.9 and protected under CROR Rule 41/841.

j) When storing Track Units under CROR Rule 41/841, the Employee in charge of the track identified in Section 3.7.2 (a), General Requirements, must be notified of the following information:

   i) when the supporting protection has been installed
   ii) when the last Track Unit is clear of the protection limits.
   iii) When all the protection methods have been removed.

k) All method(s) of protection applied as prescribed by CROR Rule 841 must be validated prior to the commencement of any activity which would result in fouling track(s).

l) If working in an area with unsecured equipment, a portable derail must be installed as per CROR Rule 841 (c)iii.

m) If working within a track where access is controlled by semi-automatic switches, the protection must be applied as per CROR Rule 841 (c)ii.

n) When required to perform work on the same track as a stored GO train consist, the following actions must be completed:

   i) a scheduled departure time must be obtained from the NOC and documented on the prescribed form.
   ii) In addition to the protection methods prescribed by CROR Rule 41/841, a Red Signal must be placed 50 feet from the end of the GO train consist, closest to the work zone facing the equipment.

3.8 LONE WORKER AND SAFETY WATCH

3.8.1 GENERAL

a) Crossing unprotected tracks is not governed under Lone Worker and Safety Watch Protection and must be completed in accordance with Section 3.2.
b) Employees must be CROR rules qualified to use Lone Worker or act as the Watch Person.
c) The Work performed using Lone Worker and Safety Watch Protection must not affect the classification of the track.
d) A Job Briefing in accordance with Module 2, Section 2.5 must be conducted and documented in the Lone Worker/Safety Watch Form prior to utilizing Lone Worker or Safety Watch Protection.
e) The ability to hear and see approaching Movements and Track Units must not be impaired by background noise, lights, precipitation, fog, passing Movements, or any other physical conditions.
f) Employees attempting to use Lone Worker or Safety Watch Protection must use another form of positive protection if any of the following conditions occur:

    i) Adequate sight lines are not met as identified in Table 2 (Sight Line Table, Section 3.8.9)
    ii) The sight line calculations exceed 4,400 feet
    iii) The maximum speed for the track, weather conditions, and restricted clearing ability do not allow enough time for Employees to occupy the previously arranged Position of Safety at least 10 seconds before a Movement travelling at maximum speed for that track reaches that point.
    iv) The use of any tools (gas, hydraulic, pneumatic, etc.) impedes hearing the audible warning given to signal Employees to clear the track.

g) When "Special Derail(s)" are visually validated to be in the derailing position, as identified in CROR Rule 104.5, and/or Blue signal protection is in place, as indicated in CROR Rule 26, the sight line requirements as depicted in Table 2 may be reduced but cannot be less than 25 feet from standing equipment.

h) The Employee responsible for the performance of Lone Worker or Safety Watch protection must monitor and confirm the orientation of the Special Derail(s), governing derail sign, and/or Blue Signal(s) to ensure the Special Derail(s) remains in the derailing position and/or that Blue Signal(s) Protection remains in effect for the duration of their track protection requirements. If the Special Derail(s) is placed in the non-derailing position, and/or Blue Signal(s) Protection has been removed and the track(s) being protected contains standing equipment, the track(s) are to be considered live and all sight line requirements depicted in Table 2 are applicable.

i) Use Table 1 below as a reference guide for examples of work tasks which may or may not be completed under Lone Worker/Safety Watch. The list of tasks is not all inclusive. Any work required to be done not shown on Table 1 requires approval by the appropriate Business Unit.

3.8.1.1 Work Permitted Under Lone Worker or Safety Watch Protection

1. No safety watch or lone worker protection is permitted on class 5 tracks.
2. No safety watch or lone worker protection is permitted at night on class 4 track.

Exceptions:

1. Visual, non-intrusive inspections may be performed day and night on all classes of track under safety watch or lone worker protection. (Provided the location and current conditions fully adhere to the requirements of Safety Watch and Lone Worker Protection outlined within Section 3.8)

2. Platform works between the yellow lines with handheld tools or small push behind snow blowers may be performed at day and night on all Classes of track under Safety Watch protection. (Provided the location and current locations fully adhere to the requirements of Safety Watch protection outlined within Section 3.8)

Table 1: List of Tasks under Lone Worker/Safety Watch

	Description of Work	Permitted Under Lone Worker	Permitted Under Safety Watch
1	Anchoring	**YES**	**YES**
2	Bolt Tightening or Individual Replacement	**YES**	**YES**
3	Bonding – Without Drilling	**NO**	**YES**
4	Bonding – Temporary or Replacing Plug Bond	**YES**	**YES**
5	Brush Cutting – Foul or not foul of Track - hand tools only	**YES**	**YES**
6	Cotter Key Replacement	**YES**	**YES**
7	Crossing Testing	**YES**	**YES**
8	Culvert Inspections	**YES**	**YES**
9	Derail Adjustment	**YES**	**YES**
10	Digging/Shovelling Ballast by Hand	**YES**	**YES**
11	Drifting Joints	**NO**	**YES**
12	Gauge Rod Removal/Installation	**NO**	**YES**
13	Grinding	**NO**	**YES**
14	Hand Measure of Clearances	**YES**	**YES**
15	Inspection of Bridges from Underneath or beside Bridge	**YES**	**YES**
16	Inspection of Signal Apparatus and Appliances	**YES**	**YES**
17	Inspection of Track - on foot	**YES**	**YES**
18	Lagging Screws – off track tool only	**NO**	**YES**
19	Lubricating	**YES**	**YES**
20	Painting Comp Joints, Switch handles, Derails, Safety Appliances, etc.	**YES**	**YES**
21	Pole Line Work	**YES**	**YES**
22	Rail Wear/Track Geometry Measurements	**YES**	**YES**
23	Snow Clearing Devices (SCD) Installation, Removal and Maintenance	**NO**	**YES**
24	Shoulder Trimming with Hand Tools	**YES**	**YES**
25	Shunting (Must have permission from RTC)	**YES**	**YES**
26	Sign Repair and Installation	**YES**	**YES**
27	Signal Alignment	**YES**	**YES**

	Description of Work	Permitted Under Lone Worker	Permitted Under Safety Watch
28	Signal and Utility Locates	**YES**	**YES**
29	Slotting Joints	**NO**	**YES**
30	*Snow Removal – hand tools only	**YES**	**YES**
31	Snow Removal – with compressors and backpack blowers **Not applicable on main track or where speed are greater than 15 mph	**NO**	**YES**
32	Spiking/Clip Installation	**YES**	**YES**
33	Semi Automatic Spring Switch Testing Only applicable on yard tracks where track speed is 15 mph or less	**NO**	**YES**
34	Surveying/Layout/Staking/Alignment Measurements	**YES**	**YES**
35	Switch Target Maintenance	**YES**	**YES**
36	Tamping by hand - Without Track Jacks	**YES**	**YES**
37	Tie Plate Replacement – Single tie plate without jack	**YES**	**YES**
38	Tie Marking/Painting Defective Ties	**YES**	**YES**
39	Welding - Points, Frogs and Joints	**NO**	**YES**

1. * Refer to station platform snow clearing in section 3.8.2 exception (2)
2. ** In application of item 32 the following conditions apply:
    a. Applicable where track speed is 15 mph or less
    b. Not applicable on main tracks

3.8.2 RESTRICTIONS

Lone Worker Protection may not be utilized if the activity will compromise an Employee's ability to identify a Movement in any way.

3.8.3 LONE WORKER PROTECTION REQUIREMENTS

a) In addition to meeting all requirements under Section 3.7.1, the Job Briefing for Employees working under Lone Worker Protection must be completed with a qualified supervisor or other designated CROR Rules qualified Employee (peer-to-peer).

b) A fatigue assessment must be conducted and documented in the Job Briefing for all Lone Worker protection extending greater than 60-minute continuous intervals. A fatigue assessment must consider all mental and physical stresses applied to the Employee's awareness, alertness, endurance and stamina. This assessment must be communicated to a qualified supervisor or other designated CROR Rules qualified Employee (peer-to-peer) before continuing the application of Lone Worker protection.

c) Lone Worker protection must not continue if an assessment confirms that an Employee is mentally or physically fatigued.

3.8.4 SAFETY WATCH PROTECTION REQUIREMENTS

a) The sole duty of the Employee(s) acting as the Watch Person is to protect Employees by continuously monitoring all approaches to the work site for Movements or other hazards.

b) As soon as a Movement is identified, the Watch Person will advise all Employees and proceed to the predetermined Position of Safety.

c) The Safety Watch workgroup is not permitted to be more than five (5) people, excluding the Watch Person(s).

d) Separated work groups are not permitted when using Safety Watch as the method of protection. Every effort must be made to be as close as possible to the person or group being protected. The maximum distance the Watch Person can be from the person or group they are protecting is 50 feet. Consideration must be given to the noise and warning device used to ensure the warning can always be heard.

e) Unless the Watch Person can physically touch or verbally communicate with the workgroup, a reliable, tested, and readily available audible device that can be heard by the workgroup must be used as the audible warning.

f) When an Employee is performing Safety Watch for non-rules-qualified workers and is the only qualified Employee on site, they must contact a peer and complete both the Lone Worker and Safety Watch Sections of the Lone Worker/Safety Watch Form.

g) The Watch Person must dedicate their attention to providing safety watch and never engage in distracting activities such as, but not limited to:
   i) Using an electronic device in any manner.
   ii) Any other distracting activities including engaging in the work being undertaken.

h) When using two (2) Employees to act as Watch Persons:
   i) Employees must be located at either end of the job site, facing the opposite direction of the Work, and looking for approaching Movements. This must be discussed and documented in the Job Briefing.
   ii) The two (2) Safety Watch Persons cannot be more than 100 feet apart, with all Work taking place between the two (2) Watch Persons.
   iii) The audible warning must be able to be clearly heard by everyone working, including both Watch Persons.

i) Once sight lines and communication methods have been validated, a Complete Time must be documented on the Safety Watch and Lone Worker Form and all rules-qualified Employees must initial the form once the information has been validated.

j) A fatigue assessment must be conducted and documented in the Job Briefing for all Safety Watch protection extending greater than 60-minute continuous intervals. A fatigue assessment must consider all mental and physical stresses applied to one's awareness, alertness, endurance, and stamina. This assessment must be communicated to a qualified supervisor or other designated CROR Rules qualified Employee (peer-to-peer) before continuing the application of Safety Watch protection.

   i) Safety Watch protection must not continue if an assessment confirms that the Employee applying Safety Watch protection is mentally or physically fatigued.
   ii) Safety Watch protection may continue if another qualified Employee is available to act as the Watch Person

3.8.5 CROSSING BRIDGES USING LONE WORKER OR SAFETY WATCH PROTECTION

a) Employees who need to cross bridges to perform their duties using either Lone Worker or Safety Watch Protection may do so if they have adequate sight lines to ensure they can safely exit the bridge, and they will be in a Position of Safety at least 10 seconds before the arrival of the Movement.

b) If you are not yet at the halfway point of the bridge, turn around and clear the bridge in the direction in which you came. If you are at the halfway point on the bridge, or beyond, continue and clear the bridge direction in which you are proceeding.

c) Refuge bays on bridges can be used for clearing Movements during walking inspections.

3.8.6 JOB BRIEFING FOR LONE WORKER AND SAFETY WATCH PROTECTION

a) Before implementing Lone Worker or Safety Watch Protection, the Watch Person and the Employees/Workers being protected must participate in a thorough Job Briefing and document it on the Lone Worker/Safety Watch Form.

b) In addition to the items identified in Module 2, Section 2.5, the following items must be identified and documented in a Job Briefing:

i) The name of the Employee holding the protection (Safety Watch/Lone Worker).
ii) The date work is performed.
iii) The tracks that will be fouled during the work.
iv) The number of individuals being protected.
v) The risks and control measures associated with the work being performed.
vi) The number of live tracks.
vii) Class of track.
viii) The maximum speed of Movements on that track.
ix) Any tools that are being used and where the tools will be physically placed when clearing.
x) Employee tool clearing plan.
xi) The calculation for determining the required sight lines and any additional time required based on the work being performed.
xii) The required sight line distances to perform the work.
xiii) The sight line distance at the work site up the track (increased mileage) and down the track (decreased mileage).
xiv) The method used to obtain the sight lines.
xv) Where the Employees/Workers will clear on the approach of a Movement, which is known as the predetermined "Position of Safety".
xvi) The time after which all sight lines, total time required to clear, and communication methods were verified. This is referred to as the "Complete Time."

Note: If the Position of Safety will be dynamic and continuously change, the sight lines must be verified with Section 3.8.9, Table 2 (Sight Line Table) and the new sight line distance must be communicated and documented.

c) In addition to the above items listed in Section 3.8.1, Employees working under Lone Worker Protection or Employees protecting non-rules-qualified Workers under Safety Watch must also identify:

   i) The name of the person the Job Briefing was completed with (name of the qualified peer).
   ii) The phone number of the peer.
   iii) The duration of time the task will take.
   iv) An agreed-upon call back time.

d) In addition to the above items listed in Section 3.8.1, Employees working under Safety Watch Protection must also identify:

   i) The method of communication the Watch Person will use to communicate with any employees. This can be voice communication, direct touch, or the use of a reliable sounding device.
   ii) All rules-qualified Employees being protected under Safety Watch must validate the entirety of the Safety Watch Form for accuracy and initial the prescribed form once validated.

3.8.7 PROCEDURE TO CALCULATE SIGHT LINE DISTANCE

a) Employee(s)/Workers must occupy a previously arranged Position of Safety at least 10 seconds before a Movement travelling at a maximum speed for that track reaches that point.

b) In a situation where the Watch Person needs to look in two (2) directions, seven (7) seconds must be added. In a situation where the Watch Person does not have to look in two (2) directions or there are two (2) Employees acting as the Watch Persons (looking in opposite directions), additional time does not need to be added.

c) A minimum of four (4) seconds must be accounted for to allow the Watch Person to see the Movement, communicate with the Employees/Workers and for all Employees/Workers to acknowledge the communication.

d) Employees must calculate how long it will take them to move to the Position of Safety using a walking speed of three (3) feet per second.

   Example: If your position of safety is 30 feet away, you would add in 10 seconds (3 feet/second to travel 30 feet) into your calculations.

e) Should more time be required to clear the track for any reason such as clearing tools, etc., it must be added to the calculated time above.

f) After taking all times above into account, Employees must round up to the nearest five (5) second interval to calculate the time required to clear the track.

g) Employees must use the maximum speed for that track and the calculation identified above to identify the corresponding sightline requirements from Section 3.8.9, Table 2 (Sight Line Table).

SAFETY WATCH CALCULATION

All employees must be in a predetermined position of safety at a minimum of 10 seconds before the arrival of any movement at the location. Consideration MUST be given to how many tracks will be crossed to clear, length of time to gather tools, etc. All additional time must be added in this section.

6	1. Communication	4	*4 seconds is used to allow for the Safety Watch to see the train, communicate with employees and for the employees to acknowledge the communication.*
	2. Looking in 2 directions	7	*DO NOT add this if using 2 people to be the Safety Watch or only needing to look for movements in 1 direction*
	3. Clearing time		*Employees must calculate how long it will take them to move to the Position of Safety using a walking speed of 3 feet/second. Additional time may also be required to clear tools, etc.*
	4. Time to be in the place of safety:	10	*Must occupy a previously arranged place of safety not less than 10 seconds before train, traveling at max. speed will reach that location*
	Actual clearing time: *(total of 1,2 3 and 4)*		*After calculating all times employees must round up to the nearest 5 second interval.*
	Time Rounded Up to nearest 5 second interval		Minimum required sightline distance

3.8.8 METHODS FOR VALIDATING SIGHT LINES

a) There are several ways in which clear sight line distances can be determined. In the absence of site-specific job aids or safety procedures for which clear sight lines can be determined, Employees should select the method that best suits their situation.

b) Methods that can be used to determine sight line distances are:

i) Track features such as crossings, bridges, overpasses, turnouts, wayside buildings, etc., whose mileage is known and can be used as reference points to determine the sight distance from the Work location.

ii) Mileage boards as a reference point to determine the sight distance from the Work location.

iii) If a work location is used frequently (such as a turnout, road crossing, railway crossing at grade, etc.), a tape measure, measuring wheel or a Track Unit with a distance counter can be used to measure sight distances for all future visits to that location.

iv) Portable handheld optical distance measuring devices to determine clear sight line distances.

Note: A formal risk assessment must be completed if another method of determining sightlines is proposed.

3.8.9 SIGHT LINE TABLE

Table 2 indicates the minimum required sight line distance (in feet) by which Employees/Workers and their tools must be completely clear and in a Position of Safety for passing Movements and the time (seconds) required to clear vs. speed (mph).

Minimum Sight Line Distances for Lone Worker and Safety Watch

Sightline Table 2									
Seconds	15	20	25	30	35	40	45	50	55
MPH									
15	330	440	550	660	770	880	990	1100	1210
20	440	590	735	880	1030	1175	1320	1470	1615
25	550	735	920	1100	1285	1470	1650	1835	2020
30	660	880	1100	1320	1540	1760	1980	2200	2420
35	770	1030	1285	1540	1800	2055	2310	2570	2825
40	880	1175	1470	1760	2055	2350	2640	2935	3230
45	990	1320	1650	1980	2310	2640	2970	3300	3630
50	1100	1470	1835	2200	2570	2935	3300	3670	4035
55	1210	1615	2020	2420	2825	3230	3630	4035	
60	1320	1760	2200	2640	3080	3520	3960	4400	
65	1430	1910	2385	2860	3340	3815	4290		
70	1540	2055	2570	3080	3595	4110			
75	1650	2200	2750	3300	3850	4400			
80	1760	2350	2935	3520	4110				
85	1870	2495	3120	3740	4365				
90	1980	2640	3300	3960					
95	2090	2790	3485	4180					
100	2200	2935	3670	4400					
105	2310	3080	3850						
110	2420	3230	4035						
115	2530	3375	4220						
120	2640	3520	4400						

04

OFF TRACK MACHINERY BARRIER SEPARATION

TABLE OF CONTENTS – MODULE 4

4 OFF-TRACK MACHINERY AND BARRIER SEPARATION

4.1 GENERAL INSTRUCTIONS

a) A Foreman must oversee any work within 30 feet of the nearest live rail and be governed by the applicable rules and instructions.

b) All Workers or Work required to Foul or occupy tracks must be protected by one of the following means:

   i) Positive Protection as per CROR Rules (TOP, 841, 842)
   ii) Safety Watch Protection
   iii) Lone Worker Protection.

c) All Work is required to stand down and move to a position of safety (if required) on the approach of a Movement unless the Work Zone has been identified as a Continuous Work Zone (CWZ).

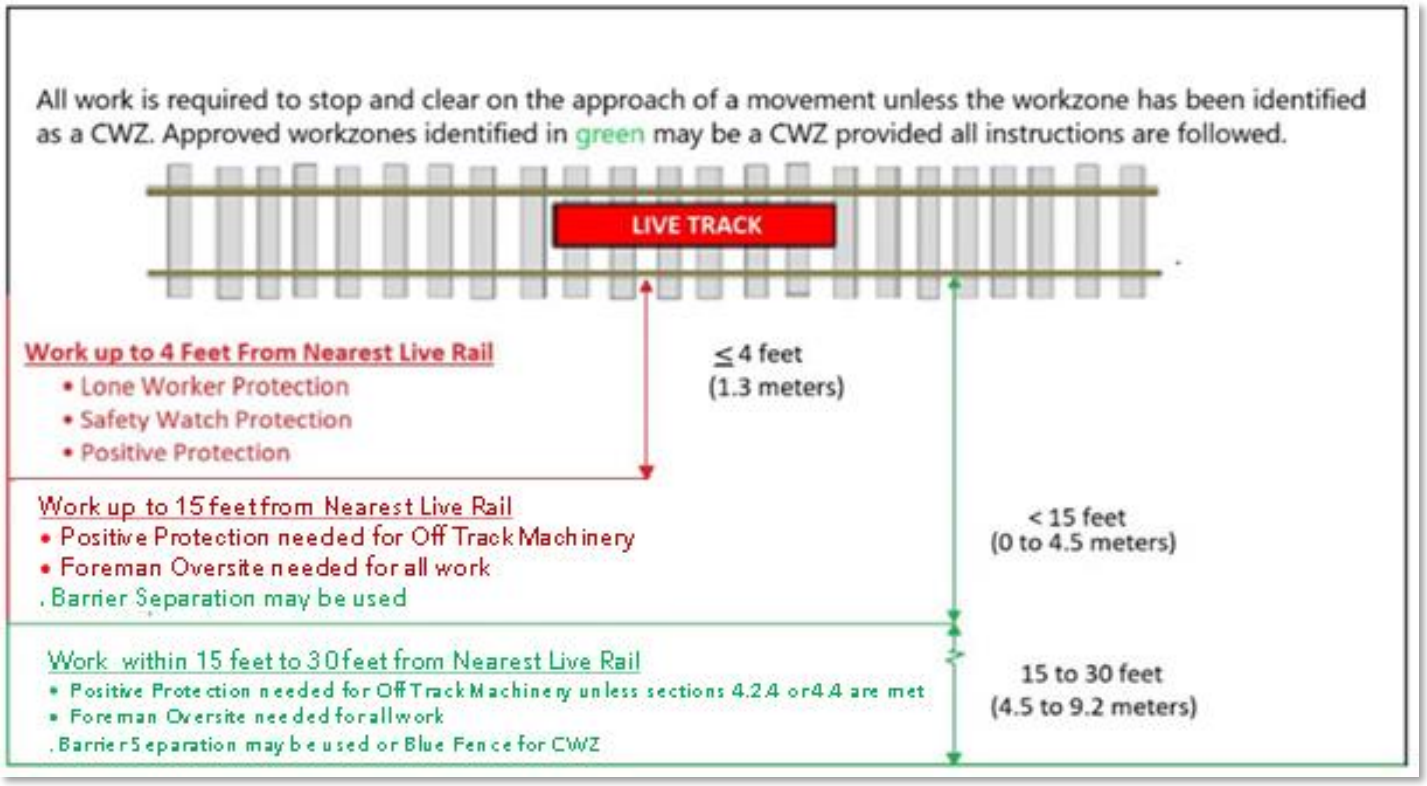
d) Work between 15 feet and 30 feet of the nearest live rail must be overseen by a Foreman and may be considered a CWZ, provided that:

   i) A predetermined measured and identified delineation line is in place that is never closer than 15 feet to the nearest live track
   ii) The delineation line is actively monitored by the Foreman to ensure work, tools, supplies or machinery do not come within 15 feet of live track.
   iii) All requirements of section 4.4 are followed.

e) If the work is going to affect the integrity of the track (excavation near the tracks, undercutting ties, etc.), it must be overseen by a Track Inspection Guideline (TIG) qualified Employee.

f) Lone Worker and Safety Watch must never be used to protect machinery.

g) Automatic Warning Devices at Roadway Grade Crossings must not be considered a means of protection.



4.2 WORK WITHIN THE RAIL CORRIDOR

4.2.1 WORKING WITHIN 30 FEET OF NEAREST LIVE RAIL

a) Any work that will foul the track in any way must have a form of protection in place as identified in Section 4.1 (b).

b) When working within 15 feet of the nearest live rail, machinery must be protected by a form of positive protection and must stand down on the approach of a movement.

c) Unless the requirements of Section 4.2.4 have been met, when working from 15 feet to 30 feet from the nearest live rail, all machinery and Construction/Maintenance Equipment must be protected by positive protection and must stand down on the approach of a movement.

d) Work may not affect the integrity of the track without a form of positive protection.

e) Only work with hand tools that will not affect the integrity of the track may take place without a form of protection, provided that:

   i) At no time shall work, material or personnel foul the track to complete the work required.
   ii) The work, material and supplies are on the same side of the track and there is no need to consistently cross the track.
   iii) A Foreman must be able to stop work or provide a warning to Workers on the approach of a Movement.
   iv) Work must be able to stop once a warning is given from the Foreman.
   v) A work plan must be published and identify if a Safety Barrier is required to deter personnel from fouling the track. All applicable instructions specific to the Safety Barrier must be followed.

4.2.2 RESPONSIBILITIES NOT UNDER PROTECTION WITHIN 15 FEET OF NEAREST LIVE RAIL

Foremen overseeing Work not under a form of protection within 15 feet of the nearest live rail must:

i) Be in a location where they can visually see the Work taking place and the track in order to be able to provide a warning to Workers on the approach of a Movement.
ii) Ensure that no Work, material, or personnel foul track at any time.
iii) Stop Work or provide an audible warning to all Workers on the approach of a Movement regardless of sight line distances and warning times.
iv) If a Foreman is assigned to watch the Work to provide a warning, they must never engage in the Work or distracting activities.

4.2.3 OFF-TRACK MACHINERY WITHIN 15 FEET OF NEAREST LIVE RAIL

a) Must be protected by a form of positive protection.
b) Off-track machinery must not travel on the ballast shoulder of the track. If no other option exists, the ballast must be inspected and restored to the GO Transit Track Standards (GTTS) prior to release for Movements with no speed restrictions.
c) If the work involves a lift or multiple lifts, a load stabilization method should be in place and determined in the work plan to prevent the machine from tipping.

4.2.4 OFF-TRACK MACHINERY OUTSIDE 15 FEET FROM NEAREST LIVE RAIL

a) A delineation line, not closer than 15 feet to the nearest live rail, must be determined through a risk assessment and identified in the work plan.

   At a minimum, the Foreman must be aware of:

   i) Angle of grade to the work location in relation to the track
   ii) Stability of the ground condition
   iii) Types of machinery being used and their reach/counterweight
   iv) Lifts taking place and the material being lifted.

b) The delineation line must be measured, identified and visible to all Workers prior to starting work.

c) The visibility of the delineation line must be maintained throughout the entirety of the work. The line must be inspected and validated at the start and end of each Foreman's shift to ensure visibility, integrity and appropriate distances are maintained.

d) When machinery works between the predetermined delineation line and 30 feet of the nearest live rail, a Foreman must oversee the work to ensure it does not reach or come within the delineation line. At no time may machinery come within 15 feet of the nearest live rail without a form of positive protection in place.

e) Machinery must use a high-performance Movement Limiting Device (MLD) or be positioned in a way that will prevent the machinery from being able to breach the predetermined delineation line. The MLD or position of the machinery must be tested and documented by the operator on each use prior to the start of work.

f) In the event the machine does not have a high-performance MLD, a documented risk assessment and work plan must be completed prior to commencing work, identifying, and validating that the machinery being used at its maximum reach/gauge (including load and attachments) cannot physically reach the predetermined delineation line even in the event of human error.

g) If the work involves a lift or multiple lifts, a load stabilization method must be in place to prevent the machine from tipping and a documented lift plan must be included in the work plan. If a lift is taking place and the lift or the machine will breach the delineation line, positive protection must be in place.

h) The work methodology and control systems must be implemented as per the work plan and risk assessment. All affected personnel must be aware of any mitigations identified in the risk assessment that are not identified in the GEI.

i) If the delineation line is breached contrary to the work plan, the work must stop immediately, and positive protection must be obtained.

j) If a change to the published work plan requires the machinery to work within the delineation line (or come within 15 feet of the track), a new work plan must be submitted, reviewed, and published prior to the work occurring.

Examples of material that may be used as the delineation line include the following, among others:

Plastic Netting	 • Utility locates must be performed prior to driving posts into the ballast or ground • Maximum post spacing of eight (8) feet (2.4 metres) apart • Guarded gaps to be incorporated every 100 feet (30 metres) • Must be removed at the end of every shift unless prior approval has been granted and any required protection will remain in place • Must not block sight lines at grade crossings
Barrel/Cone	 • Must be connected with rigid barricades or retractable barricade tape • Suitable for flat surfaces including passenger platforms • Guarded gaps to be incorporated every 100 feet (30 metres) • Must be removed at the end of every shift unless prior approval has been granted and any required protection will remain in place

4.2.5 RESPONSIBILITIES OVERSEEING WORK OUTSIDE 15 FEET FROM NEAREST LIVE RAIL

Before the start of each shift, the Foreman must conduct an initial inspection and continuously monitor the delineation line to ensure machinery or work will not and cannot breach it in any way. If the delineation line is breached, moved or the machinery is positioned where a portion of the machinery (i.e., boom or counterweight) will breach the delineation line, the work must stop immediately and be governed by applicable CROR and GEI rules and instructions, including emergency procedures, if necessary.

4.2.6 WORKING WITH ON-TRACK MACHINERY

a) In multi-track territory when working with machinery, positive track protection must include the track or tracks immediately adjacent to the track on which the work is being performed. Tracks shall be considered adjacent when the measured distance between track centres is less than 25 feet (7.6 metres).

   Exception: In support of maintenance work where the Protecting Foreman is in immediate contact by radio or in person with all Track Units and Workers, and the Track Units being protected and the activity being performed **will not** foul an adjacent track, as per Module 3, Section 3.1, track protection need not be applied on adjacent tracks. When working on an inside track that is bound by live tracks, Workers must position themselves between the rails of the protected track on which they are working when clearing Movements.

b) Within USRC limits, immediately adjacent tracks are the track or tracks on either side of the track on which work is being performed. Other tracks within the 25 feet (7.6 metres) requirement may not require protection.

c) Machinery must use a high-performance Movement Limiting Device (MLD) or be positioned in a way that will prevent the machinery from being able to foul the adjacent track. The MLD or position of the machinery must be tested and documented by the operator on each use prior to the start of work.

d) In the event the machine does not have a high-performance MLD, a documented risk assessment and work plan must be completed prior to commencing work, identifying, and validating that the machinery being used at its maximum reach/gauge (including load and attachments) cannot physically reach the predetermined delineation line even in the event of human error.

4.2.7 RESPONSIBILITIES WHEN PROTECTING ON-TRACK WORK AND MACHINERY

When working next to a live track or on an inside track that is bound by live tracks, the Foremen, or designated Employee, must:

i) Be in the Position of Safety where they can visually see the work taking place and the adjacent track(s) in order to be able to provide a warning to Workers on the approach of a Movement.
ii) Ensure that no work, material, or personnel foul the unprotected track(s) at any time.
iii) Provide an audible warning to all Workers on the approach of a Movement.
iv) Never engage in work or distracting activities in order to ensure compliance with (ii) and (iii).
v) Ensure all Workers, material and machinery remain in a position of safety when clearing for Movements.

4.3 ADJACENT TRACK PROTECTION

a) The track(s) closest to the work site are protected with either a CROR Rule 42/842 with Prescriptive Routing Arrangements or another form of positive protection to allow for a greater distance between the work and the nearest live track.

b) Once the CROR Rule 42/842 with Prescriptive Routing Arrangements or another form of positive protection becomes effective, the furthest rail to the work zone of the track with Prescriptive Routing Arrangements or another form of positive protection may become the delineation line, provided that:

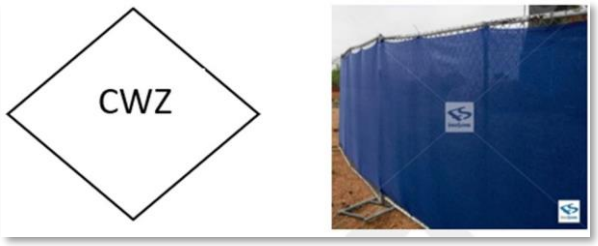
   i) All requirements of the applicable sections in Work Within the Rail Corridor Instructions have been met.
   ii) At no time may work, tools, machinery, Construction/Maintenance Equipment, or personnel foul the delineation line.

4.4 CONTINUOUS WORK ZONE (CWZ)

a) For work to continue while Movements pass and the work area is to be considered a Continuous Work Zone (CWZ), the following conditions must be met:

i) A work plan must be submitted and reviewed by Metrolinx prior to a work site being deemed a CWZ. If conditions within the GEI cannot be met, a documented risk assessment must be submitted and reviewed by Metrolinx prior to work taking place.

ii) The CWZ within 15 feet must be identified with blue fencing and white diamond signs with the letters CWZ located on the fence at either extent of the approved limits. All signage must be in accordance with requirements specified by Metrolinx. Communication to operating crews does not need to be issued or blue fencing/signage provided for a CWZ outside 15 feet from the nearest live rail.



b) For a work site to be a CWZ that is within fifteen (15) feet of live track, a form of Barrier Separation must be in place and:

i) Work behind the barrier consists of Workers, hand tools, material, and machinery without booms, trucks, and dump trucks that will not breach or cross the barrier.

ii) Pile driving, drilling, or auguring equipment may continue to work on the passing of a Movement provided the pile, drill bit, or caisson is set two (2) metres into the ground, no hoisting takes place, and the scope of work aligns with requirements specified in the GTTS.

iii) Machinery which can breach the barrier must be restrained using a high-performance Movement Limiting Device (MLD) to ensure the barrier is not breached at any time. Machinery not equipped with a high-performance MLD must stop and clear when required to for a Movement.

c) Work beyond 15 feet of the nearest live track must be overseen by a Foreman and may be a CWZ, provided that:

   i) A measured and identified delineation line is in place that is never closer than fifteen (15) feet of the nearest live track.

   ii) The delineation line is actively monitored by an Employee to ensure that no work, tools, supplies or machinery come within fifteen (15) feet of live track.

   iii) All other requirements of the Work Within the Rail Corridor section, including Off-Track Machinery in a CWZ, have been met.

4.5 BARRIER SEPARATION

4.5.1 BARRIER SEPARATION PROCESS

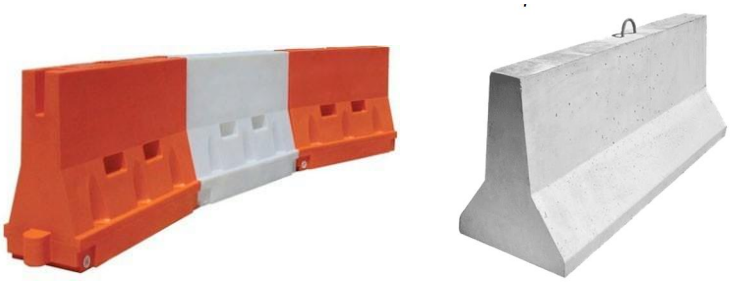
a) Barrier Separation is the process by which a physical barrier is used to separate the work location from live tracks. Barrier Separation is **NOT** a form of protection. At no point are Employees/contractors or machinery permitted to foul the tracks while working under Barrier Separation.

b) A Foreman must be present when working under Barrier Separation.

c) Separation must be executed through a temporary Barrier Separation.

4.5.2 TEMPORARY BARRIER SEPARATION

a) Temporary barriers may be used to separate off-track machinery and Workers from live tracks. All types of barriers and locations for the barriers must be supported through a site-specific risk assessment and reviewed by Metrolinx during the work planning stage.

Water-Filled or Concrete Traffic Barriers	 • Plastic water-filled barriers to be filled as per manufacturer's specifications • Guarded gaps to be incorporated every 100 feet (30 metres)

b) Unless instructed otherwise by Metrolinx (following a risk assessment), the following conditions must be met:

   i) The size and type of temporary barriers must align with the applicable Metrolinx Standard.

   ii) The temporary barriers must be installed seven (7) feet or greater from the nearest live rail.

   iii) Access gates must be installed every 500 feet or less.

   iv) The temporary barriers cannot be installed closer than 300 feet from any roadway grade crossing.

   v) The temporary barrier must remain clear of any controlled location.

   vi) The temporary barrier must be inspected frequently and at each shift change by a Foreman to ensure that no barrier or fencing sections have been damaged or pushed closer than the approved distance from the nearest live rail.

c) When temporary barriers are used, Module 3, Section 3.1 and Section 4.2 must be accounted for in the risk assessment and work plan.

d) A Job Briefing, in accordance with Module 2, Section 2.5, must be completed with all Workers who will be working behind the barrier. The number of Workers, equipment to be used, and rules on how barrier protection applies to the site must be covered in the Job Briefing.

e) Any machinery or work with the ability to breach the barrier must be protected under a form of positive protection.

f) Any work to take place on the live side of the barrier must be accounted for in the Job Briefing and protected under a form of positive protection.

g) If the barrier is compromised for any reason, it must be inspected to ensure it is not foul of the tracks before the next Movement operates past the location. If the barrier is foul of the track, Emergency Communication Procedures must be initiated.

h) The use of barriers does not eliminate the need for Job Briefings and situational awareness. The Employee has the authority and duty to stop unsafe activity posing an immediate threat to people or the operation of Movements

05

WORK GROUPS
CLEARING MOVEMENTS
SAFE WORK PRACTICES

TABLE OF CONTENTS – MODULE 5

5 WORK GROUPS AND CLEARING MOVEMENTS

5.1 REQUIREMENTS WHEN PROTECTING A VISUAL WORK GROUP (VWG)

a) A Protecting Foreman can protect up to four (4) Sub-Foremen (Separated Work Groups) and watch a Visual Work Group (VWG).

b) A Protecting Foreman cannot watch a Visual Work Group when they have five (5) or more Sub-Foremen (Separated Work Groups)

c) A risk assessment must be performed and made available before a Protecting Foreman allows five (5) or more Sub-Foremen (Separated Work Groups) as per CROR Rule 855.

d) A Protecting Foreman with no Sub-Foremen on their clearing list may have up to six (6) identified persons (i.e., machine operators) on their VWG list.

e) A Protecting Foreman watching a VWG with one to four (1–4) Sub-Foremen on their Clearing List cannot have more than two (2) identified persons on their VWG list.

f) A Protecting Foreman cannot have more than eight (8) Sub-Foremen at any time.

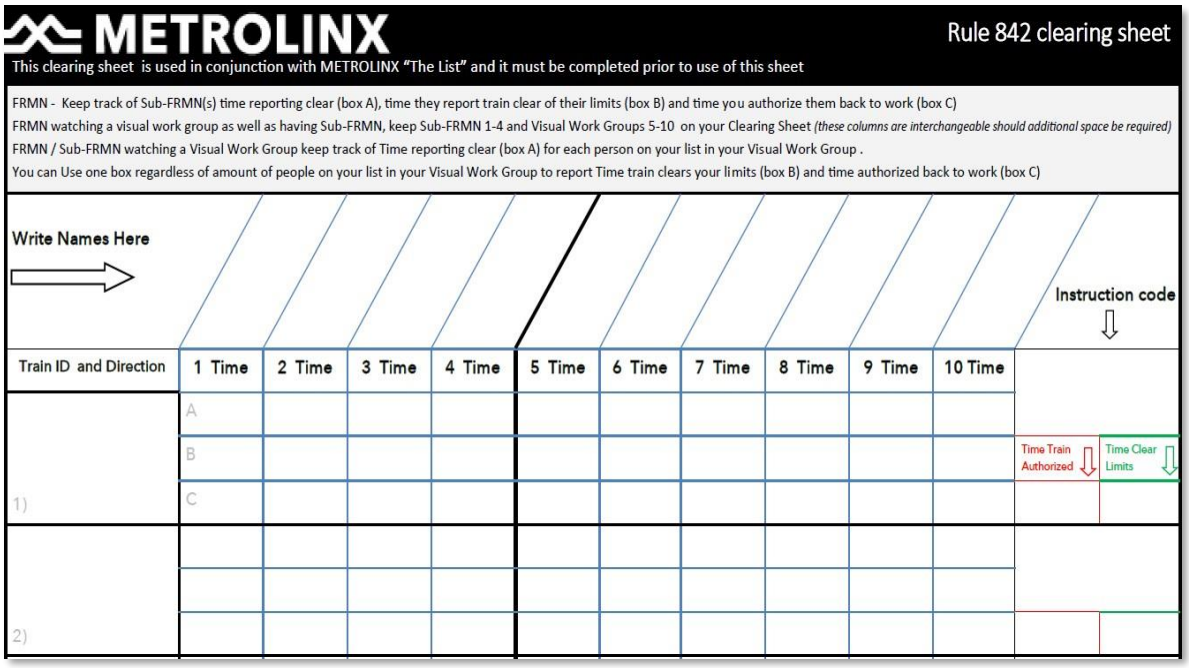
g) A Sub-Foreman may have up to six (6) identified persons on their VWG list.

h) Employees/Workers using only hand tools under the protection of a Foreman/Sub-Foreman being cleared by voice communication or reliable sounding device may be represented within one box on the Foreman/Sub-Foreman Clearing Sheet.

i) All machinery working or placed within 15 feet of the live track must be on the VWG list. Machinery must always be within visual range of the Protecting Foreman/Sub-Foreman.

j) The Protecting Foreman/Sub-Foreman must be positioned in a way that allows them to see their VWG and the track(s).

k) In multi-track territory, the Foreman/Sub-Foreman must be located on the same side of the track as their VWG, and the group must all clear to the same side of the track.



METROLINX

Rule 842 clearing sheet

This clearing sheet is used in conjunction with METROLINX "The List" and it must be completed prior to use of this sheet

FRMN - Keep track of Sub-FRMN(s) time reporting clear (box A), time they report train clear of their limits (box B) and time you authorize them back to work (box C)

FRMN watching a visual work group as well as having Sub-FRMN, keep Sub-FRMN 1-4 and Visual Work Groups 5-10 on your Clearing Sheet *(these columns are interchangeable should additional space be required)*

FRMN / Sub-FRMN watching a Visual Work Group keep track of Time reporting clear (box A) for each person on your list in your Visual Work Group .

You can Use one box regardless of amount of people on your list in your Visual Work Group to report Time train clears your limits (box B) and time authorized back to work (box C)

Write Names Here

Instruction code

Train ID and Direction	1 Time	2 Time	3 Time	4 Time	5 Time	6 Time	7 Time	8 Time	9 Time	10 Time	
1)	A										
	B										Time Train Authorized / Time Clear Limits
	C										
2)											

5.2 WORK GROUPS GENERAL INSTRUCTIONS

a) All applicable instructions identified in Sections 5.4 and 5.5 when Clearing Movements must be adhered to when working under a Separated Work Group.

b) A supplemental Job Briefing must take place when changes occur. Examples of such changes can be, but are not limited to:

   i) Task change

   ii) The predetermined Position of Safety is dynamic, and it becomes necessary to relocate

   iii) Employees/Workers joining or leaving the group

   iv) Method of communication changes (e.g., going from voice to a reliable sounding device)

5.3 PROCEDURE FOR CLEARING MOVEMENTS

a) When called by a Movement or after being called to clear for a Movement by the Protecting Foreman, the Protecting Foreman and Sub-Foremen protecting a VWG must:

I. While standing within four (4) feet of the track, communicate to all
II. Employees and Workers being protected to clear.

III. Look up and down the track to confirm that the Employees, Workers and tools have cleared and the track is safe for the Movement.

IV. The Protecting Foreman/Sub-Foremen must then clear to their predetermined Position of Safety.

V. From their Position of Safety and after positively verifying all Employees, Workers, machinery, materials and tools are clear, Sub-Foremen will report clear to the Protecting Foreman named in the authority.

VI. The Protecting Foreman must ensure all Sub-Foremen have reported clear and their VWG is clear before authorizing a Movement into their limits.

b) While clear and when clearing for multiple Movements, all additional Movements will be cleared from the Position of Safety. Under no circumstance is a Foreman/Sub-Foreman, or their protected Employees/Workers, permitted to foul the live track.

c) From the Position of Safety, the Foreman or designate must acknowledge the Movement by a raised hand. All Employees/Workers must turn and face the Movement until it has completely passed their location.

d) Under no circumstances is sub-listing permitted on Metrolinx property. Examples of sub-listing include:

I. Employees/Workers in a VWG on the list of a Foreman/Sub-Foreman have their own list and clear other Employees/Workers.

II. A Sub-Foreman clearing another Sub-Foreman.

e) All communication methods must be clearly understood by all Employees, Workers and Foremen prior to starting any work and must be documented in the Job Briefing.

f) Radios may be used as a method of communication when:

I. The Protecting Foreman is communicating with the assigned Sub-Foreman.

II. The distance to the work group(s) is too far to communicate by voice or reliable sounding device.

III. The ambient noise in the work area is too loud to communicate by voice or reliable sounding device.

IV. Communicating with Employees/Workers operating machinery.

g) When communicating over the radio to report clear for a Movement, positive identification may be combined with the request to clear, or the instruction to standby, or the report of being clear.

Examples of Radio Communication – Clearing for Movements

Example A: Foreman to Sub-Foreman Clearing for Movement on Railway Radio	
FOREMAN Jones: *"MX FOREMAN Smith, MX FOREMAN Jones, [clear for] GO 636 East, over".*	**SUB-FOREMAN Smith:** *"MX FOREMAN Jones, MX FOREMAN Smith, standby."* *(Smith Clears their Visual Work Group)*
FOREMAN Jones: "Standing by."	**SUB-FOREMAN Smith:** "FOREMAN Jones, FOREMAN Smith is clear for GO 636 East, over".
FOREMAN Jones: *"FOREMAN Smith is clear for GO 636 East and down for 1, out".*	**SUB-FOREMAN Smith:** *"Down for one, out."*

Example B: Foreman or Sub-Foreman to Visual Work Group Clearing for Movement on Contractor Radio	
FOREMAN Jones: *"(Construction company Name/Initials) Backhoe Operator Smith, MX FOREMAN Jones. Clear for Eastbound GO, over".*	**Backhoe Operator Bell:** *"FOREMAN Jones, (Construction company Name/Initials) Backhoe Operator Bell, standby."* *(Bell and the backhoe get clear and into the predetermined Position of Safety where the machine is clear)*
FOREMAN Jones: *"Standing by."*	**Backhoe Operator Bell:** *"FOREMAN Jones, Bell is clear for Eastbound GO, out."*
FOREMAN Jones: *"Bell is clear and down for 1, out".*	

5.4 REPORTING CLEAR

a) Clear means you are in the Position of Safety determined and discussed in the Job Briefing and supplemental Job Briefings. When clearing for a Movement or storing Track Units, all booms, wings, etc. must be retracted, secured with all locking devices put in place, and clear of the live track. Small tools and other materials must also be removed from the live track and secured to avoid being struck by a passing Movement.

b) All work groups being protected by a Protecting Foreman/Sub-Foreman must report clear using the term "clear" before a Movement is authorized through the work limits.

c) Under no circumstances may Employees/Workers stand on live, unprotected track while observing passing Movements on adjacent tracks.

d) When communicating by radio, all radio rules apply, and positive identification must be clarified with non-CROR Rules qualified contractors/Workers prior to starting any work. When an Employee is given notice of a Movement by radio and requires time to relocate to the predetermined Position of Safety, they must respond with the word "standby."

5.5 SUB-FOREMEN RETURNING TO WORK

After clearing for a Movement, Employees/Workers must confirm the following has been complied with before returning to work:

i) The Sub-Foreman has visually confirmed that the Movement has passed their location by identifying its engine number and marker.

ii) The Sub-Foreman has communicated to the Protecting Foreman the documented time that the Movement has passed their location.

iii) The Protecting Foreman has confirmed that the Movement has passed the Sub-Foreman's location and documented the same. They can permit the Sub-Foremen to return to work, **or**

iv) The Protecting Foreman may authorize all Sub-Foremen to return to work once they have confirmed the Movement is clear of their entire limits.

Examples of Radio Communication – Returning to Work

Example A: Foreman to Sub-Foreman Return to Work on Railway Radio	
SUB-FOREMAN Smith: *"MX FOREMAN Jones, FOREMAN Smith, over."*	**FOREMAN Jones:** *"FOREMAN Smith, FOREMAN Jones, go ahead, over."*
SUB-FOREMAN Smith: *"GO 636 East has passed my location at 1330 hrs, over".*	**FOREMAN Jones:** *"Confirming GO 636 East has passed your location at 1330. Is that correct, over?"*
SUB-FOREMAN Smith: *"That is correct, over."*	**FOREMAN Jones:** *"Good to resume work, FOREMAN Jones out."*
SUB-FOREMAN Smith: *"Thanks for the help, FOREMAN Smith out."*	

Example B: Foreman or Sub-Foreman to Visual Work Group Return to Work on Contractor Radio	
FOREMAN Jones: *"(Construction company Name/Initials) Backhoe Operator Smith, MX FOREMAN Jones, over."*	**Backhoe Operator Bell:** *"FOREMAN Jones, (Construction company Name/Initials) Backhoe Operator Bell, go ahead, over."* **Bell and the backhoe are still in the predetermined Position of Safety where the machine is clear*
FOREMAN Jones: *"The Movement has passed your work location. You're good to resume work, over".*	**Backhoe Operator Bell:** *"Good to resume work. Backhoe Operator Bell out".*
FOREMAN Jones: *"FOREMAN Jones out."*	

Example C: Foreman or Sub-Foreman to Visual Work Group Return to Work on Contractor Radio	
FOREMAN Jones: *"(Construction company Name/initials) Brown, MX FOREMAN Jones, over."*	**Contractor Brown:** *"MX FOREMAN Jones, (Construction company Name/Initials) Brown, go ahead, over."*
FOREMAN Jones: *"The Movement has passed your location. Good to resume work, over".*	**Contractor Brown:** *"Good to resume work, (Construction company Name/Initials) Brown out".*
FOREMAN Jones: *"FOREMAN Jones out."*	

5.6 SAFE WORK PRACTICES

5.6.1 WORKING ON OR NEAR TRACKS

a) Employees, contractors and others working on tracks must ensure that they have the required protection in accordance with applicable operating rules and any other pertinent rules, regulations or instructions.

b) Non-CROR Rules qualified Contractors must refer to and comply with the requirements outlined in the Metrolinx "Personal Track Safety" (PTS) course.

c) Walk clear of tracks when duties permit. Employees, contractors and others who must walk on or near the track must be constantly alert and must have a form of protection in place as outlined in Module 3 – Forms of Protection. Expect a Movement or Track Unit at any time, on any track, and in either direction.

d) Walking, sitting or stepping on rails, frogs, switches, guard rails, or other track-related devices is strictly prohibited unless prescribed foot guards are in place, typically located in the USRC.

e) When practicable, and when duties and terrain permit, Employees must position themselves on the ground on both sides of the track to inspect the condition of equipment in passing Movements as per CROR Rule 110. See Module 2, Section 2.2 for reference.

5.6.2 WORKING ON OR ABOUT EQUIPMENT AND TRACK UNITS

a) To prevent personal injury and/or property damages, Employees must always keep a safe distance in a Position of Safety from any passing Movement or Equipment to avoid protruding or falling objects and leaking substances.

b) Crossing over, under or between equipment is strictly prohibited except as required in the performance of duty and only when proper protection is provided. When required to do so, use only the stirrup, side ladder, end ladder, handholds and crossover platform where provided. NEVER STEP ON THE COUPLER HEAD, DRAFT GEAR, OR BETWEEN THE COUPLER HORN AND STRIKER CASTING.

c) Leaning against rail equipment is prohibited.

d) Ensure headlights and warning beacon are turned on as per the Metrolinx Vehicle Beacon Safety Standards when working or travelling on rail with a Track Unit such as a Hi-Rail inspection vehicle.

e) Do not ride on work equipment, maintenance-of-way, or any other type of machinery that is not designed or equipped with passenger seating.

f) When an activity is to be undertaken on equipment coupled to a Track Unit that requires the equipment to remain stationary while performing an activity such as:

- Changing any part of the knuckle/air hose
- Adjusting the knuckle/drawbar
- Coupling air hoses
- Cutting out the air brakes on equipment
- Securing a dragging brake rigging or operating lever

g) The activity must not commence until:

i) The Track Unit and equipment have come to a stop and been secured against unintentional movement

ii) All slack action has ceased. When required to close an angle cock to restore air pressure, as in the case of separated equipment, the Employee must remain clear of the equipment and expect slack action to occur at any time as the brakes release.

iii) The Employee must have a clear understanding that there are no other Track Units on the track they are working.

iv) Advise and establish peer-to-peer communication with the Track Unit operator prior to cutting in the air.

v) The operator controlling the Track Unit must fully apply the independent braking system.

vi) Place the Track Unit in neutral and acknowledge and respond to the Employee on the ground once the Track Unit is secured.

vii) Brakes must remain applied, and the Track Unit is in neutral until the Employee performing the work confirms that they are clear of the equipment.

viii) The operator controlling the Track Unit must then acknowledge and confirm that the Employee is clear of the equipment.

ix) There must be a minimum of 50 feet between separated equipment that must be protected in accordance with CROR Rule 112.

h) If an angle cock to be closed is on the far side of the equipment, it can be closed from the near side provided the angle cock can be reached without leaning on the coupler or drawbar and no body part becomes exposed to any pinch point.

Note: See Module 6, Section 6.2.11 for additional TU instructions.

5.6.3 WORKING ON EQUIPMENT AND MACHINERY

a) Before beginning any maintenance work on or about equipment and machinery, Employees must ensure that equipment has been secured against unintentional movement, locked out/tagged out, and all power sources have been disengaged from exposed or moving Equipment.

b) Before starting, operating, or moving any Equipment and machinery, ensure that all tools and obstructions have been removed and all Employees are in the clear.

c) Ensure Equipment and machinery are secured by hand brakes/parking brakes, wheel chocks, or other approved means as per Module 6, Section 6.2.11.

5.6.4 MANUAL MATERIAL HANDLING

a) Obtain assistance or lighten the load if it is too heavy to lift safely by yourself.

b) Before lifting, carrying or lowering objects with two or more people, coordinate the work and reach a clear understanding that everyone knows the movements to be made.

5.6.5 CONFINED SPACES ENTRY

Only trained and qualified individuals may enter a confined space or participate in a confined space entry or rescue task (see OHSA).

5.6.6 FALL PROTECTION

When working on elevated surfaces (greater than eight (8) feet or 2.4 metres), fall protection equipment must be used. Personnel must be trained and qualified. Refer to OHSA.

5.6.7 PREVENTING INJURIES RELATED TO SLIPS, TRIPS AND FALLS

a) To reduce the risk of injury resulting from slips, trips and falls, the following points must be adhered to:

- Observe your surroundings and take appropriate action to avoid potential hazards such as slippery conditions, uneven ground, tripping hazards, etc.
- Focus, look in the direction you are walking and do not allow yourself to be distracted.
- Pace needs to be at a safe rate; smaller steps may be required when conditions warrant. Never run unless it is an emergency.
- PPE – wear approved anti-slip footwear when slippery conditions exist and ensure boots are in good condition and laced to the top as per the Metrolinx PPE Standard.
- Hands must be out of pockets when walking to allow for balance and recovery.
- A suitable light source must be used when conditions are less than ideal to allow visibility, ensuring that your walking surface is illuminated.
- Do not create unnecessary tripping hazards with equipment, materials or tools.
- Peer-to-peer communication must be used regularly to remind co-workers of these safety requirements and to immediately advise peers of hazardous conditions.
- Correct and/or report hazardous conditions.

5.6.8 TRESPASSERS

If a trespasser is observed, immediately notify the Metrolinx RTC.

5.6.9 FIRES AND FIRE PREVENTION

Employees and contractors must:

a) Familiarize themselves with evacuation procedures and location of fire alarms, fire extinguishers and emergency exit(s) at their work location, as well as the means of contacting the local fire authority.

b) Ensure that fire exits, extinguishers and other emergency equipment are not blocked, locked or otherwise rendered inaccessible.

c) Report to the supervisor any fire extinguisher or fire suppression equipment that has been discharged, not inspected, or otherwise used, to ensure it is serviced and returned to service.

d) Fires on or near the right-of-way must be immediately reported to the Rail Traffic Controller (RTC) along with the exact location and approximate size of the fire. Notify the local fire authorities or emergency organization. If not relieved by the proper authority, attempt to stop rail traffic in accordance with CROR Rule 35/125 if the fire poses any danger to safe operation.

e) Upon discovery of fire in a facility, sound alarm, notify local fire authorities and inform the immediate supervisor. Attempt to control or extinguish the fire to the extent conditions safely permit.

f) Any material and/or vegetation must not be burned on the right-of-way.

g) Smoking, use of open flames or ignition sources is prohibited where flammable materials are stored or handled.

h) All flammable liquids/substances are to be placed in approved containers and Workplace Hazardous Materials Information System (WHMIS) labels applied. Ensure the availability of Safety Data Sheets (SDS) where applicable.

i) Flammable liquids/substances cannot be disposed of in sewer systems, drains or garbage containers used for general disposal.

j) Flammable liquids/substances cannot be stored in open containers. Ensure proper storage procedures, with proper ventilation and away from sources of heat or ignition.

k) Compressed gas cylinders must be stored in a designated location offering protection from passing vehicles or falling objects. All cylinders must be secured in a vertical position, with empty cylinders separated from full ones. Cylinders must be stored in accordance with applicable fire codes.

l) Metal contact (ground/bonding cable) must be maintained between containers while transferring flammable liquids.

m) Filling gasoline tanks inside buildings or other enclosed spaces or while an internal combustion engine is running is prohibited.

n) Firefighting equipment must be maintained in operating condition and must always be readily accessible. If fire extinguishers are discharged for any reason, they must be recharged immediately or replaced by fully charged extinguishers.

o) Fire doors must never be locked, blocked or tied open.

5.6.10 FIRST AID AND CARDIOPULMONARY RESUSCITATION (CPR)

a) Regulations (Canada Labour Code) set minimum requirements for first aid in the workplace, including first aid attendants, facilities and supplies.

b) All CROR Rules qualified Employees must attend a one-day emergency first aid course, with a recertification requirement after three years. First aid/CPR courses (as required) must be arranged through your supervisor. Designated first aid attendees must present a valid and up-to-date proof of certification and have them on your person or readily available.

c) In the event of a medical emergency, keep the person comfortable and ensure help is on the way. If in a remote location or an area difficult to access, ensure someone is available to guide and direct emergency personnel.

d) In the event of a medical emergency affecting safe railway operations, the emergency notification must be communicated in accordance with CROR Rule 35/125.

5.6.11 TOOLS, POWER TOOLS, MACHINERY AND ACCESSORIES

a) Only qualified personnel may operate tools.

b) Tools must be inspected before use and as often as necessary.

c) Tools must be properly stored or secured when not in use.

d) Tools must only be used for their specified or intended purpose.

e) Electrical, mechanical, hydraulic, explosive and/or pneumatic tools should never be pointed at yourself or another person.

f) All electrical cords and pneumatic or hydraulic hoses must be protected from possible damage, either through overhead connection or other means of protection.

g) All manufacturer's recommendations and procedures for the safe use and handling of tools are to be reviewed and followed by Employees using them.

h) Any additional tools or attachments needed to perform tasks must meet manufacturers specifications.

i) All tools or machines with blades, rotating gears, belts or other moving parts must be equipped with adequate guards. These guards must only be removed when the machine or tool is being serviced by qualified personnel.

j) Required Personal Protective Equipment (PPE) must be used at all times when operating tools, power tools, machinery and accessories as per the Metrolinx PPE Standard.

06

TRACK UNIT PROCEDURES

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6 TRACK UNIT PROCEDURES

6.1 QUALIFICATIONS

Operators of Track Units, while on tracks, must be qualified in and familiar with the following:

i) The Metrolinx-endorsed Canadian Rail Operating Rules (CROR)
ii) The Metrolinx General Engineering Instructions
iii) The physical characteristics of the unit in which they are operating and the ability to effectively control its operation
iv) The operating and maintenance instructions or manuals supplied by the railway and/or manufacturer
v) The territory on which they are operating
vi) They also must demonstrate competency in equipment operation.

In addition, operators of a Hi-Rail must also hold a valid motor vehicle licence appropriate for the class of the vehicle, including air brake endorsement as required.

6.1.1 GENERAL PROCEDURES

a) All occupants riding in a Track Unit who are CROR Rules qualified are responsible for its safe operation.

b) All Employees operating or riding in Track Units must understand the duties that each person will perform.

c) The operator of a Track Unit is responsible for:

   i) Completing the required logbook(s) and performing pre-trip inspection(s) prior to every shift.

   ii) Inspecting and maintaining the Track Unit at the required frequencies indicated in the manufacturer's or contractor's preventative maintenance plan.

d) Cell phones cannot be used for personal reasons and should remain stored out of the operator's reach. They must only be used for purposes related to railway operations and can only be used in hands-free mode unless the Track Unit has been brought to a complete stop.

e) When a Track Unit operator is copying a track authority or writing other information, the Track Unit must be brought to a complete stop.

f) The operator must ensure that the Track Unit is equipped with a properly supplied railway flagging kit, first aid kit, fire extinguisher and a radio capable of communicating on all prescribed Metrolinx frequencies.

g) All tools and materials must be safely secured against unintentional movement while operating the Track Unit.

h) A Track Unit must not be left unattended unless the doors are locked and keys removed, or the batteries are isolated and locked out. All Track Units must be disabled and secured to prevent unintentional or accidental movement.

i) While operating an insulated Track Unit, if it is found to be non-insulated due to damage or has become defective, this must be reported immediately to the RTC before resuming work.

j) Before operating on track, all known non-insulated Track Units or Track Units equipped with shunting capabilities must be included in the work block planning process.

k) Track Units when working or travelling must not cause continuous activation of the crossing protection. In these instances, the crossing protection must be deactivated by a qualified S&C Maintainer who must follow all procedures in Metrolinx guidelines. Positive protection must be in place on all affected tracks.

l) All Track Units must be equipped with working lights to the front and rear of the unit and must also be equipped with 360-degree beacon lights.

m) All lights must be displayed when the Track Unit is operating on rail. In addition, all vehicles must follow the Metrolinx Vehicle Beacons Safety Performance Standard.

n) All Track Units (Hi-Rail vehicles and on-track machinery) must have re-railers available/onboard while operating on tracks.

Notes:

- Beacon lights must not be operated when travelling on the public roadways.
- The number of occupants permitted to ride in/on a Track Unit must not exceed the number of seats provided in the unit.

6.2 TRACK UNIT OPERATION

6.2.1 INITIAL BRAKE TEST

a) Employees operating a Track Unit, regardless of the planned operating speed or planned travel distance, must immediately, after setting the Track Unit in motion for the first time, test the brakes to ensure they are operating properly by performing an Initial Brake Test (IBT).

b) In all cases when performing an IBT, occupants, if any, must be warned of brake tests by the operator.

c) Immediately after performing an IBT and while still stopped, the IBT must be documented along with the time the test was completed. The results of the IBT must be communicated to all participants within the Track Unit and documented.

6.2.2 DISTANCE TO STOP TEST

a) Employees operating a Track Unit, regardless of the planned operating speed or planned travel distance, must conduct a Distance to Stop (DTS) test once the Track Unit reaches the operating speed.

b) The DTS is performed by fully applying the brakes without producing a wheel skid and bringing the vehicle to a complete stop.

c) DTS tests must be performed in a safe area. Safe areas include locations in advance of poor sight lines, any roadway, pedestrian or railway crossings at grade, switches, other work groups, etc.

d) Immediately after performing a DTS test and while still stopped, the following information must be recorded:

   i) Time the test was performed

   ii) The location where the test was performed (this should include unique characteristics like Track ID, Mile, identifiable location, etc.)

   iii) Operating speed at the start of the test

   iv) Braking distance

   v) Direction and orientation of travel

   vi) Loaded or unloaded payload

   vii) Rail condition (dry, wet, snow, etc.).

Note: The recorded information must be retained and available for inspection for thirty (30) days, including the test day.

e) Additional DTS tests must be conducted if there are changes in conditions that affect the Track Unit's ability to stop. Examples of changes in conditions include, but are not limited to:

   i) Rail conditions (dry, wet, snow, etc.)

   ii) Orientation of travel

   iii) Change in the payload

   iv) Gradient of track

   v) Change in operating speed.

6.2.3 TRAVELLING OR WORKING WITH TRACK UNITS

a) Track Units must maintain a spacing of at least 300 feet between Track Units when traveling.

b) Track Units must maintain a spacing of at least 500 feet from a standing Movement, or following one in motion, on the same track.

c) An increase in spacing is required if stopping distances are increased.

d) The distances indicated in (a) and (b) may be decreased if a clear understanding has been reached between Track Units and Movements that it is safe to do so. Once a new distance is established, it must be documented in the Job Briefing.

e) When Track Units are travelling together, Track Unit operators must advise each other when planning to stop. If communication with the other Track Unit operator(s) is not acknowledged, the operator must stop the Track Unit, exit and use all possible means to provide a warning to the following Track Unit operators to stop. Every effort must be taken to avoid stopping in a location with poor sight lines.

f) While working, Track Units must maintain a minimum 40 feet spacing between units. If work requires closer spacing, a clear understanding must be reached between all operators and Employees, and this must be documented in the Job Briefing.

g) When it is necessary for individual Employees to travel under difficult conditions such as extreme heat or cold, heavy snow or rain, in remote areas, etc., additional safety precautions, such as establishing specific call-back times with another competent Employee, must be taken and documented in the Employee's Job Briefing.

h) Except during the actual working operation, extendable working components of a Track Unit must be retracted to the travel position and all locking devices put in place before the Track Unit is moved.

6.2.4 OPERATING A TRACK UNIT OVER SWITCHES

Track Units must not be brought to a complete stop on the switch points of a dual control switch, an auto-normal switch, or the point of a moveable point frog or within USRC (Double Slip Switches (DSS), knuckles, etc.).

6.2.5 OPERATING A TRACK UNIT IN REVERSE

a) Track Inspections and Track Work should be planned so that Track Units operate or Work in the forward direction whenever possible. When necessary to change direction of travel, if possible and practicable, Track Units should be turned and operated in the forward direction.

b) The following safety precautions must be taken when operating Track Units in reverse:

   i) Lights on the leading end of the Track Unit must be illuminated.

   ii) A back-up audible alarm must be operating. If not equipped or not working, the operator must sound the horn on a regular basis. Three (3) short sounds of the horn must be used before reversing.

   iii) Track Units should be equipped with a backup camera.

   iv) Should a backup camera not be available, a spotter and an effective communication plan between the spotter and operator of the Track Unit must be in place while reversing.

c) When visibility in the reverse direction is obscured, another Employee must be positioned to warn the operator of any obstructions.

d) Employees operating Track Units intending to Work in both directions must conduct a Job Briefing with their work crew to discuss how Workers on the ground will be notified of the intended movements of the Track Unit before any change in the direction of travel/work is made.

6.2.6 TRAVERSING A ROADWAY GRADE CROSSING IN A TRACK UNIT

When Track Unit(s) are being removed from or placed upon the track, or when traversing over/fouling the limits of a Roadway Grade Crossing, Employees must stop the traveling public by:

a) Full activation of the Automatic Warning Device (AWD) prior to occupying the limits of the crossing. The AWD must be visually confirmed to be fully operable, and the gates (if equipped) be in the horizontal position prior to the Track Unit(s) occupying/fouling the limits of the grade crossing.

   i) If the crossing is equipped with Dual Tone Multi-Frequency (DTMF), the AWD must be activated via the DTMF prior to the crossing being occupied by the Track Unit(s).

Note: If the Track Unit(s) are unable to clear the limits of the crossing within three minutes, the AWD must be activated via either 6.2.6(a) ii or 6.2.6(a) iii.

   ii) If the Track Unit(s) are uninsulated and/or equipped with the designed functionality of activating the AWD, the crossing must be activated by the Track Unit(s) and comply with the instructions in 6.2.6(a).

   iii) If the Roadway Grade Crossing is equipped with AWD and DTMF is not applicable, and the Track Unit(s) are insulated and unable to activate the AWD, the crossing must be activated via the knife switch in accordance with instructions in Module 8, Section 8.4.3.

b) If the Roadway Grade Crossing is not equipped with AWD, the crossing must be protected by one or a combination of the following means:

   i) When two or more Track Units and/or two or more CROR Rules qualified persons are present, at least one qualified person must provide manual protection of the crossing until the crossing is fully occupied in accordance with CROR Rule 103(g).

   ii) In a single Track Unit operated by one CROR Rules qualified person, when no traffic is present and the approach of the Roadway Grade Crossing is known to be clear in all directions and/or traffic has stopped, the Track Unit may proceed over the crossing with extreme caution.

c) Approach Roadway grade crossing under complete control and bring to a full stop before proceeding over a Roadway Grade Crossing.

d) A Track Unit must not obstruct the sightlines of an AWD or any other crossing signage at a Roadway Grade Crossing.

6.2.7 TRACK UNIT SPEED

a) Track Units must operate under full control and be prepared to stop at all times. Operators must be increasingly vigilant as they approach any Roadway Grade Crossings, interlocking, animals or people near the track, and when passing over bridges.

b) Track Units mut operate at Track Unit Speed not exceeding 25 mph or the designated subdivision timetable speed, whichever is less.

c) Track Units operating within the limits of a CROR Rule 43/843 must not exceed the speed defined by the applicable GBO. If the operator of the Track Unit does not have access to the governing DOB, the operator of the Track Unit must not exceed 10 mph when operating within the limits of a Rule 43/843 slow order.

d) Track Units must not exceed five (5) mph while operating in any direction over any switch, frog or special track work.

e) Track Units must be operated with extreme caution while travelling through the closed point of a spring frog, self-guarded manganese frog, flange-bearing frog and all other special track material that may interfere with normal wheel placement, ensuring that all wheels are always properly on the rails. If available, a spotter must be used to effectively validate the placement of all wheels while in operation.

f) Unless otherwise specified by special instructions, the maximum speed when reversing, must be Track Unit Speed not exceeding 15 mph.

6.2.8 VERIFYING LIMITS

a) Operators of Track Units must have in their possession written confirmation of authority to occupy the working limits of the main track and Siding Control Territory (SCT) track(s).

Exception: When working in a group consisting of two or more Track Units, only the lead and trailing Track Unit operators are required to have in their possession a written copy of the Foreman's authority.

b) When working or travelling, the lead and trailing Track Unit operators must comply with the following:

i) Before passing a controlled signal, all CROR Rule qualified occupants of the Track Unit are responsible to review the authority to verify that the controlled signal being approached is included in the current protection.

ii) The Foreman named in the authority or designated Employee must document a record of the time, signal number and name of the controlled signal being passed, including direction of travel, when the authority is verified.

iii) When traveling within the same Controlled Location(s) or Controlled Block(s) multiple times (while working), the occupants are required to verify that they are authorized to enter the limits on the first entry only. They may work within the location moving in both directions an unlimited number of times; however, the authority need only be verified once.

iv) The trailing Track Unit(s) do not need to stop at Controlled Signals unless it reverses direction and becomes the lead unit.

c) When a superseding TOP is issued to a Foreman, the superseding TOP must include the section of track the Foreman is currently occupying. The Track Unit must advise the RTC of their exact location prior to copying the superseding TOP. In addition, the Foreman must ensure that all Employees, Sub-Foremen and Track Units are within the new limits to be granted prior to repeating the superseding TOP to the RTC.

6.2.9 STORING TRACK UNITS/MACHINERY

a) Track units must be protected against all movements or engines and secured against unauthorized or unintentional movement.

b) If leaving a Track Unit unattended on track, it must be protected by a form of positive protection.

i) On main track with a TOP or CROR Rule 842 with a Prescriptive Routing Arrangement.
ii) On non-main track, CROR Rule 841 protection when the track unit is being worked on or maintained,
iii) The track unit is engaged in track work, or the unit is being stored and/or left unattended.

c) Track units may be protected by CROR Rule 105(c) when the track unit is powered on, lights are illuminated, and the track unit is being used to travel, perform inspections (e.g., visual, rail flaw, geometry verifications, etc.).

Exceptions: If storing equipment in a track that has been removed from service, the track must have a bulletin or GBO issued and be secured with a private lock. A verification process must be completed to validate the lock is still in place during job briefings.

d) When storing Track Units on track, they must be equipped with an engaged locking pin mechanism and the hydraulic system must be disengaged.

Note: Portable derails must not be used when storing equipment on the Main Track.

e) When storing off-track construction machinery within the rail corridor, it must be defined in a Site-Specific Work Plan (SSWP) and must comply with the requirements outlined in GTTS.

f) In no case shall any machinery parked/stored within the rail corridor obstruct any emergency/maintenance access routes. It must be secured and powered off in a safe position that will not impede the safe movement of trains and/or obstruct any sight lines to critical operational railway infrastructure.

6.2.10 WORKING ON OR AROUND TRACK UNITS

a) In addition to the requirements of Module 5, Section 5.6.2, the following precautions must be taken when working on or around Track Units:

i) All persons operating or riding in Track Units must understand the duties that each person will perform.

ii) Use the three-point contact method when getting on or off a Track Unit.

iii) Use a handrail if so equipped, when getting on, getting off or riding a Track Unit.

iv) Track Units and Equipment must be stopped:

- When entraining a Track Unit and/or Equipment, Employees must face the Track Unit/Equipment and pay particular attention to securely grasping the handrails and firmly positioning one foot on the step/stirrup followed by the other foot.
- When detraining a Track Unit and/or Equipment, Employees must climb down the ladder or steps facing the equipment, and not release the handrail until both feet are firmly planted on the ground.

Exception: Authorized personnel may get on or off a tamper in Work mode.

b) When working near or observing Track Units, the operator and Employees/Workers must ensure that the following is understood:

i) Location of Employee(s) working around and observing the Track Unit

ii) Operator's blind spot(s)

iii) Signal before the Track Unit intends to move.

c) Where duties require Employee(s) to be near a working Track Unit, they must stay outside a 40-foot safe area.

d) Where duties require Employee(s) to be within the 40-foot safe area, the operator and Employee(s) must jointly establish a safe location for the Employee(s) to occupy that must be documented in the Job Briefing.

6.2.11 TRACK UNITS HANDLING EQUIPMENT

Track Unit operators and ground persons handling and/or coupling to equipment (rail cars) must:

a) Be certified in Equipment Air Brake procedures and be so indicated by an endorsement on their CROR Rule card.

b) Ensure Equipment is secure before coupling onto it.

c) Stop fifty (50) feet from the coupling and ensure drawbars are properly aligned. If not aligned, ensure you have three point protection, if practicable, before fouling track to re-align drawbars, open knuckles, etc.

d) Stretch the coupling to make sure it's secure before releasing the hand brake(s).

e) Before entering a main track, perform and document a No. 1A Air Brake Test on all cars before moving the equipment.

f) Perform and document a No. 1A Brake Test. A No. 1A Brake Test must be performed by CROR Rule qualified persons and verify:
   i) The integrity and continuity of the brake pipe throughout the equipment.
   ii) The application and release of each car brake to be tested.
   iii) Air brake application must be verified by a walking inspection.
   iv) Air brake release may be verified by a pull-by or walking inspection.

g) When operating on a main track, all equipment must be connected with air and be governed by IBT and DTS requirements. These functions are performed by use of the automatic braking system.

h) When storing the equipment, apply hand brakes as required by CROR Rule 112.

i) After applying hand brakes, move the equipment slightly (push or pull) to ensure the equipment is secured and will remain so before uncoupling.

6.3 PUSHING EQUIPMENT

a) It is imperative that the moving of equipment is carefully controlled and always protected to avoid serious injury and damage. The following procedures must be followed by Employees when pushing equipment:
   i) Ensure the switch is lined for the route to be used and there is no presence of a conflicting Movement.
   ii) Determine the distance to be traveled.
   iii) Determine if there is sufficient room on the track to hold the cars.
   iv) Confirm that the track will remain inaccessible to other Movements.
   v) Take into consideration the method to be used to control the operation (hand signals, radio), and allow for differences in reaction time.
   vi) In all circumstances, when a pushing move is required, one of the following point protection methods must be utilized:
      - Observing from the ground
      - Riding the point
      - Delegating someone else to observe the point.

6.3.1 FLANGEWAYS, CROSSINGS AND EMERGENT CONDITIONS

When shoving equipment, ensure flangeways and crossings are not contaminated, iced over, etc. In addition, when pushing equipment, be particularly vigilant while operating. Be on the lookout for debris or other items which may be foul or be on the track.

6.3.2 POINT PROTECTION REQUIREMENTS

Note: This may entail walking with or ahead of the Track Unit and Equipment, riding the point, or delegating another Employee to observe the point.

a) Prior to pushing equipment, a Job Briefing must be conducted between the Track Unit operator and the observer, including but not limited to the following:
   - who will be protecting the point
   - how the point will be protected
   - track designation where equipment is being protected
   - communication method(s) by which instructions will be provided.

b) Confirm that a CROR Rules qualified and trained Employee will always remain in position to see the Movement and the remaining track to be used. The Employee must not be involved in any unrelated tasks for the duration of the move.

c) Control the speed to be able to stop within one-half of the range of vision of other Equipment and Track Units.

d) Verify from the Employee that there are no derails, switches, signals, or other conflicting Movements on the portion of the track to be used.

e) Confirm that the Employee can maintain continuous communication with the operator controlling the Track Unit and Equipment in accordance with CROR Rule 123.1

f) Confirm with the Employee when the Equipment starts to move and when it is stopped.

g) Stop at all public, private or farm crossings and protect in accordance with applicable Roadway Grade Crossing instructions.

h) When the Track Unit and Equipment have travelled one-half of the distance required by the last instruction and no further communication is received, the Track Unit and Equipment must stop at once.

i) If the Employee notices the equipment is not moving once advised, they must contact the Track Unit operator and verify if they are still stationary or have stopped. If they are still moving, the Track Unit operator must be directed to stop.

j) Maintain a safe position to continuously observe the move and the remaining track to be used or take a position on the leading car to observe the track to be used.

6.4 RIDING EQUIPMENT

a) When riding equipment, Employees must always:
   i) Advise the operator controlling the Track Unit and Equipment that you are on the Equipment
   ii) Ride the side ladder on the leading end of the Equipment in the direction of travel.
   iii) Continuously maintain three-point contact with a firm grip on the handholds provided.
   iv) Be aware of and protect themselves against sudden movement or slack action.
   v) Look in the direction of travel, continuously monitoring the safety of the Track Unit and Equipment
   vi) Be aware of and be on the lookout for restricted clearances.
   vii) Ride on the side which provides the best escape route (clear of adjacent structures and Equipment if possible).

b) Employees must observe the following restrictions (note that the list below provides examples; it is not exhaustive). Employees must never:
   i) Ride on the roof of Track Units and Equipment.
   ii) Ride the end ladder or end crossover platform, unless required to apply a hand brake (application of hand brake must not be made while Equipment is being pulled or pushed by a Track Unit).

iii) Ride any higher up the side ladder than required.

iv) Ride on the service ladder located in the middle of a tank car.

v) Ride on any rail car while inside any building structure, whether or not restricted clearances exist.

vi) Ride inside a gondola car.

vii) Ride in the end cage of a hopper.

viii) Ride on the deck of a flat car or on the lading of any car.

ix) Use the lading of a loaded flat car as a handhold.
Where a standard flat car is not equipped with extended handholds, and sight lines permit, Employees should ride the side of the nearest car equipped with proper handholds, if available. Otherwise, Employees should walk beside the Movement if it is a short distance.

x) Ride any Track Unit or Equipment while carrying unnecessary items such as flashlights, coffee cups, water bottles, etc.

xi) Ride the end platform with your feet pointing other than towards the inside.

xii) Ride any farther away from the edge of the platform other than is required to maintain a firm footing, and in no case where your feet are positioned over or inside of the rail.

xiii) Ride with one foot in the stirrup and the other up on the tank car frame.

Note: In all cases, crossing over the end platform is prohibited unless the Track Unit and Equipment are stopped and will remain stopped.

c) Employees must only ride on the SIDE of equipment, utilizing the designated foot pedestals and handholds.

6.5 SECURING EQUIPMENT BY APPLYING HAND BRAKES

6.5.1 GENERAL

Note: This procedure details proper body mechanics when applying hand brakes in accordance with CROR Rule 112.

a) Hand brakes should be fully applied with force equal to the normal physical capability of the Employee. Do not overexert or strain your back, legs, arms or shoulders. If a hand brake is difficult to apply, do not force it. Report it to the proper authority and secure the hand brake on a different car.

b) To avoid injury and prevent Employees from being in a dangerous situation, Employees are prohibited from applying or releasing hand brakes, located on the END of rail cars, from a position on the ground. Hand brakes located directly above the brake platform or crossover platform on the end of a rail car must only be operated with the Employee positioned on the brake or crossover platform provided.

   EXCEPTION: Hand brakes located on the side of a rail car, or those on the end of a rail car with no platform directly below the brake wheel, may be operated by an Employee positioned on the ground.

c) Applying Vertical Wheel Hand Brakes
   i) Using the side ladder, climb to the height of the brake platform.
   ii) Step around to the brake platform while maintaining a firm handhold and three (3) points of contact.
   iii) Where applicable, if applying from the ground, ensure ground conditions provide a firm footing.
   iv) Inspect the hand brake components for defects and ensure the chain is not caught on the platform.
   v) Ensure the brake release lever is in the “ON” position.
   vi) Maintaining a firm grip on the grab iron with the left hand, grasp the rim or spoke of the wheel with the right hand.
   vii) Turn the wheel at a steady pace to take up the loose chain slack.

viii) Grasp the spoke at the bottom of the wheel. Then, keeping your back straight, use your leg muscles to complete tightening the chain.

ix) Return to the side ladder, maintaining three points of contact at all times.

x) Descend the side ladder, carefully observing the ground conditions before stepping off the car.

xi) Never step from one crossover platform to the adjacent car platform.

d) Releasing Vertical Wheel Hand Brakes

i) Using the side ladder, climb to the height of the brake platform.

ii) Step around to the brake platform while maintaining a firm handhold and three points of contact.

iii) Where applicable, if released from the ground, ensure ground conditions provide a firm footing.

iv) Inspect the hand brake components for defects.

v) Before placing the brake release lever in the "OFF" position:

- Ensure equipment is coupled safely or secured to avoid unintended movement.
- Ensure your hands, feet, and body are positioned securely, and away from the hand brake wheel and chain.
- Position the brake lever in the "OFF" position.

vi) Place the lever in the "OFF" or "RELEASE" position.

Note: If the lever fails to release the hand brake, grasp the spoke at the top of the wheel and pull back, turning the wheel in a counter-clockwise direction until the chain is slack.

- Return to the side ladder, maintaining three points of contact at all times.
- Descend the side ladder, carefully observing the ground conditions before stepping off the car.

e) Lever Hand Brakes

- Inspect the hand brake components for defects and ensure the chain is not obstructed.
- Ensure the brake release lever is in the "ON" position.

6.5.1.1 FROM THE GROUND

i) Ensure ground conditions provide a firm footing.
ii) Grasp the handle with your hand, bend slightly at the knees.
iii) Take up the slack by lifting repeatedly on the lever either parallel to or facing the car.
iv) Keep your back and left arm straight, bend your knees and straighten again to use your legs to complete the final tightening of the chain.

6.5.1.2 FROM THE LADDER

i) Using the side ladder, climb to a height that positions the hand brake lever between waist and knee.
ii) Maintaining a firm grip on the ladder or grab iron with the right hand, grasp the lever with the left hand.
iii) Lift repeatedly on the lever with your left arm to take up the slack.
iv) Keep your back and left arm straight, bend your knees and use your leg muscles to complete tightening the chain.
v) Descend the side ladder, carefully observing the ground conditions before stepping off the car.

6.5.2 CROSSING BETWEEN COUPLED EQUIPMENT

a) To ensure safety while crossing between coupled equipment, Employees must comply with the following procedure:
   i) Movement must be stopped, and confirmation obtained that the equipment will remain stopped and secured.
   ii) Entrain using side ladder.
   iii) Cross over between cars using end ladder and end crossover platform, firmly gripping handholds.
   iv) Maintain three points of contact on the car at all times while moving from the side ladder to the end platform. Never step from one crossover platform to the adjacent car platform.

b) When crossing over equipment equipped with crossover platforms but without handholds, Employees must ensure the equipment is and will remain secured or, when operating under your control, has stopped and all slack action has ceased before crossing equipment.

i) Ensure firm handhold and secure footing while traversing the end platform.
ii) Be aware of slack action and protect against sudden movement.
iii) Traverse from the end platform to the side ladder again, maintaining three points of contact at all times.
iv) Detrain using a side ladder.
v) If there is no end platform, do not cross between cars. Walk around.

- Never – Step on the operating lever.
- Never – Step between coupler horn and striker casting of the drawbar.
- Never – Step on knuckle or coupler head.

6.5.3 COUPLING AND UNCOUPLING EQUIPMENT

Switching requires the coupling and uncoupling of equipment countless times per day. This procedure identifies the steps Employees must follow in order to mitigate hazards associated with coupling to equipment.

6.5.3.1 PROCEDURE FOR COUPLING

1. Opening knuckles
   i) Before coupling equipment, ensure that at least one knuckle is open. If required to open knuckle:
      - Ensure the knuckle pin is in place
      - Keep feet well clear
   ii) Lift the operating lever to release the knuckle.
   iii) If the knuckle does not open when the operating lever is lifted:
      - Ensure Track Unit and Equipment under your control are secured as per CROR Rule 112
      - If required, a 50-foot separation must be established between the Equipment under your control and the Equipment you are trying to make a joint with.
      - With one foot outside of the rail, lift the operating lever with your left hand, grab the middle of the knuckle with your right hand, and pull the knuckle open.

2. Couple equipment
   i) A speed of 2 mph at the time of coupling should not be exceeded.
   ii) Exception: a speed of 1 mph (slow walking speed) should not be exceeded:
      - When handling passenger equipment
      - When coupling to equipment on other than tangent track
      - When coupling with or to partially loaded cars.
3. Stretching the coupling
      - The coupling must be stretched to ensure it is secure prior to coupling air hoses, attempting to make additional couplings, or pushing equipment.
4. Prevent unintentional movement when coupling. Prior to coupling, ensure Track Unit and Equipment is secure as per CROR Rule 112.
5. Prevent crossed drawbars
      - Ensure at least one knuckle is open (if required, equipment must be separated no less than 50 feet before attempting to open the knuckle by hand)
      - Ensure drawbars are aligned.
      - Use extreme caution when coupling on curves.
6. Coupling exceptions/special handling
   i) If coupling with or to passenger equipment or occupied service equipment:
      - Stop 6 to 12 feet prior to coupling
   ii) If coupling to equipment that is being loaded or unloaded:
      - Notify persons in or around such equipment
      - Ensure all loading and unloading devices are clear and have stopped until the coupling is complete.
7. At end of the track
   i) Unless required for loading or unloading purposes, equipment must be left secured a minimum of 25 feet from the end of the track, stop block, or other device used to indicate the end of the track.

6.5.3.2 PROCEDURE FOR UNCOUPLING

1. Prior to uncoupling, ensure the equipment to be left is secured as per CROR Rule 112.
    - Extra care must be taken when uncoupling from loaded tank cars, as sloshing action may cause unexpected movement.
    - Ensure procedures to prevent "bottling the air" are complied with.
2. Obtain the slack if necessary.
3. Grasp the operating lever firmly and pull up with only as much effort as it takes to release the pin.
    - Extra caution must be taken to prevent injury from a frozen or inoperative lever.
4. Turn head away and keep legs and arms clear from the air hoses to avoid flying debris.
5. While maintaining a firm grip on the operating lever, separate the equipment to complete the uncoupling.

6.5.4 COUPLING AND UNCOUPLING AIR HOSES

a) Employees must comply with the following procedure to ensure air hoses are coupled and, when required, uncoupled safely.

6.5.4.1 COUPLING

- Ensure the Track Unit and equipment under your control are stopped and peer-to-peer communication is maintained with the Track Unit operator.
- Stand with your back to the angle cock with one foot outside of the rail.
- Crouching down, grasp the end of the closest air hose with your left hand, and the middle of the hose with your right hand.
- Pull up on the hose creating a "kink", then change grip on the end to the right hand.
- With the left hand, reach over and grasp the far air hose.
- Bring the "gladhands" together at a right angle.
- With a downward snap, lock air hoses together.
- Ensure angle cock on the opposite of the coupling side is open.

- Stand facing the angle cock, and with left leg lightly touching the air hose, gradually open the angle cock.

Note: An angle cock on the far side of the car must not be opened from the near side.

6.5.4.2 UNCOUPLING

Note: Uncoupling an air hose should only be required if the trainline is charged, and the cars will not be separated (e.g., to change a gasket). If cars are to be separated, ensure procedures to prevent "bottling the air" are complied with.

- Ensure Track Unit and Equipment under your control are stopped and peer-to-peer communication is maintained with the Track Unit operator.

- Close both angle cocks.

Note 1: An angle cock on the far side of the car must not be opened from the near side.

- Stand with your back to the angle cock on your side of the car.
- Crouching down, firmly grasp the centre of the two gladhands with both hands and pull upward on the gladhands.

Note 2: If equipped with a modified gladhand, the lock tab pawl must be compressed before rotating the hoses apart.

- Keep your face turned away to avoid flying debris from the charged air hose.

6.5.5 ALIGNING DRAWBARS

a) To safely align a drawbar, Employees must comply with the following procedure.

- Ensure the Track Unit and Equipment under your control are stopped and peer-to-peer communication is maintained with the Track Unit operator.
- Ensure cars are separated by at least 50 feet.
- If the car is so equipped, ensure the drawbar reset/release lever will allow the drawbar to move.

b) Manual Alignment

- Separate cars by at least 50 feet.
- Before applying force on drawbar, ensure that no car movement can occur due to situations such as slack action, air brakes, etc.
- Position yourself with your back leaning up against the knuckle, with both feet positioned inside the rail, using a staggered stance with feet shoulder-width apart.
- Keep back straight.
- Bend knees.
- Place hands under knuckle.
- From a semi-squatting position, use leg muscles to adjust drawbar, but first test the resistance of the drawbar by moving it slightly, as each may move differently, then continue adjusting.

- If long drawbars are slung over preventing both feet from being positioned inside the rail, carefully move drawbar over enough using the same body mechanics noted above, with one foot positioned outside the rail, adjusting drawbar slightly until able to reposition both feet inside the rail.

Note: Having both feet inside the rail will allow for better stability.

- Keep head up, back straight and push with legs using a staggered stance with feet shoulder-width apart.
- Apply force in a slow, consistent manner without jerking.
- Be aware of footing and any tripping hazards.
- Do not apply excessive force; if the drawbar cannot be moved easily, seek assistance.

6.6 TRACK UNITS HANDLING TOOL/MATERIAL TRAILERS OR ATTACHMENTS

Track Unit operators handling tool/material trailers or attachments must:

a) Only use Track Units designed and approved by the manufacturer for that purpose.

b) Only use trailers or attachments designed and approved by the manufacturer for that purpose.

c) Verify that the Track Unit's towing capacity is known and not exceeded.

d) Ensure an independent braking system is present on the trailer or attachment and that a brake inspection on the towing Track Unit and the trailer is performed prior to each use. These inspections must be documented and retained.

e) Do Not use the trailer or attachment on track if the braking system is defective.

f) Ensure that while towing, the trailer or attachment is securely attached with a rigid coupling to the Track Unit towing them using a locking pin system to prevent trailers from accidentally becoming detached and rolling away.

g) The maximum brake system operating pressure of the towing vehicle must be:
   i) Within the operating pressure range of the trailer or attachment to be towed.
   ii) No greater than the maximum allowable operating pressure of the trailer or attachment to be towed.

07

HANDLING SWITCHES AND PORTABLE DERAILS

TABLE OF CONTENTS – MODULE 7

7 HANDLING SWITCHES - PORTABLE DERAILS – SIGNAL STANDS

7.1 HANDLING SWITCHES

a) When using hand operated (CROR Rule 104) or dual control switches (CROR Rule 104.2) peer-to-peer communication must take place. The Employee handling the switch must be qualified in CROR and communicate the following via radio to the Foreman, operator or persons required to use the switch:

   i) Location of the switch and its number, if applicable

   ii) The route the switch is lined for

   iii) Confirmation when dual control switches are back on power and locked.

b) When a Switch is clamped and/or spiked, notification/communication must be given to the NOC on the non-main track and RTC on the main track.

Note: Within the USRC, power operated switches will follow switch cranking procedures as established in TTR protocols when manual operation is required.

7.2 SAFE OPERATION OF HAND OPERATED SWITCHES

Upon approaching the switch, a general visual inspection of the components must be completed to ensure there are no obstructions that could negatively impact switch operation.

Some examples of obstructions are:

- Leaked piles of lading, such as sand or grains on the point or around the switch rod
- Excessive snow build-up that requires cleaning
- Build-up of snow or ice underneath the handle of a semi-automatic switch
- Large chunks of ice, which may have fallen off rolling stock onto the points or switch rods.

If obvious obstructions such as these are observed, the affected switch components must be cleaned before throwing the switch. When cleaning a switch, every effort must be made to not place any body parts inside any pinch points of the switch.

a) LOW SWITCH STAND

i) Switches equipped with a foot latch must have a keeper or lock in place when the switch is not being lined. Before lining, remove the keeper or lock, and depress the foot latch to release the handle.

ii) Directly align yourself with the ball or handle of the switch stand lever and grasp the handle with both hands.

iii) Keeping your knees bent, back straight, and your body close to the lever to minimize reaching distance, lift the handle to the top position.

iv) Reposition your feet shoulder-width apart, and using slow, smooth movement, move the lever to the other side of the switch stand.

v) Once again reposition your feet, keeping your back straight, and push the lever down to the final position.

vi) Never jerk the switch stand lever or use your feet to operate the switch.
vii) Avoid twisting at the waist when operating the lever.

Note: On low switch stands equipped with a ball-type handle, a foot may be used to set the handle for the remaining six (6) inches of travel if:

- The ball of the handle is not wet
- The ball of the handle is not covered with ice or snow
- The ball of the handle is not contaminated with grease or oil
- The other foot has a firm footing.

After the switch has been lined, ensure the latch engages properly, and insert the keeper or lock to secure the latch.

b) HIGH-SWITCH STAND

i) Remove the switch lock or keeper. With knees bent and back straight, lift the handle out of the retaining notch, keeping your body clear of possible switch handle recoil.

ii) Use one hand to lift the handle out of the cradle, keeping your body clear of the handle in case of spring recoil.

iii) Reposition your feet to a point where they are firmly planted.

iv) Grasp the lever with two hands, and with secure footing, lean backwards, allowing your body weight to assist in pulling the handle across the top plate in a smooth motion.

v) As the handle reaches the opposite side, with a downward force, guide the handle into the opposite retaining notch.

vi) Reposition your feet so your body is directly over the switch handle.

vii) Complete setting the switch by pushing down on the handle until it is fully inserted into the retaining notch. Insert lock or keeper.

c) ERGONOMIC SWITCH

i) Directly align yourself with the handle of the switch and grasp the handle with both hands.
ii) Keeping your knees bent, back straight, and your body close to the handle to minimize reaching distance, start to turn the handle.
iii) Reposition your feet as required, and using smooth movements, move the handle to the other side of the switch stand.
iv) On ergonomic switches equipped with a locking mechanism, Employees must ensure the locking mechanism is engaged after the switch has been thrown.

v) Never jerk the switch handle.

vi) Avoid twisting at the waist when operating the handle. Never use your feet to operate any part of the switch handle.

7.3 APPLICATION OF PORTABLE DERAILS

a) When using portable derails on Metrolinx property, they must be capable of being installed on steel, wood, and concrete ties. All efforts should be made to use bi-directional derails when available.

Examples include but are not limited to the Western Cullen-Hayes Inc. model LPTSX.

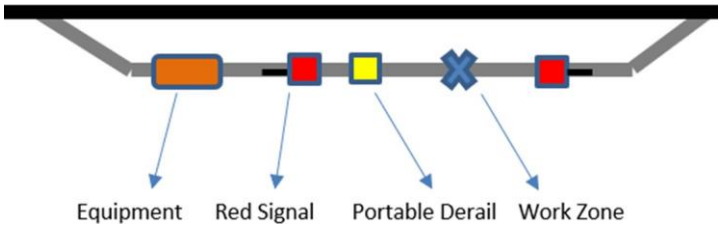
In conjunction with working under CROR Rule 841, the Foreman must have a clear understanding that CROR Rule 841 protection has been approved and stipulated in the workplan details.

The appropriate authority must be notified prior to erecting CROR Rule 841 protection and documented in writing using the prescribed forms. The use of portable derail(s) must also be outlined in the Work Plan and communicated to the appropriate authority.

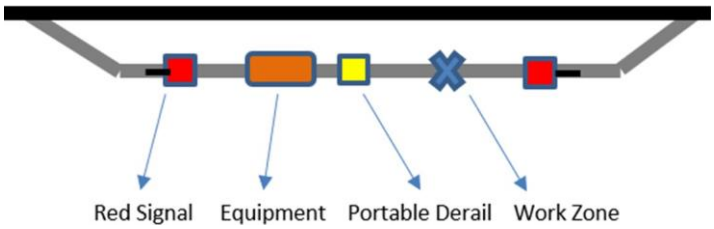
When using portable derails, all manufacturer's specifications regarding installation, removal, and maintenance must be followed.

b) Portable derails must be used when:

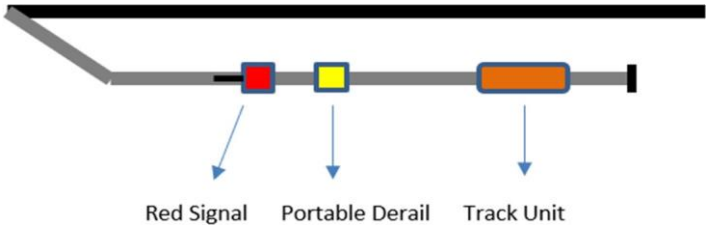
i) CROR Rule 841 protection cannot be taken on the entire track and there is a concern about unsecured equipment (other than stored GO train consists as identified in Module 3, Section 3.7.2 (n)) **outside** the CROR Rule 841 limits. In this case, the portable derail must be placed within your protection (Red signals) in an orientation that will derail the equipment if it were to roll away, toward your work location.



ii) There is a concern about unsecured equipment (other than stored GO train consists as identified in Module 3, Section 3.7.2 (n)) **inside** the CROR Rule 841 limits.



iii) Track Unit(s) are to be stored, and a portable derail applied.



7.4 PORTABLE DERAIL REQUIREMENTS

Note: Portable derails must not be used on main track.

a) All portable derails must have a serial number and be controlled and accounted for by the user group at all times. Any loss or theft must be reported to the NOC immediately. When in use, derails must be tagged with the following information:

i) Protecting Foreman's company name

ii) Protecting Foreman's contact information (cell phone number)

iii) Name of the protecting Foreman's direct supervisors

iv) Direct supervisors' contact information (cell phone numbers).

b) Portable derails are to be installed 100 yards (if possible) on each side of the work location within the limits of the Red signal if there is parked equipment on the same track as your limits. Portable derails should only be used on tracks where speeds do not exceed 20 mph.

Consider the following in selecting the orientation of the derail:

i) Materials and Equipment – select the derail orientation and place the derail so that a derailed car moves away from any stored material or equipment.

ii) Adjacent Live Track – select the derail orientation and place the derail so that a derailed car moves away from the adjacent live track.

iii) Surrounding Terrain – select the derail orientation and place the derail so that a derailed car moves away from any waterways, highways, roadways, non-Metrolinx property, or sensitive/restricted areas.

7.5 HAND-OPERATED DERAILS

PURPOSE:

Derails are installed to protect against unintended movement of equipment. They must be secured in the derailing position whenever the track on which they are installed is not in use. This procedure identifies steps to follow to ensure derails are handled safely.

PROCEDURE:

1. Determine whether track to be used has a derail. This will be identified by:

a) a derail sign adjacent to the derail, and/or

b) special instructions (e.g. bulletin, Timetable footnote, yard manual).

2. Look in both directions to ensure no rolling stock is approaching prior to operating a derail.

3. Ensure derail is clear of debris and will not interfere with equipment passing over it or ensuring the points are closed when handling a switch point derail.

4. Set the derail in non-derailing position: unlock and remove switch lock.

a) When operating flop type derails:

- lift derail away from body / feet

- bend knees, keep back straight
- use leg muscles to lift derail
- keep feet clear
- carefully drop derail between the rails.

b) When operating switch stand derails (split point, slide type):

- Firmly grip the end of the derail switch handle with both hands
- Align derail exerting a steady pull until derail is in place
- Never jerk, push, or kick when attempting to move the handle
- Inspect point (if applicable), insert lock or keeper

5. Place derail back in derailing position by:
   - Ensuring rail (on which derail will rest) is clear of debris or obstructions.
   - Ensuring your hands, feet, and body are clear of derail rotation path.
   - Looking in both directions to ensure that no equipment will interfere.
   - Placing the derail in the derailing position using the leg muscles to do the lifting, while ensuring knees are bent and back is straight.

6. When all work on a track equipped with a derail has been completed, immediately after the last piece of equipment has cleared the derail, such derail must be placed in the derailing position and locked.
7. If the derail is defective or cannot be locked, equipment must not be left on that track unless alternative means of securing the equipment (chaining cars, etc.) has been made and is in place.

   Such conditions must be reported to the proper authority prior to leaving the location.

7.6 SECURING SIGNAL STANDS

Signal stands are for directional use only. Bending of signals is prohibited. When securing the signal stand, use a 1/4-inch nut and bolt, then tighten to a torque that will ensure the signal stand is adequately secured.

7.7 EXTENDABLE SIGNAL STANDS

In the event that two (2) signals need to be placed at the same location, in the same direction, an extendable signal stand must be used. When using an extendable signal stand, if a regular signal stand is already attached to the rail, the extendable stand should be installed to the rail base in the next available crib (between ties).

After removing CROR Rules 42/842 and 43/843 signals, the extendable signal stand must be retracted back to its original position and secured with a 1/4-inch nut and bolt, then tightened to a torque that will ensure the signal stand is adequately secured.

08

ROADWAY GRADE CROSSINGS

TABLE OF CONTENTS – MODULE 8

8 ROADWAY GRADE CROSSINGS

8.1 MALFUNCTION OF AN AUTOMATIC WARNING DEVICE

a) When an Automatic Warning Device (AWD) at a Roadway Grade Crossing has malfunctioned and the Rail Traffic Controller (RTC) has been advised, a qualified person must arrange and/or provide appropriate means of protecting the safety of vehicle and railway traffic at that crossing until the crossing has been restored. This may include:

   i) Operating crew of a Movement providing manual protection

   ii) A qualified Employee providing manual protection

   iii) A uniformed police officer providing manual protection for roadway traffic. This must be in conjunction with operating crews or qualified Employees providing manual protection for railway traffic.

b) In addition to protecting Movements over the crossing, Employees/Workers performing tasks at or near the crossing may require a lookout person to warn them of approaching roadway traffic.

8.2 WORKING IN THE VICINITY OF ROADWAY GRADE CROSSINGS

a) When carrying out work in the vicinity of a Roadway Grade Crossing, manual or positive protection must be provided when:

   i) Any work is to be carried out that may cause an obstruction of sight lines at a Roadway Grade Crossing not equipped with an automatic warning system when there is the possibility of an approaching Movement.

   ii) The crossing warning system, which includes either the warning lights with or without gates, Advance Warning Device, interconnected roadway traffic signals, or prepared-to-stop signs, is unable to operate properly due to scheduled construction/maintenance work within the rail/road approach to the crossing when there is the possibility of an approaching Movement.

   iii) A Track Unit(s) is close enough to the crossing to obstruct the motorist's view of approaching Movements or is continuously activating the warning system.

   iv) Test of a Roadway Grade Crossing warning system causes the operation of the light units or gate arms at the same time that a Movement may enter the operating control circuits of the warning system.

v) Road traffic is required to pass an Employee, Construction/Maintenance Equipment, or other obstruction(s) that may block all or part of the traveled roadway.

vi) Movements are anticipated, and the presence of Track Units or Construction/Maintenance Equipment could lead to confusion for highway users.

b) If road traffic will be diverted and a Traffic Control Person is required, the protection must be provided by a trained Traffic Control Person in accordance with Ontario Traffic Manual, Book 7, and a Traffic Management Plan (TMP) must be submitted with the Work Plan.

Exception: For any emergency work or regulatory testing at a Roadway Grade Crossing, the above Traffic Management Plan is not required.

8.3 TRAFFIC CONTROL FOR PLANNED WORK

Before undertaking work, which will require the regulation of traffic over a Roadway Grade Crossing for an extended period of time or which will require lane closures, the road authority must be notified well in advance and:

a) A written Traffic Management Plan must be prepared in accordance with Ontario Traffic Manual, Book 7.

b) A mutually agreed means of protection (between the road authority and the railway) in accordance with the Traffic Management Plan must be provided.

The Foreman or other Person In Charge of the planned work must:

i) Be governed by instructions from the road authority, ensuring the traffic protection procedures to be followed for such work conforms to the applicable provincial or road authority requirements.

ii) Ensure that all protective devices, as determined above, are in place prior to starting work.

iii) Determine who will perform the duties of the Traffic Control Persons.

iv) Ensure detailed instructions and Job Briefing(s) are provided to persons performing Traffic Control duties.

v) Notify Signals and Communications of work to be done at the crossing and arrange for the Signal Maintainer or other authorized and qualified person to isolate/deactivate/reactivate AWD, if applicable.

vi) Positive protection must be in place on the track(s) affected before isolating, shunting, or deactivating the AWD and prior to authorizing a movement over the Roadway Grade Crossing.

vii) A Roadway Grade Crossing must be deactivated under positive protection and documented on the applicable authority. Positive protection must remain in effect until the Roadway Grade Crossing is reactivated and the AWDs have been confirmed to be operating as intended.

viii) At least one Traffic Control Person must be available for each direction of traffic being protected. If the Roadway Grade Crossing is equipped with pedestrian access, additional Traffic Control Personnel may be required.

ix) Prior to authorizing a Movement through the authority limits, the Foreman named in authority must receive confirmation that all Traffic Control Persons are in a position to stop traffic and that the Roadway Grade Crossing is protected.

x) If more than one Roadway Grade Crossing is impacted as part of the planned work, only one crossing may operate under this instruction; other crossings must be temporarily closed to traffic for the entire duration of the planned work.

8.4 MANUAL PROTECTION AT ROADWAY GRADE CROSSINGS

a) These practices are intended to ensure that there are acceptable procedures and instructions in place to permit railway employees to safely perform manual protection at grade crossings when:

   i) The uncontrolled movements of traffic could be hazardous to workers;

   ii) Work is being performed at or near a grade crossing:

   iii) Automatic Warning Devices (AWD) are not working as intended; or

   iv) Signal lights, gates, and other protective devices are broken or damaged.

b) Except as otherwise noted, this document is intended to apply to manual protection performed by contractors working on behalf of Metrolinx or other authorized and qualified persons.

8.4.1 GENERAL

a) Manual protection of grade crossings should be carried out in a manner that provides roadway users with a message consistent with that which they encounter for other roadway flagging situations.

   i) A stop signal issued to roadway users must first be provided from a position of safety until that signal is recognized, acknowledged, and applied by the applicable roadway users.

b) Clear instructions must be in place between railway and roadway employees when both are involved in a manual protection plan.

c) Vehicles should not be left in a location that could interfere with the view of grade crossing warning systems or the qualified person(s) providing manual protection.

d) Unnecessarily prolonged activation of railway crossing warning systems must be avoided.

8.4.2 DTMF OPERATION

DTMF activates and deactivates a crossing with a key-entered code via a railroad radio. This method must be used when traversing the crossing and can be completed safely in less than 3 minutes.

If it takes longer than 3 minutes, the track unit shunting method, or the knife switch method must be used. The crossing will activate by entering the crossing-specific code from the list identified in Section 8.4.5.

The crossing will then recover in one of three (3) ways:

i) By entering the de-activation DTMF code from the list identified in Section 8.4.5 (preferred method), or

ii) The island track circuit drops and picks back up. (Note: Not all crossings have this option), or,

iii) The DTMF times out after three (3) minutes Must consider:

- Not every crossing has DTMF operation.
- If DTMF is not working at a crossing, you must use the knife switch method
- If DTMF is not working and **is in** the timetable, report it to the RTC and ensure protection is in place
- If DTMF is not working and is **not in** the timetable, advise the Metrolinx Fault Controller that the maintenance DTMF code is not working. The Metrolinx Fault Controller will dispatch a maintenance employee to troubleshoot the DTMF functionality. Protection on the crossing is not required in this circumstance.

8.4.2.1 STEP BY STEP OPERATION

i) When safely stopped within 100 ft from the paved portion of the grade crossing

ii) Locate the applicable crossing and appropriate code to be DTMF in Section 8.4.5.

iii) Be on the appropriate VHF radio channel.

iv) While holding down the PTT (mic) on the radio, enter the applicable code as depicted within Section 8.4.5.

v) Crossing will activate. If the crossing does not activate, refer to Section 8.4.2 to determine if additional protection is required for the crossing, track unit shunting method, or the use knife switch must be utilized before occupying the crossing limits

vi) Once the AWD has been in operation for 20 seconds and the gates are horizontal, the track unit(s) may proceed.

vii) When all track units have cleared the crossing and off the island track (100 ft beyond the paved portion of the roadway) the DTMF de-activation code must be entered to turn off the crossing protection.

viii) Verify that crossing protection has recovered before leaving the location of the crossing.

ix) If steps vi) and vii) are forgotten, the crossing will recover on its own after about 3 minutes when the DTMF times out. If the crossing does not recover, it must be reported to the RTC and NOC and protected accordingly.

8.4.3 CROSSING KNIFE SWITCH

The purpose of this instruction is to outline the proper use of a knife switch or the DTMF operation, if available, to allow Track Units, Work Equipment, and personnel to traverse at grade crossings on Metrolinx territory safely.

Note: If performing Signal work on multi-track territory, two signal maintainers must be used.

KNIFE SWITCHES

Crossing Knife switches are located on the main bungalow of every Metrolinx-owned crossing warning system. They are in a locked box and must remain locked when not in use.

An Abloy Lock and spinning wing nut need to be removed to open the box.

To safely operate the knife switch, Open the box using CAUTION to avoid putting your fingers on any parts inside the box besides the plastic handle provided (shown below). There is a risk of electrocution or electrical shock (12v DC).

Before operating the knife switch, be sure to check that vehicle traffic is safe stopping distance away from the crossing.

The knife switch has three positions:

i) "Down" is the "Closed" or "Off" position that the switch will be found in and must be returned to stop the crossing from activating. It also must be in this position to be able to close and lock the door when complete.

ii) Straight out at 90 Degrees is the "Operating" position which will activate the crossing. In this position, the gates will come down, lights will flash, and the bell will ring. If it remains in this position, the crossing is considered activated. This is the position to be used by Track Forces to allow Track Units and Work Equipment to traverse the crossing safely.

iii) "Up" position is referred to as the "Emergency" position. In this position, the gates will either not come down or, if they are already down, they will immediately lift. However, the lights and bells will continue to operate. To traverse the crossing, this position **must not** be used unless positive protection is held on all tracks.

- After all Track Units and Work Equipment have safely passed through the crossing, return the knife switch to the "Down/Off" position.
- Sign the logbook found in the knife box, fill in all the boxes with the appropriate required information, and return the book before closing the door and locking the box again.

Note: When signing this logbook, you are indicating that the lights, bells, and gates were all operational at the time of the activation.

If there were any issues, the RTC must be notified. Comments in the logbook must indicate the nature of the issue and that the RTC has been advised.

8.4.4 RADIO ACTIVATED CROSSINGS

Crossings requiring activation by radio will be governed by the following:

i) Select the standby channel and press the push-to-talk button while dialing *(number shown for crossing)# with the DTMF touch-tone pad to activate the warning devices before occupying crossing. CROR Rule 103.1 (d) is applicable.

ii) Should the move not commence within 3 minutes, or it is desired to deactivate the warning devices, select stand by channel and press the push to talk button while dialing *(number shown for crossing)#.

iii) In an effort to alleviate confusion by the public and possible damage should the barriers begin to rise and then lower before completing the cycle. Employees MUST NOT reactivate the crossing protection by use of the DTMF code until the crossing protection for the initial move has completely stopped. (Barriers raised in a vertical position and warning lights extinguished).

8.4.5 TABLE OF CODES

1. Bala Sub:

MILEAGE	CROSSING NAME	DTMF ON	DTMF OFF	CHANNEL
4.43	Pottery Rd.	0044311#	0044310#	CN3
4.91	Beechwood Dr.	0049111#	0049110#	CN3

2. Canpa Spur:

MILEAGE	CROSSING NAME	DTMF ON	DTMF OFF	CHANNEL
1.56	Evans Ave.	0015611#	0015610#	CN3
2.21	Horner Ave.	0022111#	0022110#	CN3

3. Guelph Sub: No DTMF capabilities on this sub

4. Kingston Sub:

MILEAGE	CROSSING NAME	DTMF ON	DTMF OFF	CHANNEL
321.97	Scarborough Golf Club Rd.	N/A	N/A	
320.95	Galloway Rd	32095511#	3209510#	CN3
320.65	Popular Rd.	N/A	N/A	
320.41	Morningside Ave	N/A	N/A	
319.90	Manse Rd	N/A	N/A	

MILEAGE	CROSSING NAME	DTMF ON	DTMF OFF	CHANNEL
318.88	Beechgrove Dr.	N/A	N/A	
317.22	Chesterton Shores	3172211#	3172210#	CN3
315.95	Rodd Ave.	N/A	N/A	

5. Newmarket Sub:

MILEAGE	CROSSING NAME	DTMF ON	DTMF OFF	CHANNEL
4.19	Wallace Ave	N/A	N/A	
6.89	Castlefield Ave.	0062911#	0068910#	CN3
10.50	Carl Hall Rd	N/A	N/A	
11.90	TTC Busway	N/A	N/A	
14.82	Rivermede Rd	0148231#	0148230#	CN3
15.50	Langstaff Rd	0155531#	0155530#	CN3
18.49	McNaughton Rd	0184911#	0184910#	CN3
19.40	Teston Side Rd	N/A	N/A	
20.67	Kirby Rd	N/A	N/A	
21.99	King-Vaughan Townline	N/A	N/A	
22.73	Station Rd	0227311#	0227310#	CN3
24.60	Dufferin St	N/A	N/A	
26.10	Bloomington Rd	N/A	N/A	
29.17	Englehard Dr	0291731#	0291730#	CN3
29.99	Wellington St E	0299911#	0299910#	CN3
30.04	Centre St	0299911#	0299910#	CN3
31.28	St. John's Side Rd	0312811#	0312810#	CN3
32.75	Mulock Dr	0327511#	0327510#	CN3
33.55	Water St	N/A	N/A	
33.64	Timothy St	N/A	N/A	
34.16	Davis Dr	0341611#	0341610#	CN3
34.89	Newmarket Ped. Xing	N/A	N/A	
35.61	Green Lane E	*356111#	*356110#	CN3
37.65	Chapman St	N/A	N/A	
37.71	Old Yonge St	N/A	N/A	
38.43	Bradford St	N/A	N/A	
39.33	Oriole Dr	N/A	N/A	
39.66	Bathurst St	N/A	N/A	
40.93	Toll Rd	0409311#	0409310#	CN3
41.39	Given Rd	0413911#	0413910#	CN3
41.49	Bradford South Ped. Xing	0413911#	0413910#	CN3
41.56	Bradford North Ped. Xing	N/A	N/A	
41.96	Private Rd	0419611#	0419610#	CN3
42.26	Industrial Rd	0422611#	0422610#	CN3
43.37	9th Line	N/A	N/A	

MILEAGE	CROSSING NAME	DTMF ON	DTMF OFF	CHANNEL
44.34	10th Line	N/A	N/A	
45.37	11th Line	N/A	N/A	
46.29	12th Line	N/A	N/A	
47.21	13th Line	N/A	N/A	
49.05	Gilford Rd	0490511#	0490510 #	CN3
49.24	1st Line	0492411#	0492410 #	CN3
50.12	2nd Line	N/A	N/A	
50.99	3rd Line	N/A	N/A	
51.89	Killarney Beach Rd	0518911#	0518910 #	CN3
52.82	Belle Aire Beach Rd	N/A	N/A	
54.56	7th Line	0545611#	0545610 #	CN3
55.55	Innisfil Beach Rd	0555511#	0555510 #	CN3

MILEAGE	CROSSING NAME	DTMF ON	DTMF OFF	CHANNEL
56.59	9th Line	0565911#	0565910#	CN3
57.49	Victoria St E	N/A	N/A	
58.47	Lockhard Rd	0584711#	0584710#	CN3
59.29	Mapleview Dr E	0592911#	0592910#	CN3
61.34	Little Ave	0613410#	0613411#	CN3
62.03	Minet's Point Rd	0620310#	0620311#	CN3

6. Oakville Sub:

MILEAGE	CROSSING NAME	DTMF ON	DTMF OFF	CHANNEL
10.59	Haig Blvd.	0105931#	0105930#	CN1
10.85	Ogden Ave.	0108531#	0108530#	CN1
11.03	Alexandra Ave.	0110331#	0110330#	CN1
12.02	Revus Ave.	0120231#	0120230#	CN1
13.11	Stavebank Rd.	0131111#	0131110#	CN8
15.06	Lorne Park Rd.	0150631#	0150630#	CN1
16.09	Clarkson Rd.	0160931#	0160930#	CN1
20.56	Chartwell Rd.	0205631#	0205630#	CN1
21.97	Kerr St.	0219731#	0219730#	CN1
23.13	Fourth Line	0231331#	0231330#	CN1
26.96	Burloak Dr.	N/A	N/A	

7. Uxbridge Sub:

MILEAGE	CROSSING NAME	DTMF ON	DTMF OFF	CHANNEL
38.93	10th Line	389311#	389310#	CN3
38.95	Bethesda Rd	389311#	389310#	CN3
40.30	Millard St	0403011#	0403010#	CN3
40.72	Main St. Stouffville	407211#	0407210#	CN3

MILEAGE	CROSSING NAME	DTMF ON	DTMF OFF	CHANNEL
41.17	Hoover Park Dr	0411711#	0411710#	CN3
41.73	Reeves Way Blvd	0417311#	0417310#	CN3
42.04	19th Ave	N/A	N/A	
42.35	9th Concession Rd	0423511#	0423510#	CN3
43.46	18th Ave/Elgin Mills	N/A	N/A	
44.96	17th Ave/ Major Mackenzie	0449611#	0449610#	CN3
45.47	Castlemore Ave	0454711#	0449610#	CN3
45.74	Bur-Oak Rd	*0457411#	*0457410#	CN3
46.31	16th Ave	0463111#	0463110#	CN3
46.95	Main St. Markham	0459511#	0459510#	CN3
47.17	Snider Dr	0471711#	0471710#	CN3
48.38	McCowan Rd	0483811#	0483810#	CN3
49.42	Kennedy Rd N	0494211#	0494210#	CN3
49.78	Main St. Unionville	N/A	N/A	
49.94	Eureka St	N/A	N/A	
50.13	Hwy 7	0501311#	0501310#	CN3
51.98	Denison St	0519811#	0519810#	CN3
52.40	Kennedy Rd S	0524011#	0524010#	CN3
53.16	Passmore Ave	0531611#	0531610#	CN3
53.61	McNicoll Ave	0536111#	0536110#	CN3

MILEAGE	CROSSING NAME	DTMF ON	DTMF OFF	CHANNEL
54.41	Finch Ave	0544111#	0544110#	CN3
54.88	Huntingwood Dr	0548811#	0548810#	CN3
55.16	Havendale Rd	N/A	N/A	
55.44	Marilyn Ave. Ped. Xing	N/A	N/A	
56.72	Progress Ave	0567211#	0567210#	CN3
59.96	Corvette Ave. Ped. Xing	N/A	N/A	
60.18	Danforth Rd	0601811#	06018103	CN3

8. Weston Sub:

MILEAGE	CROSSING NAME	DTMF ON	DTMF OFF	CHANNEL
15.28	Scarboro St.	0152831#	0152030#	CN1

09

WORK SITE MARKER BOARDS

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9 WORK SITE MARKER BOARDS

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10

OVERHEAD LINE EQUIPMENT

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10 OVERHEAD LINE EQUIPMENT

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11

OPERATING SIGNS

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11 OPERATING SIGNS

11.1 OPERATING SIGNS - GENERAL

a) Where used, the field operating signs described herein indicate a condition or action requiring compliance by operating and/or engineering crews in the performance of their duties.

b) Signs that provide information or convey common knowledge indication, e.g., STOP signs, may be utilized in addition to the signs identified herein.

c) In multi-track territory, sign(s) should be placed outside the tracks they govern. In single tracks, sign(s) may be placed on either side of the track they govern.

d) When the Main Track method of control change occurs or begins, the boundary point should be indicated only by a sign indicating the new method of control that will begin. Where Main Track ends, it should be identified with a Main Track Ends sign.

e) A universal Advance sign should be utilized on Main Track to indicate one (1) mile to a station, a change of method of control, or an interlocking, except where the distance between such requirements is less than one (1) mile.

    i) **Stations in CTC:** the Advance sign should be placed one (1) mile in advance of the first controlled signal to be encountered for that station.

Note: Other Field signs that may require compliance by operating crews and that are specific to such work deployed by engineering groups may be displayed and can be referenced in the Metrolinx GTS plans.

11.2 OPERATING SIGNS

Additional sign detail, technical specifications, and installation practices must be in accordance with Metrolinx GTS plans.

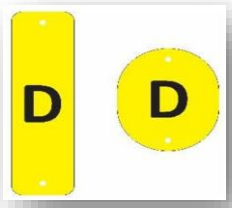
a) Whistle Post – Posted ¼ mile from crossings and other locations indicated in special instructions that require CROR Rule 14 l) application.

b) Whistle Prohibited – Posted ¼ mile from crossings that are exempt from rule 14 l) applicable as per rule 14 l) iv) per CROR Rule 14 l) iv).

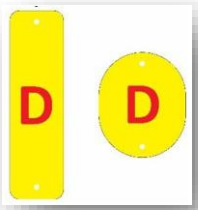
c) Crossing Circuit – Indicates the beginning of the track circuit of a crossing.

d) Restricted Clearance – Indicates that a restricted clearance is located at or beyond this point.

e) Derail – Placed at the location of derails.

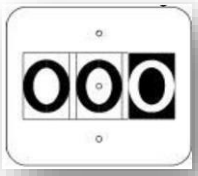


f) Special Derail – Placed at the location of Special Derails.

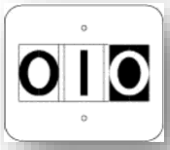


g) Subdivision Mileage – Posted along a subdivision to indicate the location.

h) Measured Mile Begins – The first point of a precisely measured mile. Used to verify distance-measuring equipment.



i) Measured Mile Ends – The last point of a precisely measured mile. Used to verify distance-measuring equipment.



j) CTC Control Begins – Indicates the location where CTC begins as specified in the time table.

k) Cars Prohibited Beyond This Point – Special Instructions may allow for cars to move but not to be left beyond this point.

l) Locomotives Prohibited Beyond This Point – Locomotives are not permitted to operate past this sign.

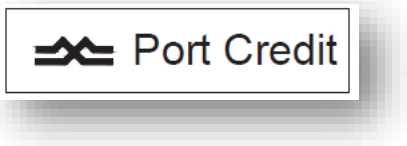
m) Block Begins (not identified by signal) – Indicates the location of the beginning of a block. When used at a hand operated switch, this sign indicates the clearance point.

n) Block Ends (not identified by signal) – Indicates the location of the end of a block. When used at a hand operated switch, this sign indicates the clearance point.

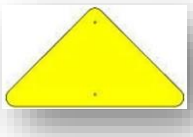
o) Main Track Ends – Indicates the end of the main track.

p) Wayside Inspection System (WIS) 1 mile. – Placed 1 mile from every WIS site as indicated in the timetable.

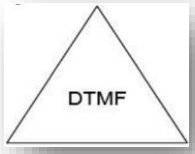
q) Station Name



r) Advance Sign One Mile to. Placed 1 mile before:
- Station (may indicate name)
- Interlocking (may indicate name)
- Method of Control Change
- Control location



s) Advance Sign to a DTMF Dual Control Switch – DTMF activated dual control switch is located within two miles of this sign.



t) Rail Break – Placed next to the location of a broken rail by engineering.

u) Advance Sign One Mile to Special Zone for trains identified as Key Train / Higher Risk Key Train or Special Dangerous Commodities.

These signs will be located one (1) mile before the beginning of a Key Train / Higher Risk Key Train zone or one (1) mile before the beginning of a Special Dangerous Commodities zone. In a location where the two zones do not begin at the same mileage, one sign will be erected for each zone.

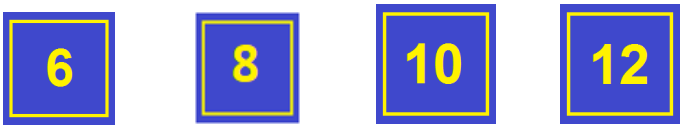
When entering these zones within the mileages stated in the timetable, these signs may not be displayed.

v) Locomotive Spotting Markers

2 - MP40 1 - MP40 2 – F59 1- F59

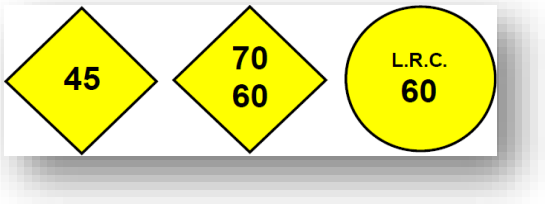
w) Coach Spotting Markers

6 Coach 8 Coach 10 Coach 12 Coach



11.3 ZONE SPEED SIGNS

Zone Speed signs should be placed at the beginning of speed zones to indicate the maximum allowable speed within the limits of the zone identified in the timetable. Movements may operate at zone speed unless otherwise restricted, e.g., GBO, speed-restricted equipment. These signs do not provide governance for engineering Track Units as Track Unit Speed is applicable.



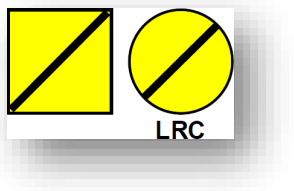
Exceptions

a) When there is a reduction in speed from the previous zone, the Zone Speed sign should be placed nine thousand (9,000) feet (1.7 miles) in advance of the speed restriction point. The speed restriction point should be identified by yellow backing on the reverse side of the Zone Speed sign governing a Movement in the opposite direction.

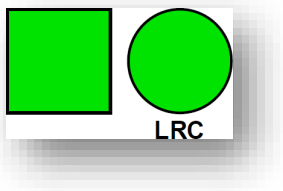
b) Zone Speed signs should not be placed:
   - In terminals
   - On subdivisions that have one speed zone
   - On subdivisions with a maximum speed of 30 mph or less.

11.4 PERMANENT SLOW ORDER (PSO) SIGNS

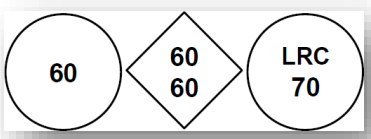
Restricting signs should be placed at the beginning of Permanent Slow Orders and where practicable be located to the right of the track for Movements approaching the PSO.



Resume Speed signs, the reverse side of the Restricting sign, should be placed to indicate the end of a Permanent Slow Order, and will normally be located to the left of the track for Movements exiting the PSO.



11.5 ADVANCE PSO SIGNS



Advance PSO signs should be placed nine thousand (9,000) feet (1.7 miles) in advance of the speed restriction point.

Note: To avoid overlapping and redundancy, Advance PSO signs should not be placed when adjoining or consecutive PSOs are within nine thousand (9,000) feet (1.7 miles) of each other. An Advance PSO sign should be placed to indicate the commencement of any grouping of consecutive PSOs as defined above. PSO Restricting and Resume Speed signs (Section 11.4) should always be placed to define the actual limits of each PSO.

11.6 ANTI-TRESPASS PANEL (ATP) SIGNS

a) Where installed, ATPs are designed to provide a visual and physical deterrent to persons attempting to gain illegal access to the corridor where fencing is not physically possible.

b) Physical characteristics of the ATPs assist in providing a difficult surface for those attempting to trespass, reducing their ability to gain access to the corridor.

c) ATPs should be installed on the ground on the approach to grade crossings, station platforms and/or any other location along the corridor that cannot be secured by traditional chain link or security fencing.

d) ATPs should be marked by a field sign immediately adjacent or within proximity to its location to provide notification of an uneven walking surface to operating and engineering crews.

e) Technical specifications for installing ATP signs must be in accordance with the Metrolinx Standards.