Metrolinx General Engineering Instructions (MX GEI)

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METROLINX

General Notice

The instructions and procedures contained in 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.

Metrolinx General Engineering Instructions (MX-GEI) are applicable to Canadian Railway Operating Rules (CROR) qualified Employees only.

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Definitions and Acronyms

Module 1

METROLINX

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1.1 Definitions

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

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

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

Adjacent Track Protection - 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 (TOP) to allow for a greater distance between the work and the nearest live track.

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 all live tracks. 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 limits of authority of the protection identified in the GBO or authority.

Clearing List – The Protecting Foreman's listing on the 842 confirmation 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, judgement, skill, experience and strength, which includes a willingness to undertake responsibilities in accordance with agreed standards, rules and procedures.

Construction/Maintenance Equipment – Vehicles, machinery and tools used for infrastructure-related activities, as described in 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 themself 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 Track Protection and/or the CROR Rule 842, and the term "Sub-Foreman (Name)" will be used for those being protected by the EIC and when communicating with each other.

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.

Field Level Risk Assessment - An assessment method used at a site during construction work to identify any hazards that are present due to site or equipment conditions. It is the compilation of information from all available sources about the site conditions at the actual time work is scheduled to begin.

Foreman's Crossing – A grade crossing used only by Employees and construction contractors (made with timber planks, rubber crossing, asphalt, or other approved Metrolinx material).

Foul – When an individual, a Track Unit, or any equipment/machinery is within 4 feet (1.2 metres) of the nearest live rail without protection in place, or over the yellow line at the edge of station platforms.

Fouling Point – The outermost limit of the dynamic envelope of all conventional gauged Movements and Track Units that may operate on any 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 Device (MLD) settings, absolute measurements must be understood.

Fouling Point Marker – A visible marking device used to identify the fouling point when a TOP is issued to a switch location within the USRC.

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

Identified Person – An employee/worker who is the contact person for a work group listed on a Protecting Foreman/Sub-Foreman VWG Clearing Sheet.

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

Movement Limiting Device (MLD) – Movement limiting devices prevent Construction/Maintenance equipment from exceeding any inadvertent lateral and vertical limits of work.

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

Non-compliant track – Track with defects that exceed Class 1 tolerances as defined in GO Transit (Metrolinx) Track Standards and with ballast less than 1/2 crib depth.

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 and understanding 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 overall accountability for 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.

Position of Safety – A place not foul of any live track(s) where it is safe for Employees/Workers to stand when a Movement is passing.

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

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.

Qualified – An Employee who, because of their knowledge, training, and experience is qualified to perform that duty safely and properly.

Railway Corridor or Rail Corridor or Right of Way (ROW) – 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.

Roadway Grade Crossing – A location where a public highway, road, street or unrestricted private roadway, associated sidewalks and any pedestrian or bicycle pathways 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 assigned to be in charge of a group of Employees/Workers to warn of an approaching Movement where no form of positive protection is in place and required sight line distances and procedures must be followed.

Self-propelled Car – A single motor-powered unit of railway equipment. It is not considered to be a locomotive.

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."

Three-Point Contact – A procedure which 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 signaller.

Traffic Management Plan (TMP) – The plans or written procedures detailing the traffic accommodation activities for a grade crossing project. Traffic Management 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 the authority (Protecting Foreman) or the assigned Sub-Foreman. The Visual Work Group must be cleared by either radio, voice or a reliable sounding device.

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 construction and maintenance document describing how work is to be safely carried out.

Work Site – 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 – A specific area (zone-delineated) 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.

ATP Adjacent Track Protection

CWZ Continuous Work Zone

CPG Capital Projects Group

DTS Distance to Stop

DTMF Dual Tone Multi-Frequency

EIC	Employee In Charge
FLRA	Field Level Risk Assessment
GTTS	GO Transit Track Standards
GTS	GO Transit Standard plans
IBT	Initial Brake 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
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

General Rules, Job Briefings, PPE and Radio Instructions

Module 2

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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 licences applicable to the duties which the Employee is responsible to perform while on duty. The following are examples of positions or required training courses that require proof of qualification or certification:

- Employees in charge of Track Protection and/or Track Inspection
- Track Unit Operators (Hi-Rail excavator, Hi-Rail Pick-Up truck, 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 applies 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
- Skidded wheel
- Broken wheel
- Sticking brake
- Open swinging door on freight car or trailer
- Open doors
- Dragging equipment
- Unsecured banding/strapping/other material
- Load shifted over the side or end of the car
- Defective truck/truck hunting
- People riding outside of the locomotive or coaches on passenger equipment
- Any other unsafe condition observed

2.3 Reporting for Duty

Employees must:

- Be fit and rested to comply with the Metrolinx Fit for Duty Policy
- Be familiar with their duties and the territory in which they will be working in.
- 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).

2.3.1 Fit For Duty – Fatigue Management Program

Employees are encouraged and supported to self-assess and report their current state of fatigue through one of the following methods:

1. Metrolinx Fatigue Assessment Tool or equivalent tool accepted by Metrolinx;
2. Karolinska Sleepiness Scale (KSS)

2.3.2 Employee Fatigue Self-Assessment Tools

Metrolinx has developed a Fatigue Assessment Tool which can be used by Employees to assess their current state of fatigue-related risk. If an Employee's organization has an equivalent tool that has been accepted by Metrolinx it can be substituted to assess fatigue. Metrolinx Fatigue Assessment Tools include the following:

- Before Duty Employee Fatigue Self-Assessment Tool; and
- On Duty Employee Fatigue Assessment Tool.

Also, the Karolinska Sleepiness Scale Assessment Tool is accepted to assess for fatigue on Metrolinx territory.

1. Before Duty Employee Fatigue Self-Assessment Tool

Prior to commencing a work shift and/or reporting to work, employees are to complete the 'Before Duty Employee Fatigue Self-Assessment Tool' to ensure they are fit for duty. This 'Before Duty Employee Fatigue Self-Assessment Tool' can be found within the Job Briefing documentation applicable while working on Metrolinx territory.

Employees will use the tool to determine their level of fatigue prior to reporting for duty. If the employee or contractor falls within the high fatigue-related risk category, the individual is required to inform their Supervisor and inform them that they are unable to report to duty. Please refer to your organizations Fatigue Management Plan or if no Fatigue Management Plan exists consult Metrolinx's Fatigue Management Plan for next steps.

2. On-Duty Employee Fatigue Self-Assessment Tool

While on duty and when operationally safe to do so, employees are to complete the 'On-Duty Employee Fatigue Self- Assessment Tool' to monitor their level of fatigue-related risk. This 'On-Duty Employee Fatigue Self-Assessment Tool' can be found within the Job Briefing documentation applicable while working on Metrolinx territory.

If at any point during a work shift, employees believe they may be fatigued in a manner that may affect safe operations and/or fatigued in that they are not fit for duty, they are required to (when operationally safe to do so) immediately inform their Supervisor who will support the employee in evaluating their level of fatigue using the 'On Duty Employee Self-Assessment Tool' and/or the Karolinska Sleepiness Scale (KSS) and then make a determination of what must be done next .

3. Karolinska Sleepiness Scale (KSS)

The Karolinska Sleepiness Scale is an acceptable method of quickly determining an Employee's fatigue risk. It is a scientifically validated scale used to rate an individual's level of alertness or drowsiness. To use the KSS, all you need to do is identify the number/statement that best describes how alert or drowsy you are.

1. Extremely alert
2. Very alert
3. Alert
4. Rather alert
5. Neither alert nor sleepy
6. Some signs of sleepiness
7. Sleepy, no effort to keep awake
8. Sleepy, some effort to keep awake
9. Very sleepy, great effort to keep awake, fighting sleep

2.3.3 When to Do On Duty Fatigue Assessments

While on duty and when operationally safe to do so, employees are to immediately report to their Supervisor if they believe they, or another employee, is fatigued in a manner that may affect safe operations, potentially not fit for duty, or will not be fit for duty over the full course of their upcoming shift.

A fatigue assessment is to be completed by the employee's Supervisor under the following conditions:

- Anytime there may be reason to believe an employee's actions, appearance, or conduct indicate impairment due fatigue (reasonable cause).
- Following a work-related incident that resulted in an injury, fatality, loss or damage to property, equipment, or vehicles, environmental impact or near miss considered to have had the potential for a serious outcome (post-incident).
- Any point during a work shift where an employee reports that they believe they may be fatigued in a manner that may affect safe operations and/or fatigued in that they are not fit for duty.
- After an employee completes the On-Duty Employee Fatigue Self-Assessment Tool and the outcome is moderate and high fatigue related risk.
- After an employee completes the Karolinska Sleepiness Scale and self-assesses themselves as above 7 on the scale.

The results of the fatigue assessment will inform the Supervisor the employee's level of fatigue-related risk, fit for duty status, and if additional mitigation measures or controls are required to be implemented.

The result of the assessment will fall into one of the following categories:

a) Fit for Duty - No Further Action Required

Employee is considered fit for duty and can safely proceed with their designated work activities.

b) Moderate Fatigue-Related Risk - Employee is Deemed Fit for Duty with Control(s)

Employee is deemed to be at moderate fatigue-related risk and the Supervisor must implement one of the two following options:

Option 1: The employee may remain at work for the rest of their shift with mitigations. The employee is to continue to monitor their fatigue risk with the On-Duty Employee Fatigue Self-Assessment Tool or KSS.

Potential mitigations include, in order of degree of risk control:

- Place employee on non-safety sensitive duties within a non-safety sensitive work environment (e.g., office) for the duration of their current shift.
- Monitor employee closely, through increased supervision for remainder of shift.
- Increased communication with the employee for the duration of their current shift.
- Strategic use of breaks and rest/recovery areas (ensure work coverage and assessment prior to return to work) for the current shift.
- Increased task rotation with other qualified employees for the duration of their current shift. Task rotation can vary the physical and/or mental demands.
- Avoid monotonous and repetitive tasks that require low levels of vigilance.
- Ensure employee does not work alone and works in pairs or teams for the remainder of the shift.
- Advise employee to hydrate if potentially dehydrated.
- Advise employee to periodically stand and engage in light exercise for remainder of shift.
- Improve working environment (e.g., increase lighting, cool temperature).

Option 2: The employee will be sent home for the remainder of the shift if they cannot be placed in a non-safety sensitive work environment and on non-safety sensitive duties. Supervisors are required to make transport arrangements for employee to return home safely.

c) High Fatigue-Related Risk - Employee is Deemed Not Fit for Duty

Employee deemed not fit for duty and cannot be placed in non-safety sensitive duties within a non-safety sensitive work environment (e.g., office) for the duration of their current shift and must be sent home for the remainder of their shift. The Employee's supervisor should contact their respective Human Resources department for next steps.

Employees who have been deemed not fit for duty are not to drive themselves home. Supervisors are required to make transport arrangements for employee to return home safely.

2.3.4 Fatigue Mitigation Measures

Below is a list of approved fatigue mitigation measures:

a) Increased communication

In addition to all communication in the application of applicable CROR Rules, employees are encouraged to increase communication with other employees or workers on site to alleviate fatigue and maintain situation awareness.

b) Increase task rotation with other qualified employees

If possible, and other equally qualified employees are available, rotating job tasks can help alleviate fatigue and give employees the rest/break they need.

c) Increased physical activity

When practicable and safe to do so, completing some stretches, warm-up exercises, or other physical activities can help alleviate feelings of fatigue.

d) Creating air circulation

If applicable, operators can open windows of their Track Unit/Construction Maintenance Equipment when temperatures, weather or the environment permits. Operators can also exit their cabs to get some fresh air.

e) Use of caffeine

Caffeine can help alleviate the effects of fatigue, but it is recommended that an employee only consume a moderate amount of caffeine while on-duty. When doing so, the following must be considered:

- Caffeine takes 15 to 30 minutes to take effect.
- It is best to use it only when tired to avoid building up a tolerance. Those who regularly consume caffeine throughout their day may not experience the same benefits as those who use caffeine only occasionally.
- While alertness benefits wear off, caffeine can stay in the body for up to 6 hours and make it difficult to sleep. Caffeine may not be a suitable alertness tool at the end of a tour of duty as it may affect the quality of your sleep during rest periods.
- Consuming energy drinks while on duty is not recommended. Potential side effects of energy drinks:

    - Electrolyte disturbances
    - Nausea
    - Vomiting
    - Heart irregularities
    - Stomach disorders
    - Anxiety

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 the public
- Obtain assistance promptly when required to control a hazardous or dangerous situation.

2.5 Job Briefings

a) Job Briefings must, at minimum, follow the Metrolinx Job Briefing Template. When delivering a Job Briefing, the briefing must follow the template 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 and applicable forms must be retained by 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:

Minimum Job Briefing Information

- Date, time and headcount
- Location and emergency information
- Communication information and radio channel information
- Weather details
- Applicable track protection information
- Location of signals installed (if applicable)
- Identification of work and rail hazards
- The controls in place to mitigate the identified hazards
- Any additional information that may affect safety or the operation of Movements
- Overview of planned work activities and tasks
- Overview of any relevant information about site specific hazards and the controls to be put in place identified during the Field Level Risk Assessment (FLRA).

f) 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 understood and to discuss any additional or unique safety information.

g) 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 most recent version of 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 it 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 by 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 potential injury or interference when performing duties.

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 by a risk assessment for the planned work. These additional types of protection may include:

- Environmental Protection (e.g., cold weather, insects, poison ivy)
- Respiratory Protection (e.g., hazardous chemicals, biological agents)
- Flame-Resistant Clothing (e.g., flash fire, electrical arc flash)
- Skin Protection (e.g., hot/cold material, chemical absorption, needles)
- 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 them 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 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 described 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 made to obtain a replacement radio, and once replaced, communication using a Personal Electronic Device or specific Railroad-Supplied Electronic Device must be discontinued.

Forms of Protection

Module

3

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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 the 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.

3.1.1 Positive Protection TOP is required in the USRC on the A Tracks between:

- A1 Track between Signal 61A1 and Signal 99A1
- A2 Track between Signal 59A2 and Signal 99A2
- A3 Track between Signal 55A3 and Signal 99A3

Note: Lone Worker and Safety Watch are not applicable between the stated limits.

3.1.2 TOP to a Switch Location in the USRC

- In the application of CROR Rule 849, when a TOP includes the limits of a switch location, the authority extends only to the fouling point of the switch.
- After being issued the TOP, the protecting foreman must identify the fouling point and mark it with a “fouling point marker”.

- The foreman must reference the fouling point in the job briefing and ensure the fouling point marker is not removed until the protection is cancelled.
- When requesting a TOP to a switch that is included within a double slip switch, the centre switch will be used as the identifiable point.

3.2 Crossing Tracks

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

a) On Foot:

i. Track(s) may be crossed on foot without protection by an Employee or individuals accompanied by an Employee if the Employee has clear and unobstructed views in both directions and can safely cross the track(s).
ii. Employees must cross in a straight line (when possible) at a steady, consistent pace, and must not stop to perform any work tasks.
iii. In the absence of adequate sight line distance, positive protection must be used for all track classes.
iv. Do not cross tracks at power-operated and dual-controlled switch locations because they can move at any time and may cause serious injury.

b) Road Vehicles:

i. Tracks may be crossed without protection if the Employee operating the vehicle has clear and unobstructed views in both directions and can safely traverse, or if they are under the direct supervision of a Foreman in charge or protection.

c) Construction/Maintenance Equipment:

i. Large (over 30 ft) and/or low bed or slow-moving 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: Use of the Metrolinx authorized TOP form is mandatory and required on all Metrolinx property, as identified in the applicable Timetables.

3.3.1 Procedures for TOP Protection of Sub-Foremen within the USRC, Rule 855 special instruction:

When a Foreman is in possession of a TOP and cannot personally observe all Employees within the limits of a TOP, the Foreman may appoint a Sub-foreman to be in charge of Employees within those limits. A maximum of **four (4)** Sub-foremen are permitted. The Foreman and Sub-foreman must confirm the limits required, scope of work and location to enter limits before Sub-foreman protection can be issued.

a) Before occupying the limits, the Sub-foreman must be issued a copy of the TOP from the Foreman named on the TOP.

b) TOP must be repeated and acknowledged correctly by the Foreman before being acted upon.

c) Sub-foreman arrangements must be recorded in writing by the Foreman on the prescribed form and specify the name of the Sub-foreman and Sub-foreman TOP repeat time.

d) The Foreman must advise other Employees who have initiated the TOP of the arrangements made with the Sub-foremen.

e) The Sub-foreman must read his/her copy of the TOP aloud to at least one other rules qualified Employee in the work group and, when practicable, require such Employee(s) to read and initial the TOP. The Sub-foreman must advise all Employees under the protection of the arrangements made with the Foreman.

f) Sub-foremen are restricted from protecting other Sub-foremen.

3.3.2 Cancelling Sub-Foreman Arrangements:

When protection is no longer required:

a) The Sub-foreman must ensure all Employees being protected are clear of the limits and are informed that the Sub-foreman arrangements are about to be cancelled.

b) Ensure the track within the limits is safe for movements at normal speed or otherwise protected.

c) Immediately advise the Foreman of the time all Employees are clear of the limits.

d) The Foreman will state the arrangements for the protection of Sub-foreman's "name" a cancelled time, which must be repeated by the Sub-foreman.

e) The Foreman must draw an 'X' across the cancelled Sub-foreman arrangements, and the Sub-foreman must draw an X through the TOP.

3.3.3 Foreman Cancelling a TOP Protected by a Sub-Foreman:

When all Sub-foremen have cancelled their arrangements for limits being protected by a TOP and the Foreman holding the TOP is clear of the limits, the Foreman may then cancel the TOP as outlined in CROR Rule 864.

a) Prior to cancelling the TOP, the Foreman must verify from the written arrangements that all Sub-foremen protecting such limits have cancelled their arrangements for protection and an 'Arrangements Cancelled Time' has been recorded.

b) The Foreman will then advise the RTC to cancel the TOP.

3.4 Entering Foremen's CROR Rule 42/842 Limits

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

a) Each Foreman must have a clear understanding, communicated in writing on the Rule 42 Clearing Sheet and the comments section of the TOP form, of each other's movements and the protection to be provided.

b) 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.

c) 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.

d) 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.

3.5.1 Contingency Planning for Flagging Protection (Replacement Foreman)

When a Foreman named in the GBO is determined unfit for duty, or unable to perform their duties due to unforeseen circumstances during the times stated in the GBO, the NOC Work block Controller/Manager, or Infrastructure Control will review the work to determine whether it is necessary. If necessary, the following process is to be followed:

A replacement Foreman checklist will be completed by the Track Protection Provider Supervisor and the replacement Foreman. The Track Protection Provider Supervisor and/or replacement Foreman will notify the contract administrator.

The following steps are to be taken when considering a replacement Foreman named in the GBO:

a) Form Y GBO Rule 42/842 not yet confirmed by RTC.

i. The replacement Foreman will contact the MX RTC to advise they will be replacing the Foreman named in the GBO. The RTC will confirm the Rule 42/842 with the replacement Foreman.
ii. Replacement Foreman upon arrival to the job site are to assume all responsibilities of the original Foreman named in the GBO.
iii. If the replacement Foreman assuming the responsibilities of the Rule 42/842 was intended to be working under the Rule 42/842 as a Sub-Foreman, the replacement Foreman must complete a job briefing with the 42/842 Sub-Foremen. If a replacement Sub-Foreman is not attainable, the works protected by that Sub-Foreman shall be cancelled.
iv. The replacement Foreman when answering all Movements requesting authority to enter the limits of the Rule 42/842 will initiate each transmission, stating their name, identifying that they are acting on behalf of the originally named Foreman.

b) Form Y GBO Rule 42/842 previously confirmed by RTC with Foreman named in GBO

i. The replacement Foreman will contact and advise the MX RTC that they will be replacing the Foreman named in the GBO. The

replacement Foreman will obtain a retransmission of the original Rule 42/842 confirmation from the RTC.

ii. Replacement Foreman upon arriving to the job site, are to assume all responsibilities of the original Foreman named in the GBO. The replacement Foreman must conduct a new job briefing with all work groups listed within the Rule 42/842 before work is to continue.

iii. If the replacement Foreman assuming the responsibilities of the Rule 42/842 was previously working under the Rule 42/842 as a Sub-Foreman, the replacement Foreman must comply with the instructions stated above, as well as relinquish all duties and responsibilities they were responsible for as a Sub-Foreman. If a new Sub-Foreman is arranged, a job briefing will be required with the now new Foreman. If a new Sub-Foreman is not attainable, the works protected by that Sub-Foreman shall be cancelled.

iv. The replacement Foreman when answering all Movements requesting authority to enter the limits of the Rule 42/842 will initiate each transmission, stating their name, identifying that they are acting on behalf of the originally named Foreman.

v. The replacement Foreman will continue to protect any existing routing arrangements and would also be responsible for obtaining any R42 Routing Arrangements that have been approved in the Daily Work Event Plan.

Note: The replacement Foreman cannot be a Foreman that is currently named in another form Y GBO that is named on the current DOB, even if that Form Y GBO is cancelled.

Exception: The Foreman may be named in a subsequent form Y GBO listed on the current DOB with a later effective time.

EXAMPLE SCRIPT: REPLACEMENT FOREMAN WILL RESPOND TO MOVEMENTS WITH THE FOLLOWING STATEMENT:	
GO 613 East: "MX Foreman John Smith, GO 613 East calling, over".	**MX Foreman Jane Doe:** "GO 613 East, this is MX Foreman Jane Doe answering on behalf of MX Foreman John Smith go ahead, over".

3.5.2 Work to be Cancelled

If the criteria for replacing the original Foreman named in the GBO is unable to be met, the NOC Work Block Controller shall contact the Manager, Rail Service & Compliance to arrange to have the GBO cancelled.

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 the 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 form (printed as hard copy) from the RTC may be accepted.

c) However, when using an electronically issued CROR Rule 42/842 Confirmation form provided by the RTC, sections B to F of the Metrolinx prescribed CROR Rule 42/842 Confirmation form must 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 that 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 work site; 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 CROR Rule 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 CROR Rules qualified personnel involved in the work can 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 that 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 refers only 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 use 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.

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 (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 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 Instructions – Eastbound operating on 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 stand by. The 42/842 Foreman must 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

a) For 42/842 Foreman

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

i. Read the Routing Arrangement – on a prescribed work channel or through a peer-to-peer Job Briefing – to all Sub-Foremen listed under the governing CROR Rule 42/842 protection.
ii. 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.
iii. All Sub-Foremen copying a Prescriptive Routing Arrangement must repeat it back to the Protecting Foreman, who will check and underscore it as it is repeated correctly regardless of whether the Prescriptive Routing Arrangement was copied electronically.
iv. Once repeated correctly, the Protecting Foreman will acknowledge the repetition of the Prescriptive Routing Arrangement by the Sub-Foremen and will document the time at which it was repeated correctly.

b) For Sub-Foreman

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

i. The Sub-Foreman listed under CROR Rule 42/842 protection may utilize Prescriptive Routing Arrangements only after all appropriate

steps have been taken to confirm that the limits of authority, duration, completion times, RTC initials, and special instructions (if applicable), are appropriately documented by the Sub-Foreman.

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

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

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

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

3.6.6 Transferring a Prescriptive Routing Arrangement

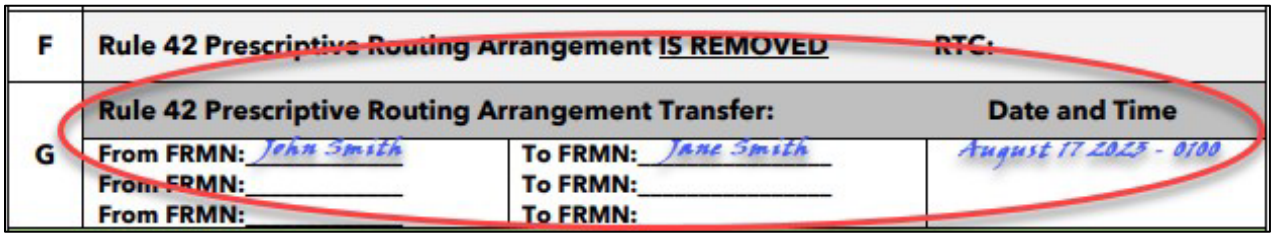
During a continuous CROR Rule 42/842, multiple Foremen named in the CROR Rule 42/842 Confirmation may transfer Prescriptive Routing Arrangements between shifts. This must be done using the following steps:

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 the 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 Arrangement



F	Rule 42 Prescriptive Routing Arrangement IS REMOVED		RTC:
G	Rule 42 Prescriptive Routing Arrangement Transfer:		Date and Time
	From FRMN: John Smith	To FRMN: Jane Smith	August 17 2025 - 0100
	From FRMN:	To FRMN:	
	From FRMN:	To FRMN:	

3.6.7 Removing a Prescriptive Routing Arrangement

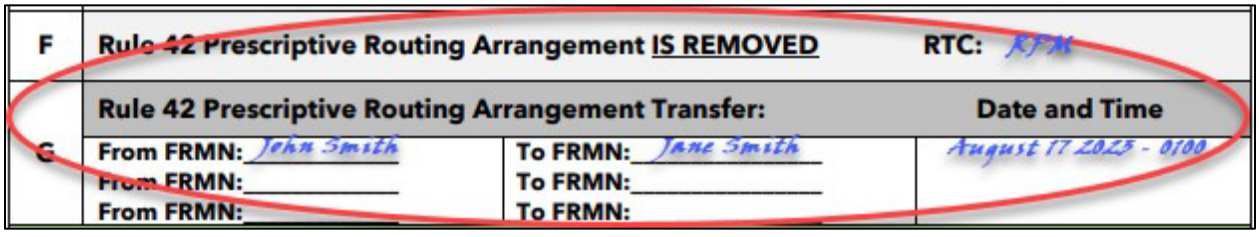
a) Upon completion of planned work or when the Prescriptive Routing Arrangement is no longer required, the Protecting Foreman and all Sub-Foremen must:

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

b) 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:

i. Prescriptive Routing Arrangements are removed when confirmed by the RTC's initials after completing the prescribed form.
ii. All removed Prescriptive Routing Arrangements must be marked with an "X" on the prescribed form.

Example: Prescriptive Routing Arrangement



F	Rule 42 Prescriptive Routing Arrangement IS REMOVED		RTC: RPM
G	Rule 42 Prescriptive Routing Arrangement Transfer:		Date and Time
	From FRMN: John Smith	To FRMN: Jane Smith	August 17 2025 - 0100
	From FRMN:	To FRMN:	
	From FRMN:	To FRMN:	

3.7 Protection on Non-Main Track

Refer to Module 7 for additional instructions on handling switches and the application of 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 in a timely manner if required.

3.7.2 CROR Rule 41/841 Protection

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

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 – RTC

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.

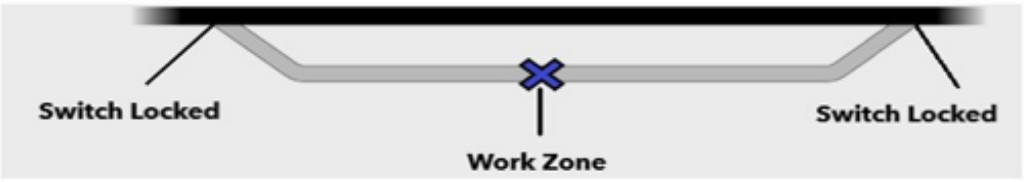
d) When required to lock a switch, derail or Special Derail as defined by CROR Rule 104.5, a private lock or a Metrolinx-approved over clasp – in accordance with the specifications outlined in GO Transit Standard GTS plans – must be placed and secured. All locks must have a waterproof tag with the following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

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) In conjunction with CROR Rule 841, the preferred method to protect a work location is to lock out the entire track using private locks and tags to prevent movements from operating on the track where work is being performed.

Example 1: Shows how you would protect your work zone in the event that you can lock out the entire track.



g) 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.

h) In conjunction with CROR Rule 841 red signals and portable derails must both be used whenever an entire track cannot be locked out with special locks to prevent movements from operating over the portion of the track where work is being performed. Portable derails are only rated for speeds not in excess of 20 mph, so they should only be used on tracks where speeds do not exceed that limit.

i) 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.

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

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

l) 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:

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.

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

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

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

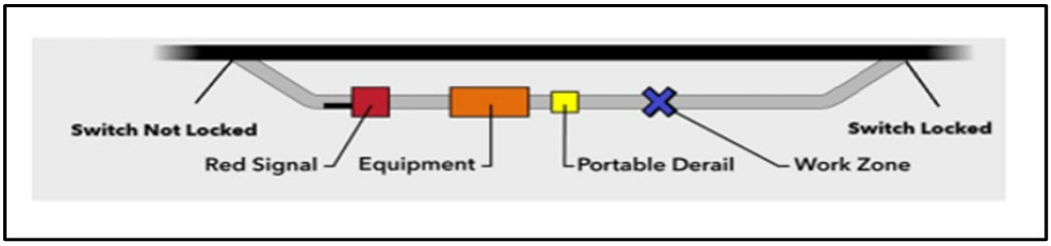
p) When required to perform work on the same track as a stored GO train consist, the following actions must be completed:

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.

q) Portable derails must be used when:

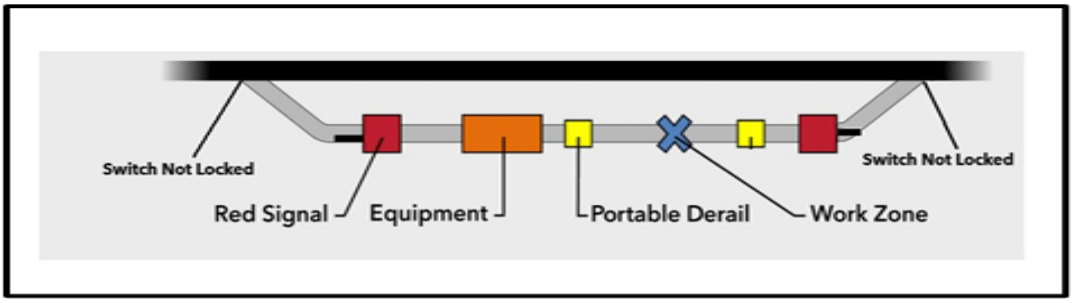
i. CROR Rule 841 protection cannot be used on the entire track and there is standing equipment outside the CROR Rule 841 limits. In this case, the portable derail must be placed within your protection (Red signals) in an orientation that will derail the equipment toward your work location if it were to roll away.

Example 2: Shows how you protect your work zone in the event there is standing equipment and you can only lock out one end of the track.



ii. There is a concern about standing equipment inside the CROR Rule 841 limits and you cannot lock out either end of the track.

Example 3: Shows how you would have to protect your work zone include the standing equipment if it is within your limits and you cannot lock out either of the switches.



3.7.3 Portable Derail Requirements

Portable derails are not to be used on Main track, except when Equipment or Machinery is to be stored on track with a TOP or CROR Rule 42/842 protection with prescriptive routing in place.

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. Company name/initials and name of the Foreman responsible for the protection
ii. Protecting Foreman's cell phone number
iii. Protecting Foreman's radio work channel
iv. Direct supervisors' name and cell phone numbers.

b) Consider the following when 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.

Note: As a general rule of thumb when considering orientation, for 841 protection the derail is positioned and oriented to derail anything from coming into the work limits, but for stored track units the intent is to stop the track unit from rolling out toward the main line.

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 Safety Watch.

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. All sightline calculations or other identified infrastructure used in your calculations (e.g., special derails or locked switches) must be documented and discussed as part of the Job Briefing

e) The predetermined Position of Safety discussed in the Job Briefing should, whenever possible, be at least 13 feet from the nearest live track.

f) 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.

g) Employees using 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 predetermined 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.

h) 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 required work not shown in Table 1 requires approval by the appropriate Business Unit.

3.8.1.1 Work Permitted Under Lone Worker or Safety Watch Protection

a) No Safety Watch or Lone Worker protection is permitted on class 5 tracks.

b) No Safety Watch or Lone Worker protection is permitted at night on class 4 tracks.

Exceptions:

- 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 adhere to the requirements of Safety Watch and Lone Worker protection outlined in Section 3.8).

- Platform work between the yellow lines with handheld tools or small push behind snow blowers may be performed day and night on all classes of track under Safety Watch protection (provided the location and current conditions adhere to the requirements of Safety Watch protection outlined in 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

TABLE 1: LIST OF TASKS UNDER LONE WORKER/SAFETY WATCH			
	DESCRIPTION OF WORK	PERMITTED UNDER LONE WORKER	PERMITTED UNDER SAFETY WATCH
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
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 speeds are greater than 15 mph	NO	YES
32	Spiking/Clip Installation	YES	YES

TABLE 1: LIST OF TASKS UNDER LONE WORKER/SAFETY WATCH			
	DESCRIPTION OF WORK	PERMITTED UNDER LONE WORKER	PERMITTED UNDER SAFETY WATCH
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 3.8.1.1 exception (Bullet 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 used 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 prior to an employee coming to work and periodically throughout their shift as per the instructions listed in Module 2, Section 2.3.1 – 2.3.4. 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 designated Safety Watch 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 designated Safety Watch must advise all Employees/Workers and proceed to the predetermined Position of Safety.

c) The Safety Watch work group may not be more than five (5) people, excluding the designated Safety Watch.

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 designated Safety Watch can be from the person or group they are protecting is 50 feet. Consideration must be given to the noise and warning device used in order to ensure the warning can always be heard.

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

f) When an Employee is performing Safety Watch protection 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 designated Safety Watch must focus their attention on providing safety watch protection 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, both acting as designated Safety Watches:

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

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 prior to an employee coming to work and periodically throughout their shift as per the instructions listed in Module 2, Section 2.3.1 – 2.3.4. 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 designated Safety Watch.

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 of the bridge, or beyond it, continue and clear the bridge in the 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 designated Safety Watch 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 is dynamic and will continuously change, the sight lines **MUST** be verified by referring to 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 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 items listed in Section 3.8.1, Employees working under Safety Watch protection must also identify:

i. The method of communication the designated Safety Watch will use to communicate with any Employees/Workers. 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 complete Safety Watch form for accuracy and initial the form once validated.

3.8.7 Procedure to Calculate Sight Line Distance

a) Employees/Workers must occupy a predetermined 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 designated Safety Watch needs to look in two (2) directions, seven (7) seconds must be added. In a situation where the designated Safety Watch does not have to look in two (2) directions or there are two (2) Employees acting as the designated Safety Watches (looking in opposite directions), additional time does not need to be added.

c) Four (4) seconds must be accounted for to allow the designated Safety Watch to see the Movement, communicate to the Employees/Workers and for all Employees/Workers to acknowledge the communication.

Note: This is **not** applicable for sole Lone Worker calculations but is still applicable for an Employee performing Safety Watch for non-rules-qualified workers and is the only qualified Employee on site.

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 10 seconds (3 feet/second to travel 30 feet) to 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 time calculated 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 above to identify the corresponding sight line requirements from Section 3.8.9, Table 2 (Sight Line Table).

LONE WORKER OR 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.			
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. Not applicable for sole Lone Worker calculations	
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 Position of Safety	10	Must occupy a previously arranged position of safety not less than 10 seconds before train, traveling at max. speed will reach that location	
5. 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:	
Sightline available up TRK:		Sightline available down TRK:	
Method used to obtain sightlines:			
LONE WORKER OR SAFETY WATCH WITH NON-RULES QUALIFIED WORKERS			
Name of peer:			
Peer phone number:		Task Length/time:	
Return call time:	Return call time:	Return call time:	Return Call Time:
COMPLETE TIME			
Complete Time:		Other Rules Qualified Initials: (Safety Watch Only)	

3.8.8 Methods for Validating Sight Lines

a) There are several ways to determine clear sight line distances.

b) In the absence of site-specific job aids or safety procedures for determining clear sight lines, Employees should select the method that best suits their situation.

c) 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 line distance from the Work location.
ii. Mileage boards as a reference point to determine the sight line 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 Track Unit with a distance counter can be used to measure sight line distances for 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 sight lines 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).

TABLE 2: MINIMUM SIGHT LINE DISTANCES FOR LONE WORKER AND SAFETY WATCH									
SECONDS	15	20	25	30	35	40	45	50	55
MPH									
15	330	440	550	660	770	880	990	1,100	1,210
20	440	590	735	880	1,030	1,175	1,320	1,470	1,615
25	550	735	920	1,100	1,285	1,470	1,650	1,835	2,020
30	660	880	1,100	1,320	1,540	1,760	1,980	2,200	2,420
35	770	1,030	1,285	1,540	1,800	2,055	2,310	2,570	2,825
40	880	1,175	1,470	1,760	2,055	2,350	2,640	2,935	3,230
45	990	1,320	1,650	1,980	2,310	2,640	2,970	3,300	3,630
50	1,100	1,470	1,835	2,200	2,570	2,935	3,300	3,670	4,035
55	1,210	1,615	2,020	2,420	2,825	3,230	3,630	4,035	
60	1,320	1,760	2,200	2,640	3,080	3,520	3,960	4,400	
65	1,430	1,910	2,385	2,860	3,340	3,815	4,290		
70	1,540	2,055	2,570	3,080	3,595	4,110			
75	1,650	2,200	2,750	3,300	3,850	4,400			
80	1,760	2,350	2,935	3,520	4,110				
85	1,870	2,495	3,120	3,740	4,365				
90	1,980	2,640	3,300	3,960					
95	2,090	2,790	3,485	4,180					
100	2,200	2,935	3,670	4,400					
105	2,310	3,080	3,850						
110	2,420	3,230	4,035						
115	2,530	3,375	4,220						
120	2,640	3,520	4,400						

Off-Track Machinery and Barrier Separation

Module 4

METROLINX

Table of Contents

4.1 General Instructions

a) A Foreman must oversee any work within 30 feet (or that has the potential to breach 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 stop 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) If the work will 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.

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

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

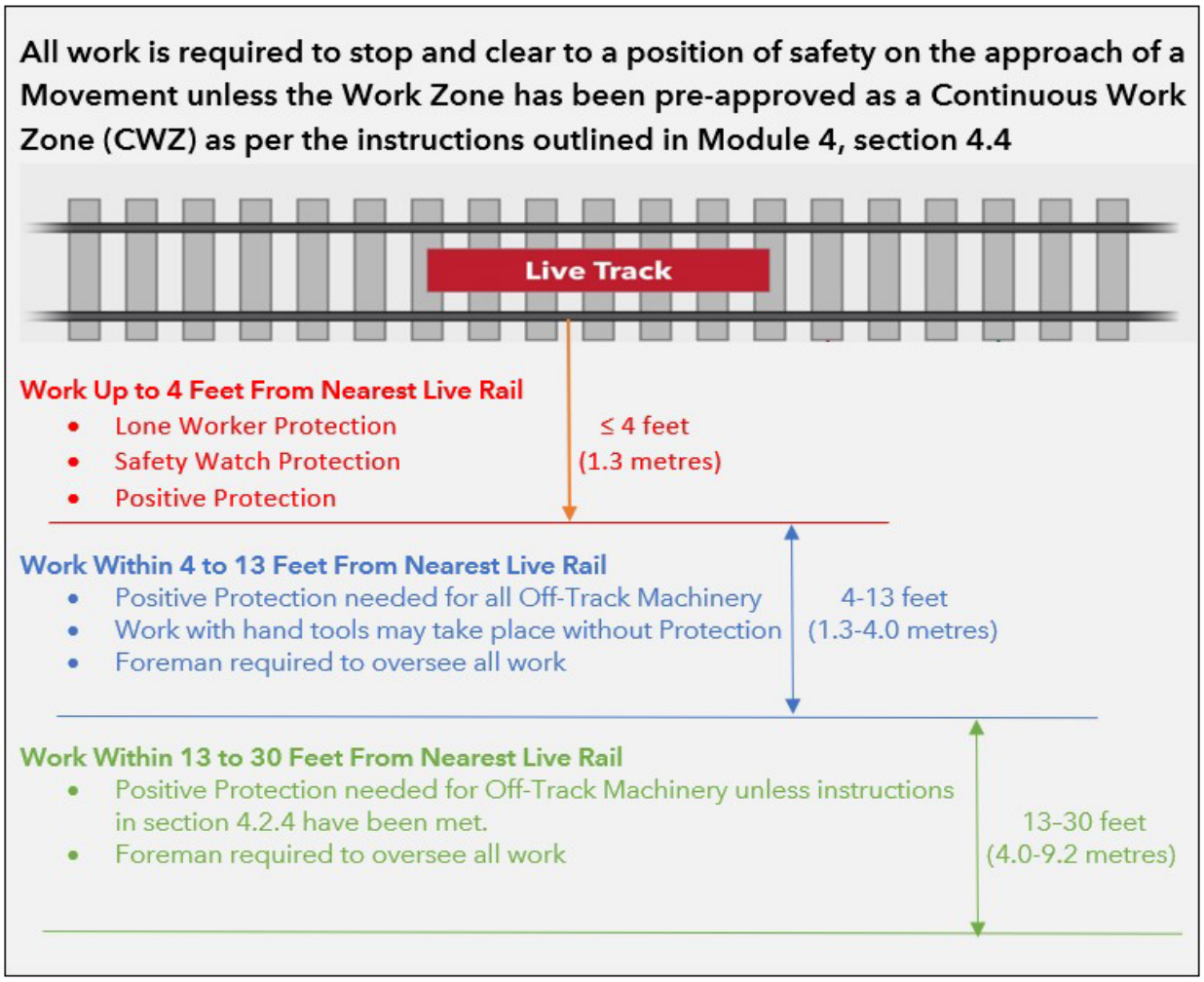


Figure 1: Diagram Showing Protection Requirements for Non-CWZ Work Zones

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) Unless working within an approved Continuous Work Zone (CWZ) all Off-Track Machinery (regardless of their reaching potential) must follow the instructions provided in section 4.2.3 (Working within 13 feet of the nearest live rail) or section 4.2.4 (Working outside 13 feet of the nearest live rail).

c) Work that might affect the integrity of the track must not take place without a form of positive protection.

d) 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 or delineation line is required to deter personnel from fouling the track. All applicable instructions specific to the Safety Barriers and delineation lines must be followed.

Exception: Vehicular traffic accessing the ROW for Maintenance and/or delivery work does not require protection, as long as no tracks are crossed or fouled on route to the work site.

4.2.2 Foreman Responsibilities Overseeing Work Not Under a Form of Protection Within 30 Feet of Nearest Live Rail

Foremen overseeing work not under a form of protection within 30 feet (10 metres) of the nearest live rail must:

a) 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.

b) If working within 13 feet (4 metres) of live rail, ensure that no work, material or personnel foul the track at any time.

c) If working between 13 - 30 feet (4 - 10 metres) from live rail, using the instructions given in section 4.2.4, will ensure no, work, material, machinery, or personnel breaches the delineation line.

d) If the delineation line is breached contrary to the work plan, all work must stop, the incident reported, and immediate action up to and including an Emergency broadcast, if required, or obtaining positive protection must be taken.

e) Stop work or provide an audible warning to all Workers on the approach of a Movement regardless of sight line distances and warning times.

f) The Foreman assigned to oversee the work and provide a warning must never engage in the work or other distracting activities.

4.2.3 Off-Track Machinery Within 13 Feet of Nearest Live Rail

a) Unless working within an approved Continuous Work Zone (CWZ) all Off-Track Machinery (regardless of their reaching potential) working 13 feet (4 metres) or less from the nearest live rail must have a form of positive protection in place prior to beginning work.

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 13 Feet from Nearest Live Rail

a) A delineation line, not closer than 13 feet (4 metres) from 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 boom/swing/reach
iv. Lifts taking place and the material being lifted.

b) The delineation line must be measured, identified, documented, 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, monitored, and documented on the prescribed MX Form at the start and end of each Foreman's shift to ensure that visibility, integrity and appropriate distances are maintained.

d) When any Off-Track Machinery operates between 13 – 30 feet (4 – 10 metres) of the nearest live rail, a Foreman must oversee the work to ensure nothing breaches the delineation line.

e) Off-Track Machinery with reaching potential (examples include frontend loaders, excavators, cranes, concrete pumper trucks, etc.) working between 13 - 30 feet (4 – 10 metres) of the nearest live rail and are positioned in such a way that their boom, swing, or bucket extension CAN extend within 13 feet of the nearest live rail, must have positive protection in place prior to beginning work.

f) Off-Track Machinery with reaching potential working between 13 - 30 feet (4 – 10 metres) of the nearest live rail equipped with a Movement Limiting Device (MLD) or positioned in such a way that their boom, swing, or bucket extension CANNOT extend within 13 feet of the nearest live rail, requires a Foreman overseeing the work and monitoring the delineation line but does not require positive protection.

g) Off-Track Machinery without reaching potential (examples include Skid Steers, dump trucks, graders, concrete trucks (non-pumping), etc.) working between 13 - 30 feet (4 – 10 metres) of the nearest live rail requires a Foreman overseeing the work and monitoring the delineation line but does not require positive protection.

h) Unless working within an approved Continuous Work Zone (CWZ) all Off-Track Machinery working within 13 - 30 feet (4 - 10 metres) of the nearest live rail, regardless of protection, must temporarily stop working on the approach of a movement and remain stopped until the movement has passed their work location.

i) Pile driving, drilling or auguring equipment may continue to work during 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 the requirements specified in the GTTS.

j) 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 swing of the load or the boom of the machine will breach the delineation line, positive protection must be in place.

k) 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.

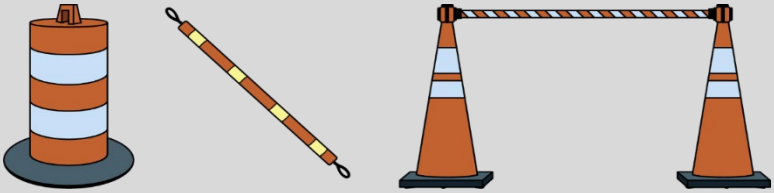
l) If a change to the approved work plan requires the Off-Track Machinery to work within the delineation line (within 13 feet of live track), work must stop and a form of positive protection must be put in place prior to the work occurring.

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 should 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.

Barrels/Cones:



- Must be connected using rigid barricades, retractable barricade tape, or with plastic/metal safety chain.
- Suitable for flat surfaces including passenger platforms.
- Guarded gaps should 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.

Note: Delineation lines **MUST** be visible above ground level. Paint lines, or any other markings strictly on the ground are **NOT** permitted.

4.2.5 Off-Track Machinery Outside 30 Feet from Nearest Live Track

When work is taking place outside of the Metrolinx Right of Way (ROW), the reaching potential of any Off-Track Machinery being used on the project **MUST** be considered, *regardless of whether the machinery is physically positioned within 30 feet of the nearest live rail or not*. The following instructions apply:

a) Off-Track Machinery without reaching potential working outside 30 feet (10 metres) of the nearest live rail are not considered working within the Metrolinx ROW and no protection or Foreman overseeing the work is required.

b) Off-Track Machinery with reaching potential working outside 30 feet (10 metres) of the nearest live rail and are positioned in such a way that their boom, swing, or bucket extension CAN extend within 13 feet of the nearest live rail, must follow the instructions as listed in 4.2.4 e).

c) Off-Track Machinery with reaching potential working outside 30 feet (10 metres) of the nearest live rail equipped with a Movement Limiting Device (MLD) or positioned in such a way that their boom, swing, or bucket extension CANNOT extend within 13 feet of the nearest live rail, must follow the instructions listed in 4.2.4 f).

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 are 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 for 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-foot (7.6 metres) requirement may not require protection.

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 Foreman, or designated Employee, must:

a) 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.

b) Ensure that no work, material or personnel foul the unprotected track(s) at any time.

c) Provide an audible warning to all Workers on the approach of a Movement.

d) Never engage in work or distracting activities, in order to ensure compliance with (b) and (c).

e) 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 of 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)

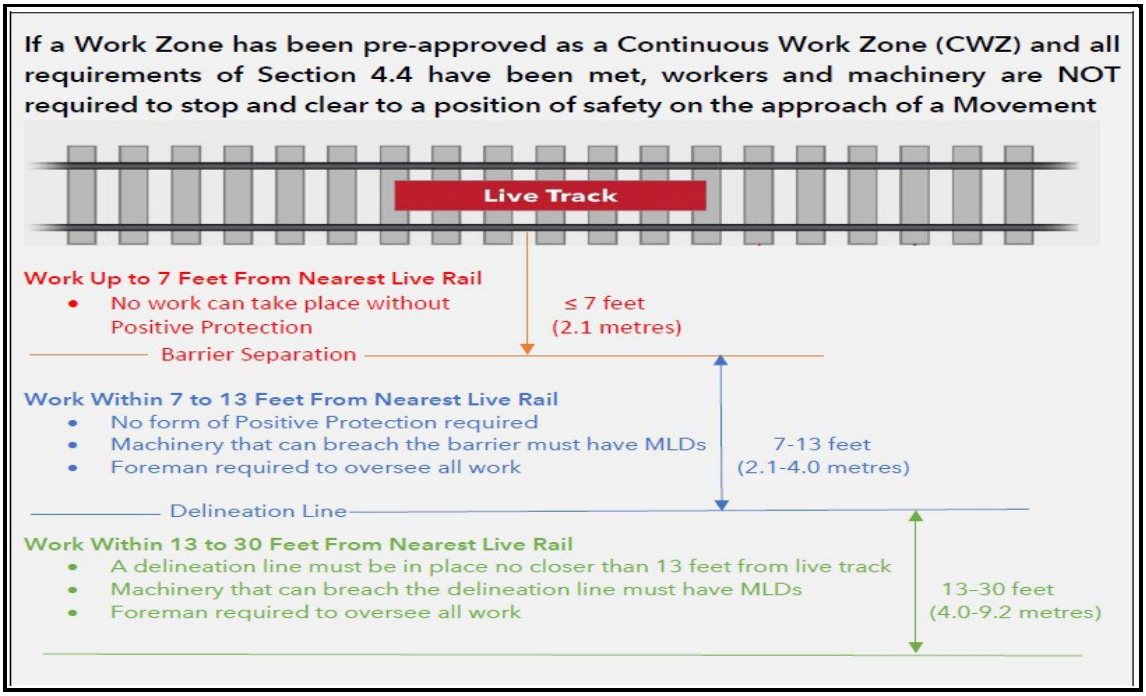


Figure 2: Diagram Showing Protection Requirements for CWZ Work Zones

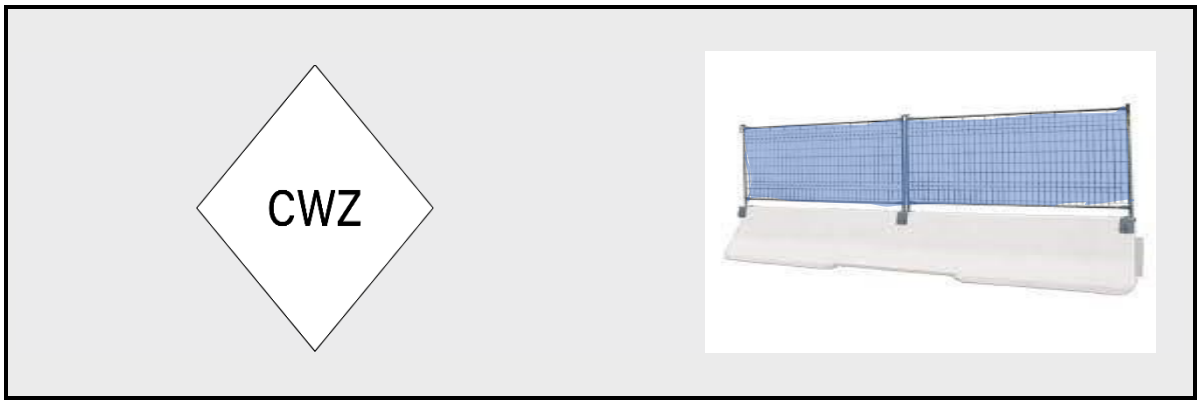
a) For work to continue while Movements pass and the work area is considered a Continuous Work Zone (CWZ), the project must meet the minimum controls identified within the GEI. To be accepted as a CWZ, the following conditions must be met:

   i. A work plan, complete with a documented CWZ Risk Assessment must be submitted and approved by the Metrolinx project owner prior to work beginning. If the Metrolinx project owner and/or the MX stakeholder SMEs they have shared the work plan/risk assessment with have verified that all criteria of section 4.4 has been met, the project owner can approve the work and the site can be deemed a CWZ. The project team must inform MX Operating Practices that they have approved the CWZ and provide them with a copy of the accepted Work Plan and Risk Assessment.

ii. If there are any questions or unclear areas of the submitted work plan and/or risk assessment that make the Metrolinx project owner uncertain if the work can be performed safely as a CWZ, the Metrolinx Project Owner must ask the submitting party for changes and/or clarification that will make the work safe to be deemed a CWZ.

iii. If there are still concerns about the safety of the work or clarification is required, the Metrolinx project owner must seek further support/clarification from MX Operating Practices as to whether the work can be safely deemed a CWZ.

iv. An approved CWZ with work taking place between 7 – 13 feet (2.1 – 4 metres) from the nearest live rail must be identified by a form of barrier separation (see section 4.5) with attached blue fencing in addition to white diamond signs with the letters CWZ (visible to the operating crews) located on the fence at either end of the approved limits and all entry and exit points. All signage must be in accordance with requirements specified by Metrolinx.



v. Work on the field side of the barrier consists of Workers, hand tools, material and Off-Track Machinery without reaching potential that does not have boom, swing, or bucket extension capabilities and cannot breach or cross the barrier.

vi. Off-Track Machinery with reaching potential that have boom, swing, or bucket extension capabilities must be restrained using a Movement Limiting Device (MLD) to ensure the barrier is not breached at any time. Machinery found not equipped with a functioning MLD must be removed from service until the MLD has been repaired or replaced.

vii. Barrier/fence must be measured and inspected, and any MLDs in place must be tested, and the results documented by the Protecting Foreman on the prescribed MX Form at the start and end of each shift.
viii. Work within 7 - 13 feet (2.1 – 4 metres) from live tracks must have a Foreman continuously monitoring the barrier and overseeing work.
ix. If the Barrier is breached for any reason, all work must be stopped, the incident reported, and immediate action up to and including an Emergency broadcast, if required, or obtaining positive protection must be taken.

b) Work between 13 - 30 feet (4 – 10 metres) of the nearest live rail must have a Foreman overseeing work and may still be considered a CWZ, provided that:

i. A measured and identified delineation line in place that is never closer than 13 feet (4 metres) of the nearest live track.
ii. Work behind the delineation line consists of Workers, hand tools, material and Off-Track Machinery without reaching potential that does not have boom, swing, or bucket extension capabilities and cannot breach or cross the line.
iii. Off-Track Machinery with reaching potential that have boom, swing, or bucket extension capabilities must be restrained using a Movement Limiting Device (MLD) to ensure the delineation line is not breached at any time. Machinery found not equipped with a functioning MLD must be removed from service until the MLD has been repaired or replaced.
iv. The delineation line must be measured and inspected, and any MLDs in place must be tested, and the results documented by the Protecting Foreman on the prescribed MX Form at the start and end of each shift.
v. The delineation line is continuously monitored by Foreman to ensure that no work, tools, supplies or Off-Track machinery breaches the 13 feet (4 metres) delineation line.
vi. If the delineation line is breached for any reason, all work must be stopped, the incident reported, and immediate action up to and including an Emergency broadcast, if required, or obtaining positive protection must be taken.

vii. All other requirements of the Work Within the Rail Corridor section, including Off-Track Machinery in 4.2.4, have been met.

Note: Whenever possible, position all Off-Track Machinery (regardless of reaching potential or distance from live track) so that they are working parallel to the track/barrier/delineation line, rather than head on.

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.

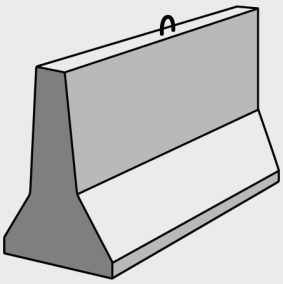
b) A Foreman must be present overseeing and monitoring any work taking place using Barrier Separation.

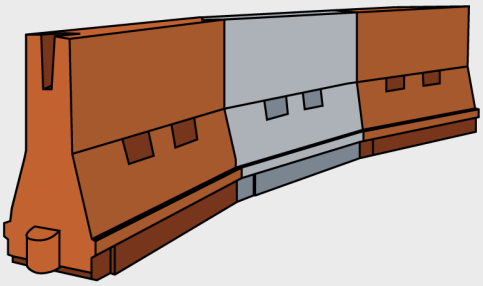
c) Separation must be executed by using temporary Barrier Separation.

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 pre-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 7 feet (2.1 metres) or more from the nearest live rail.
iii. Access gates must be installed every 500 feet (152 metres) or less.
iv. The temporary barriers cannot be installed closer than 300 feet (91.4 metres) from any Roadway Grade Crossing.
v. The temporary barriers must remain clear of any controlled location.
vi. The barrier must be measured and inspected, and the results documented by the Protecting Foreman on the prescribed MX Form at the start and end of each shift to ensure that no barrier or fencing sections have been damaged or pushed closer than the approved distance from the nearest live rail.
vii. If temporary barriers are moved they must be repositioned back to their original location. If they have been damaged, they should be identified, marked, and potentially replaced if the barrier's structural integrity has been compromised.

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 by 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 passes 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. Employees have the authority and duty to stop unsafe activity posing an immediate threat to people or the operation of Movements.

4.6 Exemption Request Process

There may be situations that arise while planning a project where it is not possible to strictly adhere to the Metrolinx GEI Instructions. In such a case, there is a process in place where Contractors can apply for an exemption to the established instructions, specific to Module 4 only. No other exemptions to GEI Modules or CROR will be considered.

To apply for an exemption, please refer to and follow the instructions outlined in the Metrolinx GEI Exemption Request Process (SD-014-PRC-0039) and submit all required documents to MXCorridorPolicyRuleRACompliance@metrolinx.com.

Work Groups, Clearing Movements and Safe Work Practices

Module 5

METROLINX

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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 oversee a Visual Work Group (VWG).

b) A Protecting Foreman cannot oversee 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 can have up to six (6) Identified Persons on their VWG list, based on the accepted Work Plan. Each work group must be represented by one Identified Person as the contact person for that group and listed on the Protecting Foreman's Clearing list. This in no way diminishes the Protecting Foreman's responsibility to ensure they have visually confirmed all employees/workers are in a position of safety before informing the Movement they can proceed through the work limits.

Note: Regardless how many people are working for the contractor or the combination of equipment/workers included, the work group **MUST** be doing work approved in the same work plan.

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 can have up to six (6) Identified Persons on their VWG list, based on the accepted Work Plan. Each work group must be represented by one Identified Person as the contact person for that group and listed on the Sub-Foreman's VWG Clearing List. This in no way diminishes the Sub-Foreman's responsibility to ensure they have visually confirmed all employees/workers are in a position of safety before informing the Protecting Foreman they are clear.

Note: Regardless how many people are working for the contractor or the combination of equipment/workers included, the work group **MUST** be doing work approved in the same work plan.

h) All machinery operating or placed within 13 feet of the live track must be on the VWG list. Machinery must always be within visual range of the Protecting Foreman/Sub-Foreman.

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

j) 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.

Example 1: Excerpt from Protecting Foreman's Rule 842 Clearing Sheet

METROLINX SD-008-FRM-0012

PROTECTING FOREMAN CROR RULE 842 CLEARING SHEET

If watching 4–8 Sub-FRMN, list names in columns 1-8. If watching a Visual Work Group as well as Sub-FRMN, list Sub-FRMN names in columns 1-4 and the names of up to 2 Identified Persons in Columns 5-6. If there are no Sub-FRMN to watch, list names of up to 6 Identified Persons in Visual Work Group in column 1-6. Keep track of all Sub-FRMN and/or Visual Work Group Identified Persons time reporting clear (Box A) and the time you authorize them to return back to work (Box B). If giving a Movement permission to partially enter limits, document time and instructions to Sub-FRMN and Movement in Notes row.

Name of 42 FRMN:	42 Authority Limits:	Date:	Clearing Channel:

NAME Of SUB FRMN →	FRMN 1 NAME Work Limits	FRMN 2 NAME Work Limits	FRMN 3 NAME Work Limits	FRMN 4 NAME Work Limits	FRMN 5 NAME Work Limits	FRMN 6 NAME Work Limits	FRMN 7 NAME Work Limits	FRMN 8 NAME Work Limits	May use Must Not Use A/TRK – Any Track		
TRAIN ID AND DIRECTION	1 Time	2 Time	3 Time	4 Time	5 Time	6 Time	7 Time	8 Time	Time Train Authorized	Instructions: Route/Speed	Time Train Clear
1 Partial Limit Permission: Yes / No	Notes:								Partial Limit		Entire Limit
	A								Entire Limit		
	B										
2 Partial Limit Permission: Yes / No	Notes:								Partial Limit		Entire Limit
	A								Entire Limit		
	B										

Example 2: Excerpt from Sub-Foreman's Visual Work Group Clearing List

METROLINX

SD-008-FRM-0023

SUB FRMN VISUAL WORK GROUP CLEARING LIST

List names of up to 6 Identified Persons in Visual Work Group in column 1-6. Keep track of all Identified Persons time reporting clear (Box A) and the time you authorize them to return back to work (Box B). If Protecting FRMN allows partial limit permission to Movement it must be discussed with all Sub FRMN but does not need recorded below unless/until you've been asked to clear VWG to allow Movement through your Sub FRMN work limits.

42 FRMN NAME:	42 AUTHORITY LIMITS	CLEARING CHANNEL:
SUB FRMN NAME:	VWG WORK LIMITS:	DATE:

IDENTIFIED PERSONS ON VWG LIST	Name 1	Name 2	Name 3	Name 4	Name 5	Name 6	IDENTIFIED PERSONS ON VWG LIST	Name 1	Name 2	Name 3	Name 4	Name 5	Name 6
TRAIN ID DIRECTION	1 TIME	2 TIME	3 TIME	4 TIME	5 TIME	6 TIME	TRAIN ID DIRECTION	1 TIME	2 TIME	3 TIME	4 TIME	5 TIME	6 TIME
1.	A						26	A					
	B							B					
2	A						27	A					
	B							B					

5.2 Work Groups General Instructions

a) All applicable instructions identified in Sections 5.4 and 5.5 for 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., switching from voice to a reliable sounding device).

c) Track Protection Foreman must:

i. Report the location they will be working from, to their Sub-Foreman;
ii. Advise their Sub-Foreman if they change locations during the duration of their shift;
iii. Remain at the location identified to the Sub-Foreman for the duration of the Rule 842/TOP.

Note: If at any time the Protection Foreman is required to leave the Rule 842/TOP working location, the Sub-Foremen **MUST** stop all work until the Protecting Foreman's return.

5.3 Procedure for Clearing Movements

a) The Protecting Foreman named on an authority must only authorize movements into their protection limits if able to grant permission through the entire limits.

The following exceptions are permitted. Partial limits may be given:

- To allow Employees/Workers more time to clear the track (if required) or for track work to continue. A Movement may be authorized to enter the protection limits and proceed to an identified location such as a station, mile sign, switch, signal, or other signs or infrastructure that are identified with a specific mileage. The Movement may only be stopped once.
- Where the Authority Limits of an 842 encompass a section of tracks where a junction of subdivisions occurs (two prong) and the requesting Movement will not be travelling on the section of trackage that separated work is being performed.
- To a Movement performing switching activities within the specified limits.
- To a Work train under Rule 577 authority working with the Protecting Foreman.
- To a Foreman patrolling ahead of the movement for urgent track conditions (i.e., weather related track patrol).
- In case of emergency.

Any partial limit permission granted by the Protecting Foreman **MUST** be communicated, understood, and documented by the Protecting Foreman and Operating Crew on the applicable Metrolinx prescribed forms (ex-CROR Rule 42 Protecting Foreman Clearing Sheet, TOPs, or Operating Crew DOB/TGBO/Track Warrants).

Partial limit permission granted by the Protecting Foreman **MUST** also be communicated and understood by any affected Sub-Foreman protecting a VWG within the Authority Limits but does **not** need documented on the Metrolinx prescribed Sub-Foreman Clearing Sheet unless/until the Sub-Foreman has been asked to clear their VWG to allow the Movement through their Sub-Foreman Work Limits.

The Sub-Foreman's location and their VWG Work Limits within the Protecting Foreman's Authority Limits **MUST** be agreed upon at the initial job briefing, understood, and documented on both the Protecting Foreman's Clearing Sheet and the Sub-Foreman's Clearing Sheet. If the VWG needs to change location during the shift, the Sub Foreman's new Work Limits must be communicated, understood, and documented by both the Sub-Foreman and the Protecting Foreman. If the Sub-Forman's Work Limit or the location of all separated VWG are not know, partial limit permission **MUST NOT** be granted.

Note: Partial limit permission is **NOT** applicable for Separated Work Groups complying with CROR 855 special instructions that have more than four (4) Sub-Foreman.

b) 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 Employees and Workers being protected to clear.
   ii. Look up and down track to visually confirm Employees/Workers and tools have cleared and the track is safe for the Movement.
   iii. The Protecting Foreman/Sub-Foremen must then clear to their predetermined Position of Safety.

iv. From their Position of Safety and after visually verifying again that all Employees, Workers, machinery, materials and tools are clear, Sub-Foremen will report clear to the Protecting Foreman named in the authority.
v. The Protecting Foreman must ensure all Sub-Foremen have reported clear and their VWG must be clear before authorizing a Movement into their limits.

c) While waiting for a movement to pass, if a Foreman/Sub-Foreman receives another request for a movement(s) to enter their limits, 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 leave the Position of Safety to foul live track until all movements have passed.

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

e) 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 Workers.
ii. A Sub-Foreman clearing another Sub-Foreman.

f) 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.

g) 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.

h) 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 stand by, or the report of being clear.

Examples of Radio Communication – Clearing for Movements

EXAMPLE A: FOREMAN TO SUB-FOREMAN CLEARING 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, stand by". (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 1, 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, stand by". (Bell and backhoe clear into 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 to pass through the work limits.

c) Under no circumstances may Employees/Workers be standing foul 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 words “stand by.”

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:

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

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

c) The Protecting Foreman has been in communication with, and has confirmed that the Movement has passed the Sub-Foreman's location, and they can permit the Sub-Foreman to return to work, or

d) 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 MACHINE OPERATOR 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 backhoe 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.

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, construction/maintenance equipment, 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 on.
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. The operator must 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 be 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, which 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 is exposed to any pinch point.

Note: See Module 6, Section 6.2.10 and 6.2.11 for additional Track Unit 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 the 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 6.2.9.

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 must be adhered to:

i. Observe your surroundings and take appropriate action to avoid potential hazards such as slippery conditions, uneven ground, tripping hazards, etc.
ii. Focus, look in the direction you are walking and do not allow yourself to be distracted.
iii. Pace should be at a safe rate; smaller steps may be required when conditions warrant. Never run unless it is an emergency.
iv. 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.
v. Hands must be out of pockets when walking to allow for balance and recovery.
vi. A suitable light source must be used when conditions are less than ideal to ensure that your walking surface is illuminated.
vii. Do not create unnecessary tripping hazards with equipment, materials or tools.
viii. Peer-to-peer communication must be used regularly to remind co-workers of these safety requirements and to immediately advise peers of hazardous conditions.
ix. 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 the 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 working order.

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) 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 providing 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) Canada Labour Code regulations 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 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 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 manufacturers' 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.

Track Unit Procedure

Module

METROLINX

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6.1 Qualifications

Operators of Track Units must be qualified in and familiar with the following:

a) The Metrolinx-endorsed Canadian Rail Operating Rules (CROR)

b) The Metrolinx General Engineering Instructions

c) The physical characteristics of the unit in which they are operating and the ability to effectively control its operation

d) The operating and maintenance instructions or manuals supplied by the railway and/or manufacturer

e) The property in which they are operating

f) They must also demonstrate competency in equipment operation.

Note: In addition, operators of a Hi-Rail **MUST** 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 of 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 must not 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 should 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 secured to prevent unintentional or accidental movement as per section 6.2.9.

i) If while operating an insulated Track Unit, 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) Working or travelling Track Units must not cause continuous activation of the crossing protection. 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 at the front and rear of the unit and must also be equipped with 360-degree beacon lights.

m) All lights must be on when the Track Unit is operating. In addition, all vehicles must follow the Metrolinx Vehicle Beacon Safety 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 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.
- Within the USRC, Track Units are not permitted to operate through the interlocking unless accompanied by a CROR Rules qualified Foreman familiar with the territory, who will be responsible for the protection of the Track 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 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) 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 occupants of the Track Unit and documented in the Job Briefing.

6.2.2 Distance to Stop Test

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

b) The DTS is performed by fully applying the brakes without producing a wheel skid and bringing the Track Unit 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, and other work groups.

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

i. The 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 such changes 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 distance of at least 300 feet between Track Units when travelling.

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 distance 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 made to avoid stopping in a location with poor sight lines.

f) While working, Track Units must maintain a minimum 40 feet distance 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 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 Job Briefing.

h) Except during 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 the direction of travel needs to be changed, 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. If a backup camera is not 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, a spotter 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 on the track, or when traversing over/fouling the limits of a Roadway Grade Crossing, Employees must stop the travelling 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 using the DTMF function as stated in 6.2.6 (a)(i) or manually knife the crossing as stated in Module 8 Section 8.4.3 prior to the crossing being occupied by the Track Unit(s).

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

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 the Track Unit to a full stop before proceeding over a Roadway Grade Crossing.

d) A Track Unit must not obstruct the sight lines 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 must 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, they 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 a 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 on the rails. If available, a spotter must be used to 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 Rules qualified occupants of the Track Unit are responsible for reviewing 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 the time, signal number and name of the controlled signal being passed, including direction of travel, when the authority is verified.
iii. When travelling within the same Controlled Location(s) or Controlled Block(s) multiple times, the occupants of a Track Unit 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, it 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 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 a Track Unit is left 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, with CROR Rule 841 protection when the Track Unit is being worked on or maintained, is engaged in track work, or 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, its lights are illuminated, and the Track Unit is being used to travel, perform inspections (e.g., visual, rail flaw, geometry verifications, etc.).

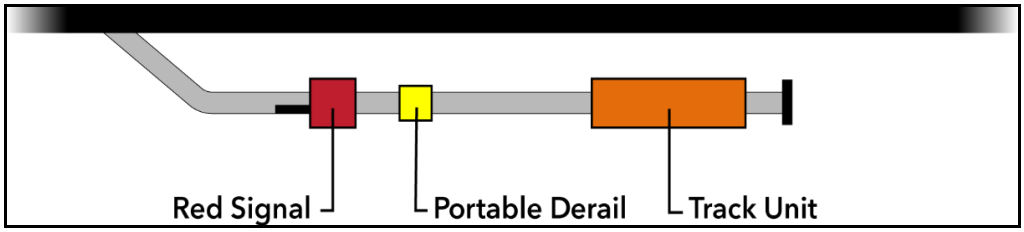
Exceptions: If storing equipment on a track that has been removed from service, the track **MUST** have a bulletin or GBO issued and be secured with a private lock. Verification that the lock is in place **MUST** be conducted during the Job Briefing.

d) Track Units must not be left unattended without them being properly secured from rolling away and/or fouling other tracks by the operator. In addition to locking the switch and installing a red signal and portable derail, the operator must consider what other methods of securement they will utilize depending on the situation, including but not limited to the following:

i. Lock the doors and remove the keys,
ii. Isolate and lock out the batteries.

iii. Apply parking brake, wheel chocks, and chains to prevent their unintentional movement.

Example 1: Track Unit(s) being stored and a red signal and portable derail applied.



Note: Portable derails are not to be used on Main track. The only exception is when Equipment/Machinery is stored on track with a TOP or Rule 42/842 protection with prescriptive routing in place.

e) All on track carts or trailers without an Independent Braking System must be chained or chocked to the track to prevent them from being moved by unauthorized persons.

f) 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.

g) 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 does 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 Employees operating or riding in Track Units must understand the duties that each 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, off or riding on identified Track Units with capability of 3 point contact (such as a tamper).

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 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 that you have three-point protection, if practicable, before fouling track to realign 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, which must be performed by CROR Rules 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, which are fulfilled by use of the automatic braking system.

h) When storing 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.

6.2.12 Track Unit Chart

TRACK UNIT CHART – TABLE # 1			
	METHOD OF OPERATION		
	TYPE 1	TYPE 2	TYPE 3
TYPE OF TRACK UNIT	TRAIN OR ENGINE	TRACK UNIT AS A TRAIN OR ENGINE	RULES FOR PROTECTION OF TRACK UNITS AND TRACK WORK
Sperry Rail Defect Detector car (TESTING)		X	X
Sperry Rail Defect Detector car (NOT TESTING) CN 1501	X		X
Pandrol Jackson Rail Grinding: RMS-1, RMS-2, RMS-11, RMS-12, RMS-13, RMS-14. RCO 50551, RCO 50552. RGS Series. HZGX 175, HZGX 177, HXGX 185 and HZGX 189 (Restricted to Frt speed or 40 MPH, whichever is less)	X		X
Loram Rail Grinding RG9, RG16, RG17, RG19 RG-306, RG309, RG-316 *Note: If the power units are separated from the grinding units they must be operated as a type 2 Track Unit as they cannot be relied upon to actuate the signal system.	X	*X See Note	X

TRACK UNIT CHART – TABLE # 1			
	METHOD OF OPERATION		
	TYPE 1	TYPE 2	TYPE 3
TYPE OF TRACK UNIT	TRAIN OR ENGINE	TRACK UNIT AS A TRAIN OR ENGINE	RULES FOR PROTECTION OF TRACK UNITS AND TRACK WORK
HARSCO or Pandrol Jackson switch & crossing grinder J series		X	X
Highway/Railway Wrecking Cranes		X	X
Other track units not listed above that actuate signal systems *(Only applicable when authorized by special instructions)	X*		X
Other tracks units not listed above that DO NOT actuate signal systems		X	X
X – Indicates wording at top of column applicable			

Types of Track Units

1. These types of track units can be relied upon to activate signal systems (CTC, interlocking) and automatic warning devices of crossings at grade. They are governed by block signals in CTC and within interlockings.

2. These types of track units CANNOT be relied upon to activate signal systems (CTC, Interlocking) or automatic warning devices of crossings at grade. They cannot be governed by block signals in CTC or within interlockings. They must consider such signals as being suspended and be governed by the instructions contained in written authorities. e.g. Rule 577.

3. When operated under the supervision of a Foreman, they must be operated under the provisions of the Rules for the Protection of Track Units and Track Work.

6.2.13 Operation of a Track Unit as a Train or an Engine

Applicable Rules – When run as a train or engine, all Canadian Rail Operating Rules and CN Special Instruction apply except as provided herein.

a) **Operating Speed** – A track unit operating as a train or engine must observe timetable freight or passenger speed, or the specified speed for the unit, whichever is less. A track unit must not exceed 5 MPH while passing over a dual control or power operated switch.

b) **Operating Over Dual Control Switches** – The RTC must, line and block devices controlling dual control switches, for the movement of a track unit operating as a train or engine. When this cannot be done the conductor pilot will operate dual control switches in "hand" position and not restore them to "power" position until the track unit has moved off the switch. Refer to subdivision footnotes when operating over an Auto-normal dual control switch.

c) **Operating Over Power Operated Switches** – The RTC must line and block devices controlling power operated switches, for the movement of a track unit operating as a train or engine. When this cannot be done, arrangements will be made to have these switches operated by a qualified employee.

d) **Operating Over Spring Switches** – Before passing over a spring switch the conductor must observe the points to know that they are properly closed.

e) **Operation Within CTC Territory** – A track unit operating as a train or engine must be authorized by Rule 577. Block signals do not provide operating authority and must be considered as being suspended. Before acting under the authority of Rule 577, the conductor pilot must ensure that all employees on the track unit are made aware of and understand the contents of the authority.

f) **Operation Within OCS Territory** – A track unit operating as a train or engine must be authorized by an OCS clearance. Before acting under the authority of an OCS clearance, the conductor pilot must ensure that all employees on the track unit are made aware of and understand the contents of the authority.

6.2.14 Operation Through or Over Interlocked and Non-Inter-Locked Railway Crossings at Grade and Drawbridges

Interlocking signals do not provide operating authority and must be considered as being suspended. Track units operating as train and engines that are required to move through an interlocking or non-interlocked railway crossings at grade and drawbridges will be governed by the following:

a) **Locally Controlled Interlockings – Drawbridges** – A track unit must stop before passing the governing signal and then be governed by verbal authority, hand signal or Rule 609 authority from the signalman. If there is no signalman on duty, the track unit may proceed after the conductor pilot has ascertained that the route is properly lined.

b) **Manual Interlockings – Railway Crossing at Grade** – A track unit must stop before passing the governing signal and then be governed by special instructions.

c) **Remotely Controlled Interlockings – Drawbridges and Railway Crossings at Grade** – A track unit must stop before passing the governing signal and then be governed by Rule 610 authority from the Signalman (RTC).

d) **Automatic Interlockings – Railway Crossings at Grade** – A track unit must stop before passing the interlocking signal and then be governed by Rule 611 (a) (i), (ii), (iii) and (d): The knife switch must not be closed until the track unit has cleared the conflicting route(s).

e) **Non-Interlocked Drawbridges** – A track unit must stop at the stop sign and not proceed until it has been ascertained that the route is properly lined. Special instructions will govern when there is an attendant in charge.

f) **Non-Interlocked Railway Crossings at Grade** – A track unit must stop at the stop sign and not proceed until it has been ascertained that no conflicting train or engine is evident.

6.2.15 Operation Over Public Crossings at Grade – Track Units operating as a train or engine will be governed as follows:

a) **Crossings at Grade With Automatic Warning Devices Equipped With Gates** – A track unit must not enter the crossing at grade until manually protected by a flagman; or the gates are in horizontal position; or it is known to be clear of traffic and will remain clear until occupied.

b) **Other Crossings at Grade** – A track unit must not enter the crossing at grade until manually protected by a flagman; or it is known to be clear of traffic and will remain clear until occupied.

6.2.16 Self-propelled Cars and Specialized Equipment

Permissible Speeds:

a) **Rail defect detector cars**

i. When testing – 15 MPH.
ii. When not testing – Time table passenger speed or 50 MPH whichever is less.

b) **Rail grinding equipment** – Maximum freight train speed or specified speed for that type of equipment whichever is less.

c) **Highway-Rail Wrecking Cranes** – Maximum rail speed 25 MPH, reverse 15 MPH, through turnouts and crossovers 5 MPH.

Protection when tied up:

The switches governing movement to the tie-up track must be locked with special locks and lined against other movements. When it is not practicable to lock these switches the RTC must be notified. When so notified, the RTC will issue instructions to all trains affected that such equipment must not be coupled on to.

6.2.17 Track Evaluation System Cars (T.E.S.T. Consist)

a) Qualified Contractor/Employee is in charge of Test cars.

b) Test power box car is equipped with a pilot and should run in the forward direction only.

c) When testing, copies of all DOBs and TGBOs must be supplied to the Qualified Contractor/Employee, prior to departure.

d) Test consist equipment may operate at freight speed or where applicable, express speed.

e) Authority for movement and marshalling instructions will be granted by message and/or Test car personnel when testing and/or deadheading.

f) One train crew member may occupy test coach car to handle tail end operations. Test car movement will be as prescribed by the Qualified Contractor/Employee.

6.2.18 Stand-alone Test Car - e.g., Track Geometry

This car, when not operating as a track unit, will be operated by qualified engineering employees under the following instructions:

a) Operate as a train under the direction of a Conductor

b) Must not exceed authorized freight speed

c) Must not exceed 30 MPH:

   i. Between the advance signal and until the unit is entirely clear of any controlled or automatic interlocking; and
   ii. Approaching all public crossings at grade equipped with automatic warning devices until such crossing is fully occupied.

In addition to the above: In CTC, will be governed by the indication of all block and interlocking signals.

6.2.19 Locomotives Running Light and Self-propelled Car Movements

Except on subdivisions or portions thereof specified in the Timetable or Special Instructions, the following speed restrictions apply:

a) When approaching any public crossing at grade protected by automatic warning devices

b) Between the advance signal and an interlocked railway crossing at grade; or

c) Where a signalled system is in service.

i. One unit running light – 30 MPH
ii. Two units running light – 50 MPH
iii. One unit coupled to one other piece of equipment – 50 MPH

Note: Not applicable to rail defect detector cars.

6.2.20 Track Unit Operation over Non-compliant Track

a) Equipment, engines and track units operating as engines (Rail car movers/Brandt trucks) shall not be permitted to traverse non-compliant track.

b) Track geometry defects shall be corrected to a minimum of Class 1 tolerances using power jacks, ballast bags or other means to stabilize the track structure.

c) All other track units shall operate over non-compliant track at extreme caution at track unit speed not exceeding 5MPH.

6.3 Pushing Equipment

a) It is imperative that the moving of equipment is carefully controlled and always protected in order 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 that there is no conflicting Movement.
ii. Determine the distance to be travelled.
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 used:

- Observing from the ground
- Riding the point
- Delegating another Employee to observe the point.

6.3.1 Flangeways, Crossings and Emergent Conditions

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

6.3.2 Point Protection Requirements

This process 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 by the Track Unit operator and the observer, including but not limited to the following:

   i. Who will protect the point
   ii. How the point will be protected
   iii. Track designation where equipment is being protected
   iv. Communication method(s) by which instructions will be provided.

b) Confirm that a CROR Rules qualified and trained Employee will remain in position to observe 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 in order 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 them 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 immediately.

i) If the Employee notices the equipment is not moving once advised, they must contact the Track Unit operator and verify whether 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 on the lookout for restricted clearances.
vii. Ride on the side that 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 or 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 on 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 than is required to maintain a firm footing, and in no case where your feet are positioned over or inside the rail.
xiii. Ride with one foot in the stirrup and the other 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, using the designated foot pedestals and handholds.

6.5 Securing Equipment by Applying Hand Brakes

6.5.1 General

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 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 force 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 the hand brake is 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

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

6.5.2 From the Ground

a) Ensure ground conditions provide a firm footing.

b) Grasp the handle with your hand, bend slightly at the knees.

c) Take up the slack by lifting repeatedly on the lever either parallel to or facing the car.

d) Keep your back and left arm straight, bend your knees and straighten again to use your legs to tighten the chain.

6.5.3 From the Ladder

a) Using the side ladder, climb to a height that positions the hand brake lever between waist and knee.

b) Maintaining a firm grip on the ladder or grab iron with the right hand, grasp the lever with the left hand.

c) Lift repeatedly on the lever with your left arm to take up the slack.

d) Keep your back and left arm straight, bend your knees and use your leg muscles to tighten the chain.

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

6.5.4 Crossing Between Coupled Equipment

a) To ensure safety while crossing between coupled equipment, Employees must comply with the following procedures:

i. The Movement must be stopped, and confirmation obtained that it 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 a crossover platform to the adjacent car platform.

b) When crossing equipment that has crossover platforms but no handholds, Employees must ensure that 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 a 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 the side ladder.
v. If there is no end platform, do not cross between cars. Walk around them.

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

6.5.5 Coupling and Uncoupling Equipment

Switching requires the coupling and uncoupling of equipment countless times per day. This procedure describes the steps Employees should follow to mitigate hazards associated with coupling to equipment.

6.5.6 Procedure for Coupling

a) Opening knuckles

i. Before coupling equipment, ensure that at least one knuckle is open. If required to open a 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.

b) Couple equipment

i. A speed of 2 mph should not be exceeded at the time of coupling.
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.

c) Stretching the coupling

i. The coupling must be stretched to ensure it is secure prior to coupling air hoses, attempting to make additional couplings, or pushing equipment.

d) Prevent unintentional movement when coupling. Prior to coupling, ensure Track Unit and equipment are secure as per CROR Rule 112.

e) Prevent crossed drawbars

i. Ensure at least one knuckle is open (if required, equipment must be separated by no less than 50 feet before attempting to open the knuckle by hand)
ii. Ensure drawbars are aligned

iii. Use extreme caution when coupling on curves.

f) 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.

g) 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.

6.5.7 Procedure for Uncoupling

a) Prior to uncoupling, ensure the equipment to be left is secured as per CROR Rule 112.

i. Extra care must be taken when uncoupling from loaded tank cars, as sloshing action may cause unexpected movement.
ii. Ensure procedures to prevent "bottling the air" are complied with.

b) Obtain the slack if necessary.

c) Grasp the operating lever firmly and pull up with only as much effort needed to release the pin.

iii. Extra caution must be taken to prevent injury from a frozen or inoperative lever.

d) Turn head away and keep legs and arms clear of air hoses to avoid flying debris.

e) While maintaining a firm grip on the operating lever, separate the equipment to complete the uncoupling.

6.5.8 Coupling and Uncoupling Air Hoses

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

a) Coupling

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

b) Uncoupling

Uncoupling an air hose is only 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.

i. Ensure Track Unit and equipment under your control are stopped and peer-to-peer communication with the Track Unit operator is maintained.
ii. Close both angle cocks.

Note: An angle cock on the far side of the car **MUST NOT** be opened from the near side.

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

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

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

6.5.9 Aligning Drawbars

a) To safely align a drawbar, Employees must comply with the following procedures:

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

b) Manual Alignment

i. Separate cars by at least 50 feet.
ii. Before applying force on the drawbar, ensure that no car movement can occur due to slack action, air brakes, etc.
iii. Position yourself with your back leaning against the knuckle and both feet positioned inside the rail, using a staggered stance with feet shoulder-width apart.
iv. Keep back straight.

v. Bend knees.
vi. Place hands under knuckle.
vii. 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 drawbar may move differently, then continue adjusting.

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

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

d) Keep head up, back straight and push with legs with feet shoulder-width apart.

e) Apply force in a slow, consistent manner without jerking.

f) Be aware of footing and any tripping hazards.

g) 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 the track if the braking system is defective.

f) Ensure that while towing, the trailer or attachment is securely attached by 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.

Handling Switches, Portable Derails and Signal Stands

Module 7

METROLINX

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7.1. Handling Switches

7.1.1. Communication Requirements

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 CROR Rules qualified, and communicate the following via radio to the Foreman, operator or persons using the switch:

   i. Location of the switch and its number, if applicable
   ii. The route the switch is lined for
   iii. Confirmation of when dual control switches are back on power and locked. (Also ensure this is documented on prescribed forms)

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 **MUST** follow the switch cranking procedures established in TTR protocols when manual operation is required.

7.2. Safe Operation of Hand-Operated Switches

7.2.1. Visual Inspections

A visual inspection of the switch components must be completed to ensure that there are no obstructions that could negatively impact switch operation.

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 removal
- Build-up of snow or ice underneath the handle of a semi-automatic switch
- Large chunks of ice that may have fallen off rolling stock onto the points or switch rods.

Note: If 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 keep your body away from any pinch points of the switch.

7.2.2. Types of Hand Operated Switches

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. Align your body 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 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 movements, move the lever to the other side of the switch stand.

v. 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, your 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
- Your 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 potential 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, ensuring 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, guide the handle into the opposite retaining notch with a downward force.

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. Align your body 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 that 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

Portable derails are not to be used on Main track. The only exception is when Equipment/Machinery is to be stored on track with a TOP or Rule 42/842 protection with prescriptive routing in place.

Other factors that must be consider when using Portable Derails:

a) Portable derails used on Metrolinx property 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.

b) 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 work plan.

c) The appropriate authority must be notified prior to enacting 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.

d) When using portable derails, all manufacturers' specifications regarding installation, removal and maintenance must be followed.

Note: Refer to Metrolinx GEI Module 3, Section 3.7.2 - 3.7.3 for Portable Derail Requirements and some examples of their use on non-main tracks.

7.4. Hand-Operated Derails

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 outlines the steps to follow to ensure that derails are handled safely.

7.4.1. Derail Safe Handling Procedure

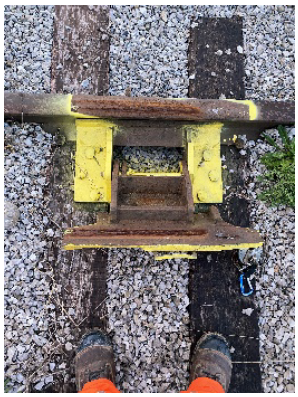
a) Determine whether track to be used has a derail. This will be identified by:

i. A derail sign adjacent to the derail, and/or
ii. Special instructions (e.g., bulletin, Timetable footnote, yard manual).

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

c) Ensure derail is clear of debris and will not interfere with equipment passing over it; also ensure the points are closed when handling a switch point derail.

d) Set the derail in non-derailing position; unlock and remove switch lock.



i. When operating flop type, hinged 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

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

- Firmly grip 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), and insert lock or keeper

e) Place derail back in derailing position by:

i. Ensuring rail on which derail will rest is clear of debris or obstructions.
ii. Ensuring your hands, feet and body are clear of derail path.
iii. Looking in both directions to ensure that no equipment will interfere.
iv. Placing the derail in the derailing position using leg muscles to do the lifting, while ensuring knees are bent and back is straight.

f) When work on a track equipped with a derail has been completed, immediately after the last piece of equipment has cleared the derail, the derail must be placed in the derailing position and locked.

g) 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 put in place.

This condition must be reported to the proper authority prior to leaving the location.

7.5. 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 ensures the signal stand is adequately secured.

7.6. 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 on 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 to its original position and secured with a 1/4-inch nut and bolt, then tightened to a torque that ensures the signal stand is adequately secured.

Roadway Grade Crossings

Module 8

METROLINX

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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 to be carried out may cause an obstruction of sight lines at a Roadway Grade Crossing not equipped with an automatic warning system when there is the potential for 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 potential for an approaching Movement.

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

iv. A 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 travelled roadway.

vi. Movements are anticipated, and the presence of Track Units or construction/maintenance equipment could cause 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 emergency work or regulatory testing at a Roadway Grade Crossing, the above TMP is not required.

8.3 Traffic Control for Planned Work

Before undertaking work that will require the regulation of traffic over a Roadway Grade Crossing for an extended period of time or that 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 upon means of protection must be provided (between the road authority and the railway) in accordance with the Traffic Management Plan.

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

i. Be governed by instructions from the road authority that ensure the traffic protection procedures to be followed for such work conform to the applicable provincial or road authority requirements.
ii. Ensure that all protective measures listed 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 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 in the applicable authority. Positive protection must remain in effect until the Roadway Grade Crossing is reactivated and the AWDs are 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 has pedestrian access, additional Traffic Control Persons may be required.
ix. Prior to authorizing a Movement through the authority limits, the Foreman named in the 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 by the planned work, only one crossing may operate under this instruction; other crossings must be closed to traffic for the 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.
   iv. Signal lights, gates and other protective devices are broken or damaged.

b) Except as otherwise noted, this document applies to manual protection performed by contractors working on behalf of Metrolinx, or other authorized 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 that is consistent with the ones they encounter for other roadway flagging situations.

   i. A stop signal issued to roadway users must be provided from a Position of Safety until that signal is recognized, acknowledged and applied by the roadway users.

b) Clear instructions must be in place for 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 three minutes.

If it takes longer than three minutes, the Track Unit shunting method or knife switch method must be used. The crossing is activated by entering the crossing-specific code from the list provided in the GEI Module 12 Job Aid – DTMF Table of Codes

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

a) By entering the deactivation DTMF code from the list in the GEI Module 12 Job Aid – DTMF Table of Codes (preferred method), or

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

c) The DTMF times out after three (3) minutes. The following must be considered:

   i. Not every crossing has DTMF operation.
   ii. If DTMF is not working at a crossing, you must use the knife switch method.
   iii. If DTMF is not working and is in the Timetable, report it to the RTC and ensure protection is in place.
   iv. If DTMF is not working and is not in the Timetable, advise the Metrolinx Fault Controller that the maintenance DTMF code is not working. They 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

a) When safely stopped within 100 ft of the paved portion of the grade crossing.

b) Locate the applicable crossing and appropriate DTMF code in the GEI Module 12 Job Aid – DTMF Table of Codes.

c) Be on the appropriate VHF radio channel.

d) While holding down the PTT (mic) on the radio, enter the applicable code listed in the GEI Module 12 Job Aid – Table of Codes

e) The 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 or Track Unit shunting method, or if the knife switch must be utilized before occupying the crossing limits.

f) Once the AWD has been in operation for 20 seconds and the gates are horizontal, the Track Unit(s) may proceed.

g) When all Track Units have cleared the crossing and are off the island track (100 ft beyond the paved portion of the roadway), the DTMF deactivation code must be entered to turn off the crossing protection.

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

i) If steps f) and g) are forgotten, the crossing will recover on its own after three 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 following outlines the proper use of a knife switch or the DTMF operation, if available, to allow Track Units, work equipment and personnel to safely traverse at-grade crossings on Metrolinx territory.

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

- Crossing knife switches are located on the main bungalow of every Metrolinx-owned crossing warning system. They are in a locked box that 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 in any parts of the box other than the plastic handle (shown at right). There is a risk of electrocution or electrical shock (12v DC).

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

The knife switch has three positions:

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

b) 90 degrees is the "Operating" position that will activate the crossing. In this position, the gates will come down, the 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 personnel to allow Track Units and work equipment to safely traverse the crossing.

c) The "Up" position is 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. This position **must not** be used unless positive protection is in operation on all tracks.

   i. After all Track Units and work equipment have safely passed through the crossing, return the knife switch to the "Down/Off" position.

ii. Sign the logbook in the knife box, fill in the required information, and return the logbook before locking the box again.

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

If there are any issues, the RTC **MUST** be notified. Comments in the logbook **MUST** indicate the nature of the issue and state that the RTC has been advised.

8.4.4 Radio-Activated Crossings

Crossings requiring activation by radio are governed by the following instructions:

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

b) If the move does not commence within three minutes, or you need to deactivate the warning devices, select the standby channel and press the push-to-talk button while dialing *(number shown for crossing)#.

c) To prevent confusion by the public and possible damage, if the barriers begin to rise and then lower before completing the cycle, Employees must not reactivate the crossing protection by using the DTMF code until the crossing protection for the initial move has stopped (with barriers raised in a vertical position and warning lights extinguished).

Red Zone / Green Zone and ATO Planning

Module 9

METROLINX

THIS MODULE HAS BEEN LEFT INTENTIONALLY BLANK FOR FUTURE INSTRUCTIONS.

Overhead Line Equipment

Module 10

METROLINX

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This Module has been left intentionally blank for future instructions.

10.1 General Instructions for all employees (Placeholder)

10.1.1 Emergency Conditions

10.1.2 Minimum Approach Distance

10.1.3 Work under protection

10.1.4 Impedance Bonds and application of temporary jumpers

10.1.5 Bonding and Grounding

10.2 Instructions for Overhead Line workers (Placeholder)

10.2.1 PPE

10.2.2 Operating Diagram version control

10.2.3 Providing Protection

10.2.4 Construction

Operating Signs

Module 11

METROLINX

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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, 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 changes or begins, the boundary point should be indicated by a sign indicating the new method of control. Where the main track method of control ends, it should be identified by a Main Track Ends sign.

e) A universal Advance sign should be used on the 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.

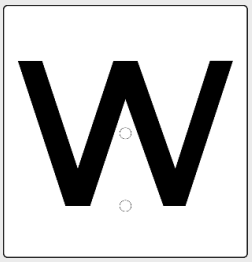
   i. **Stations in CTC:** the Advance sign should be placed one (1) mile in advance of the first controlled signal for that station.

Note: Other field signs that may require compliance by operating crews that are specific to work deployed by engineering groups may be displayed. See the Metrolinx GTS plans.

11.2 Operating Signs

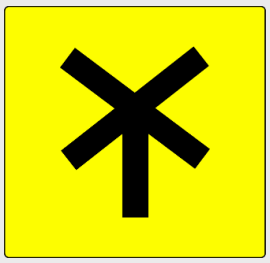
Additional sign detail, technical specifications and installation practices must be in accordance with the Metrolinx GTS plans.

a) **WHISTLE POST**
Posted 1/4 mile from crossings and other locations indicated in special instructions that require CROR Rule 14 l) application.

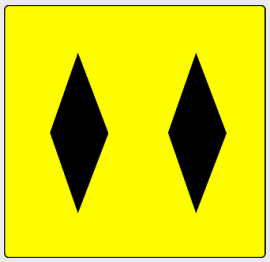


b) **WHISTLE PROHIBITED**
Posted 1/4 mile from crossings that are exempt from CROR Rule 14 l) iv).

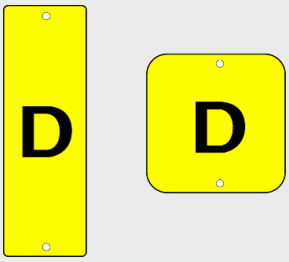
c) **CROSSING CIRCUIT**
Indicates the beginning of the track circuit of a crossing.



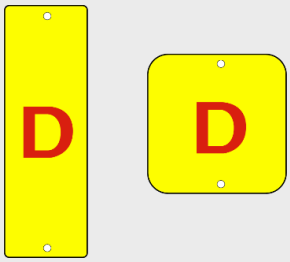
d) **RESTRICTED CLEARANCE**
Indicates that a restricted clearance is located at or beyond this point.



e) **DERAIL**
Placed at the location of derails.

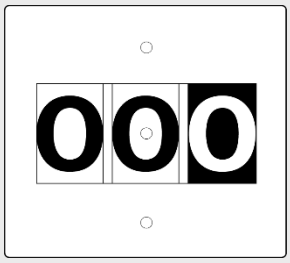


f) **SPECIAL DERAIL**
Placed at the location of special derails.

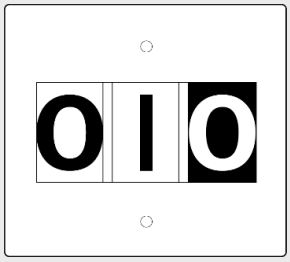


g) **SUBDIVISION MILEAGE**
Posted along a subdivision to indicate the location.

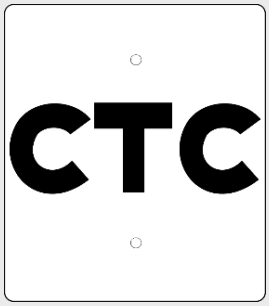
h) **MEASURED MILE BEGINS**
The first point of a precisely measured mile. Used to verify distance-measuring equipment.



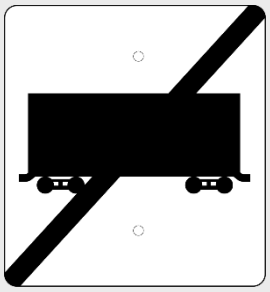
i) **MEASURED MILE ENDS**
The last point of a precisely measured mile. Used to verify distance-measuring equipment.



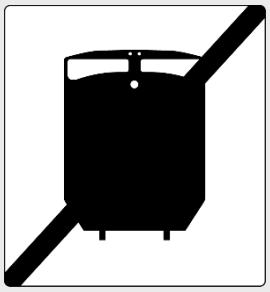
j) **CTC CONTROL BEGINS**
Indicates the location where CTC begins as specified in the Timetable.



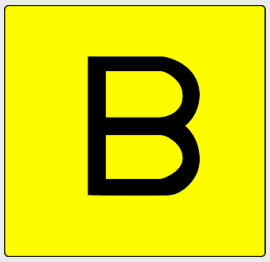
k) **CARS PROHIBITED BEYOND THIS POINT**
Special instructions that allow cars to move but not be left beyond this point.



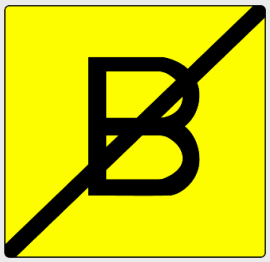
l) **LOCOMOTIVES PROHIBITED BEYOND THIS POINT**
Locomotives are not permitted to operate past this sign.



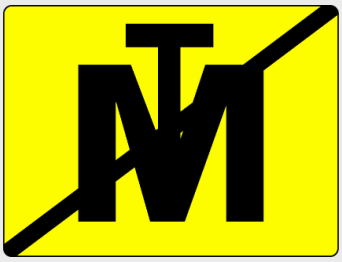
m) **BLOCK BEGINS (NOT IDENTIFIED BY SIGNAL)**
Indicates the location of the beginning of a block. When used at a hand-operated switch, this sign indicates the clearance point.



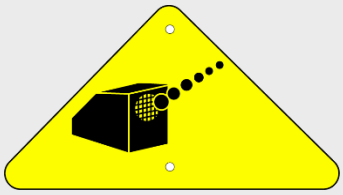
n) **BLOCK ENDS (NOT IDENTIFIED BY SIGNAL)**
Indicates the location of the end of a block. When used at a hand-operated switch, this sign indicates the clearance point.



o) **MAIN TRACK ENDS**
Indicates the end of the main track.



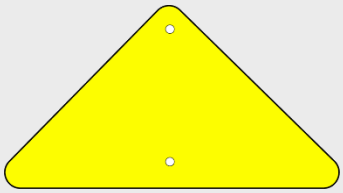
p) **WAYSIDE INSPECTION SYSTEM (WIS) 1 MILE**
Placed 1 mile from every WIS site as indicated in the Timetable.



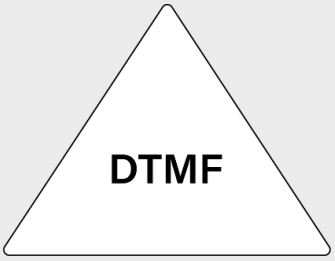
q) STATION NAME

r) **ADVANCE SIGN ONE MILE TO**
Placed 1 mile before:

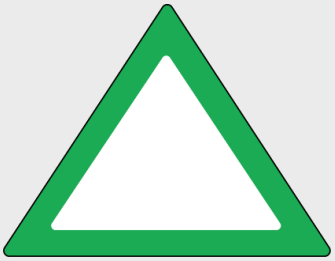
- Station (may indicate name)
- Interlocking (may indicate name)
- Method of control change
- Controlled location.



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.

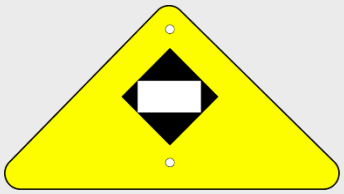


u) **ADVANCE SIGN ONE MILE TO SPECIAL ZONE**

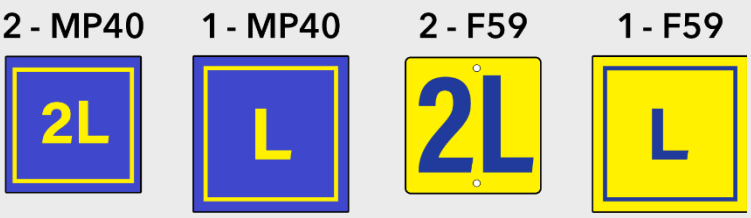
For trains identified as Key Train/Higher Risk Key Train or Special Dangerous Commodities.

These signs are 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 posted for each zone.

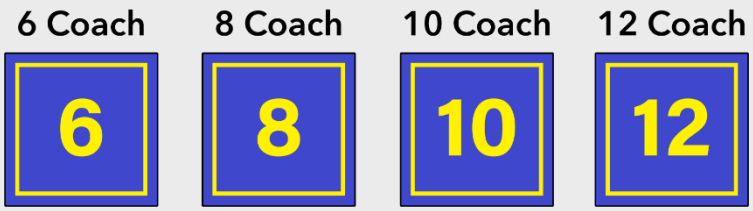
When entering these zones within the mileages stated in the Timetable, these signs may not be displayed.



v) **LOCOMOTIVE-SPOTTING MARKERS**

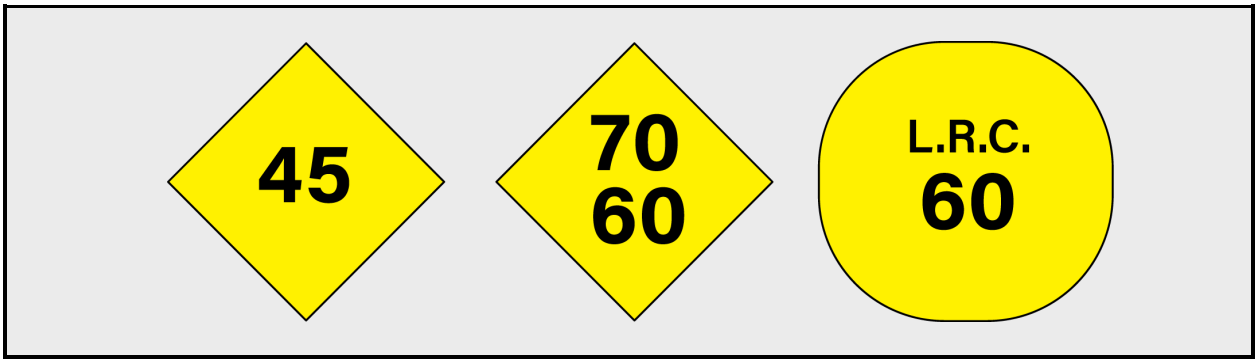


w) **COACH-SPOTTING MARKERS**



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 govern engineering Track Units, as Track Unit Speed is applicable.



Exceptions

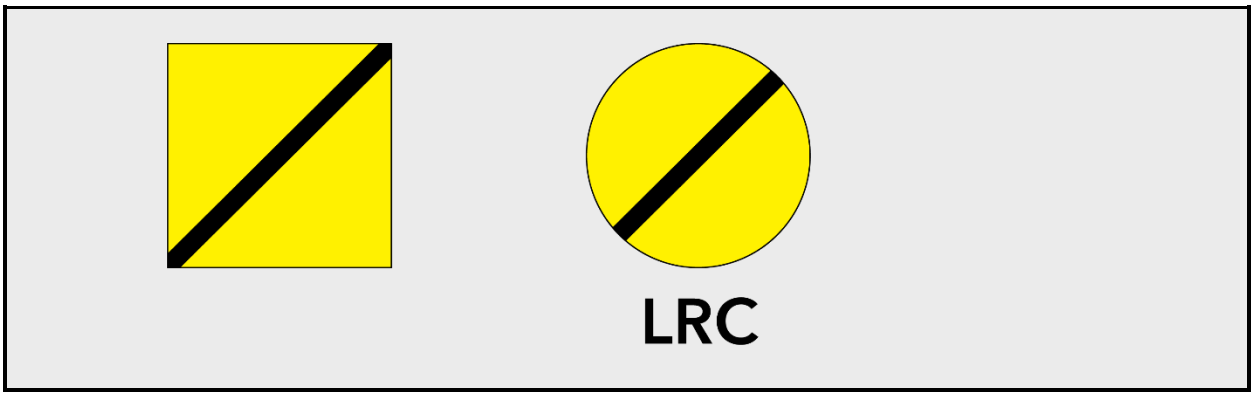
a) When there is a reduction in speed from the previous zone, the Zone Speed sign should be placed nine thousand (9,000) feet (1.7 miles) in advance of the speed restriction point. The speed restriction point should be identified by yellow backing on the reverse side of the Zone Speed sign governing a Movement in the opposite direction.

b) Zone Speed signs should not be placed:

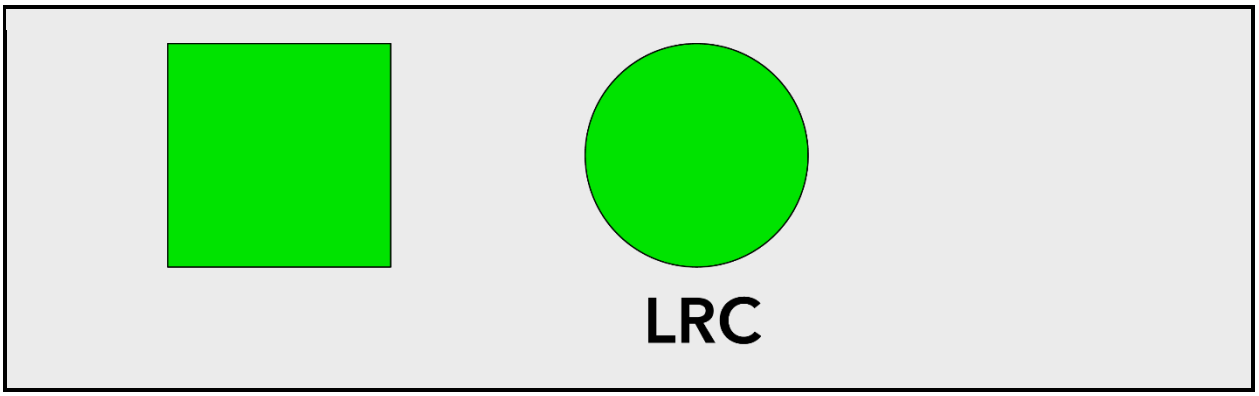
- In terminals
- On subdivisions that have one speed zone
- On subdivisions with a maximum speed of 30 mph or less.

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.

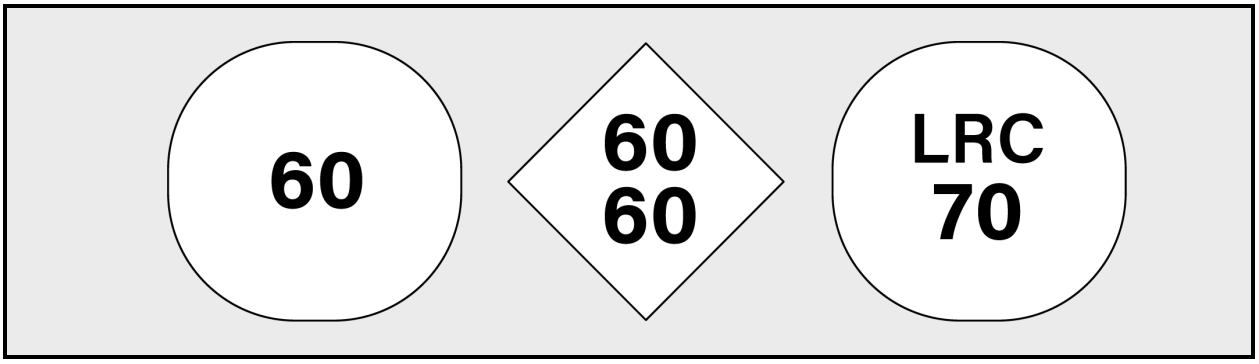


Resume Speed signs, the reverse side of the Restricting sign, should be placed to indicate the end of a Permanent Slow Order, and will normally be located to the left of the track for Movements exiting the PSO.



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 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. PSO Restricting and Resume Speed signs (Section 11.4) should be placed to define the limits of each PSO.

11.6 Anti-Trespass Panel (ATP) Signs

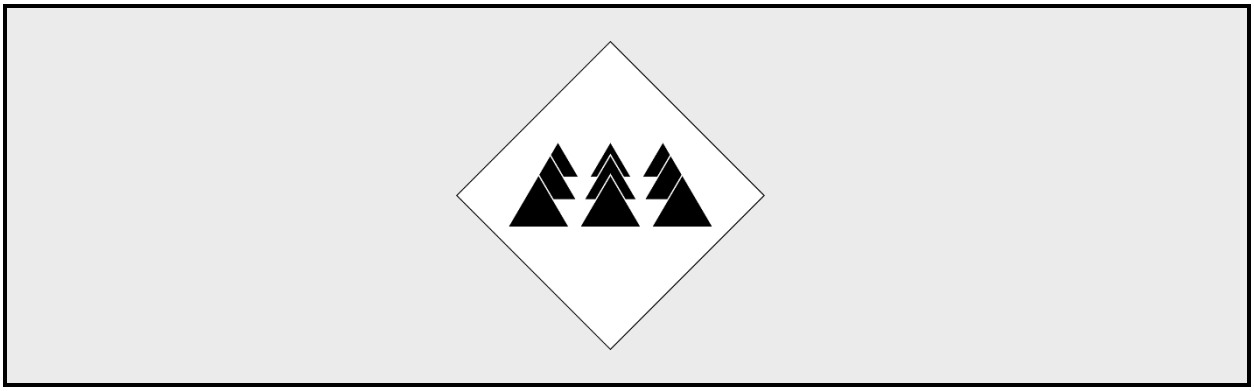
a) ATPs provide a visual and physical deterrent to persons attempting to gain illegal access to the corridor where fencing is not physically possible.

b) Physical characteristics of ATPs provide 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 chain link or security fencing.

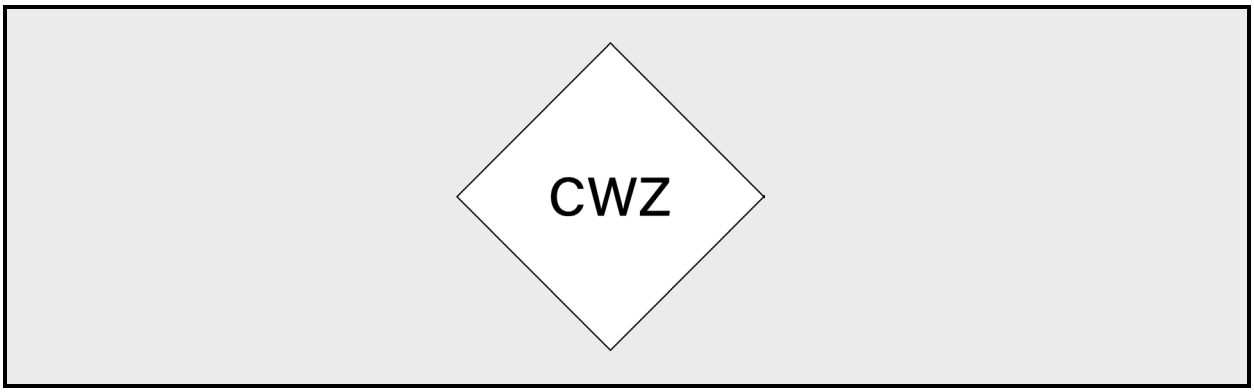
d) ATPs should be marked by a field sign immediately adjacent or within proximity to its location to notify operating and engineering crews of an uneven walking surface.

e) Technical specifications for installing ATP signs must be in accordance with the Metrolinx Standards.



11.7 Continuous Work Zone (CWZ) Signs

Continuous Work Zone (CWZ) – Indicates to Employees/Contractors of an approved Continuous Work Zone (CWZ) where work has the ability to continue while a movement passes. Signage identifying the continuous work zone shall be placed at either ends of the approved limits and all entry and exit points when all criteria is met.



11.8 Platform Approach Signs

An advance sign positioned one mile before, alerting train crews that they are approaching the following station platforms:

- Malton
- Downsview
- Bronte
- Rouge Hill
- Exhibition
- Danforth
- Whitby
- Ajax
- Guildwood
- Weston

Metrolinx GEI

Job Aids

Module 12

METROLINX

Table of Contents

12.1. JOB AID #1 – General Rule O

GENERAL RULE O

The purpose of this Job Aid is to provide assistance with the application of General Rule O on Metrolinx territories.

This document outlines common places on MX territory that will place the advance flag at the same mileage as the flag it governs. At these locations General Rule O is applicable and the placement of an advanced flag is not required but must be identified in the GBO.

This job aid uses 842 flags in its diagrams but is applicable to CROR Rule 843 unless stated otherwise.

Before fouling track or erecting any flag familiarize yourself with the current up to date Timetable for the location and ensure you apply CROR Rules 842, 843, 845 and GEI 3.1 as required.

METROLINX FLAGGING INSTRUCTIONS:

842 Flags: Must be at the identifiable location stated in GBO (Must not be long or short flagged)

843 Flags: Must be at exact location as identified in GBO (Must not be long or short flagged)

Advance Flags:

Advance Flags 2 miles from flag do not need to be identified in GBO

Advance Flags greater than 2 miles from flag **must** be identified in GBO

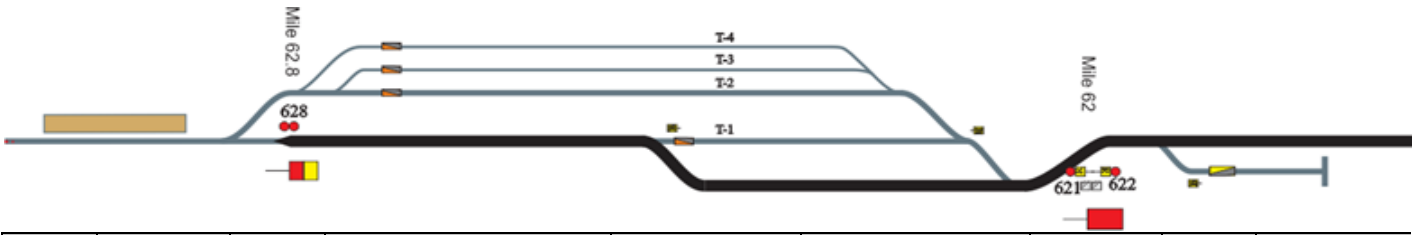
Advance Flags less than 2 miles (Identified General Rule O applicable locations) **must** be identified in GBO

No Advance Flags (Identified General Rule O applicable locations) **must** be identified in GBO

GENERAL RULE O BREAKDOWN

CROR General Rule O:

In these rules when the distance prescribed for the placement of signals, signs or flags is not possible due to track configuration, the maximum distance available applies.

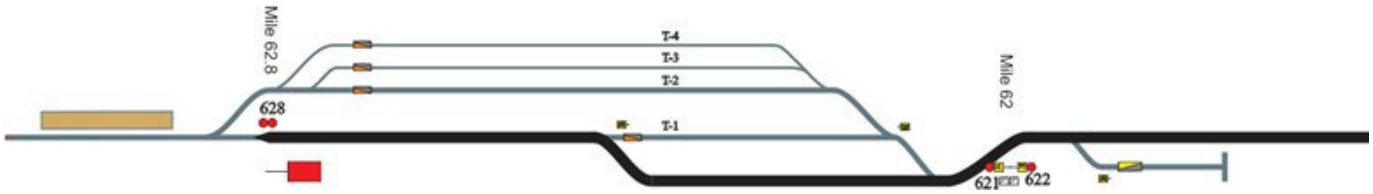


Item #	GBO No	Rule	Time From Date Time Until Date	Speed MPH	On Track(s)	At/Between Mile	And Mile	Foreman
135	4657	42	0800 Aug 4th 1600 Aug 4th YELLOW OVER RED SIGNAL GOVERNING SOUTHWARD MOVEMENTS IS LOCATED AT MILE 62.8 Newmarket Sub			62 AND	60	John Smith

General Rule O Breakdown

CROR General Rule O Continued:

If the maximum distance available will place an advance flag at the same location as the flag it governs the approach to, such advance flag need not be placed but such must be indicated in the GBO



Item #	GBO No	Rule	Time From Date Time Until Date	Speed MPH	On Track(s)	At/Between Mile		And Mile	Foreman
135	4657	42	0800 Aug 4th 1600 Aug 4th YELLOW OVER RED SIGNAL GOVERNING SOUTHWARD MOVEMENTS will not be displayed			62	AND	60	John Smith

General Rule O applicable locations where directional advance flagging is not required:

Bala Sub Mile **2.1** and Mile **15.91**

Galt Sub 1.9 and Mile **4.78**

GO Sub Mile **11.7** and Mile **11.5**

Guelph Sub Mile **63.43** and Mile **30.08**

Kingston Sub Mile **313.57** and Mile **332.4**

Newmarket Sub Mile **62.8**

Oakville Sub Mile **0.96**, Mile **1.17**, and Mile **31.94**

Pearson Sub Mile **0.1**

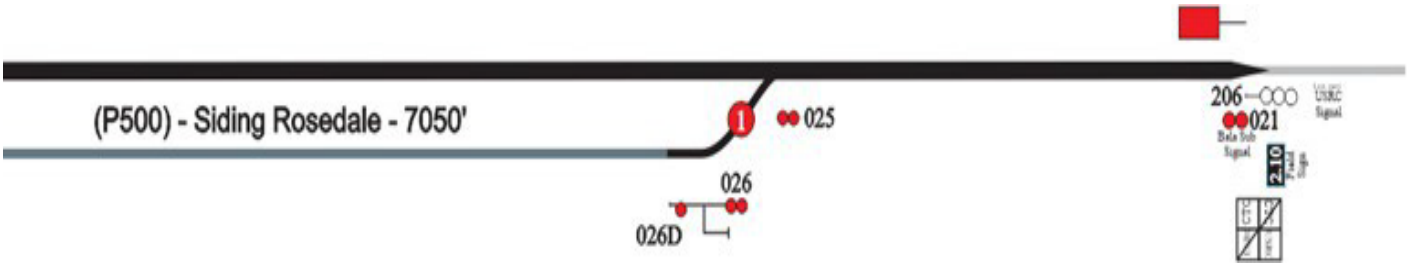
Uxbridge Sub Mile **38.9**

Weston Sub Mile **1.9** and Mile **16.8**

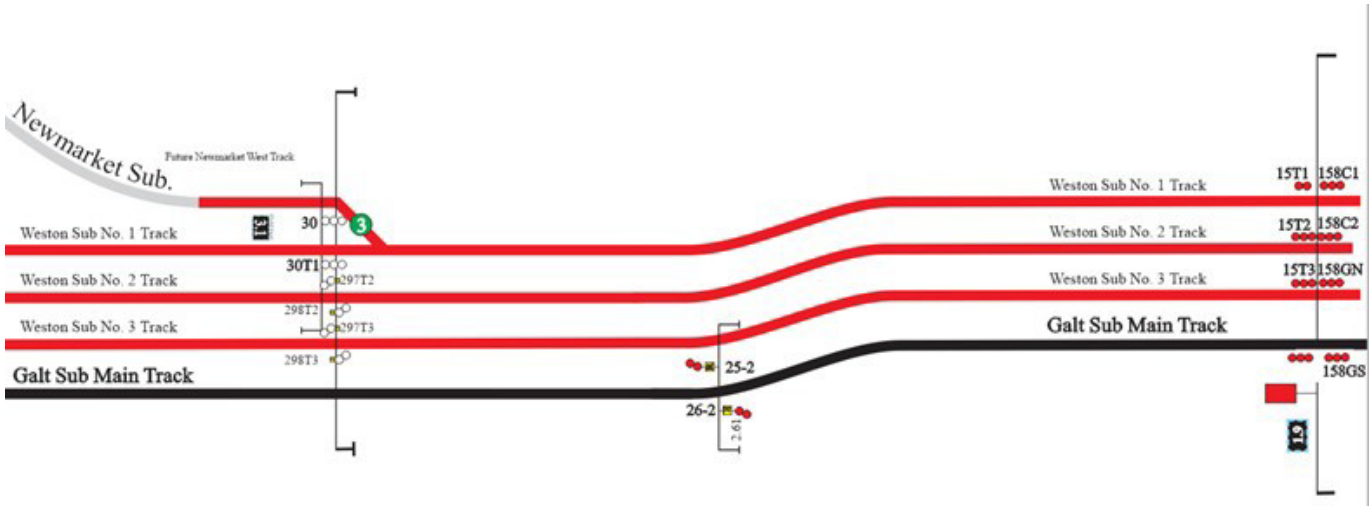
GENERAL RULE O FLAG PLACEMENT JOB AID

General Rule O Applicable Locations Job Aid	
Sub: Bala	***Advance Flag Location:*** N/A
Applicable Mileage: **15.91**	***Flag Location:*** To the right of the TRK at mile 15.91 Bala Sub
Special Instructions: YELLOW OVER RED SIGNAL GOVERNING SOUTHWARD MOVEMENTS FROM CN BALA SUB WILL NOT BE DISPLAYED	

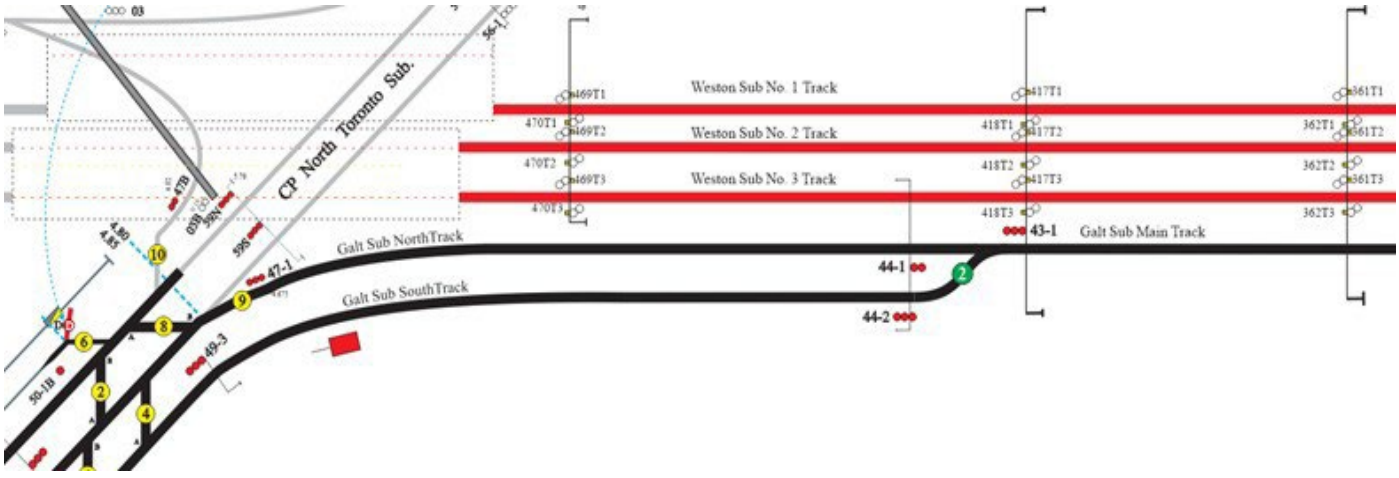
General Rule O Applicable Locations Job Aid	
Sub: Bala	***Advance Flag Location:*** N/A
Applicable Mileage: **2.1**	***Flag Location:*** To the right of the TRK at mile 2.1 Bala Sub
Special Instructions: YELLOW OVER RED SIGNAL GOVERNING NORTHWARD MOVEMENTS Will NOT BE DISPLAYED	



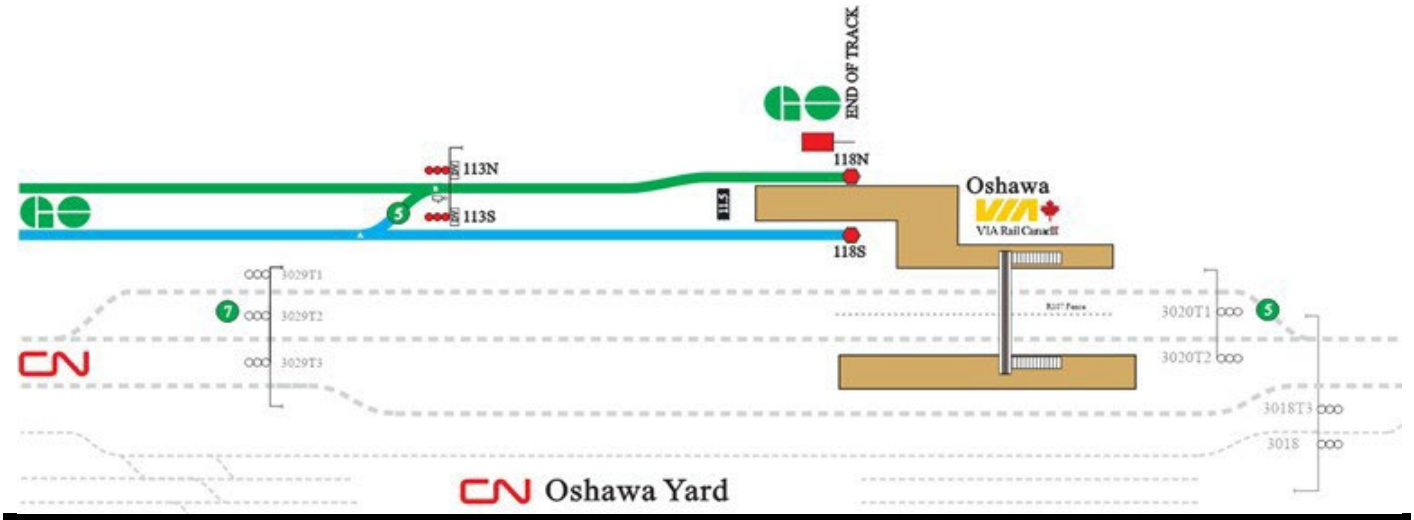
General Rule O Applicable Locations Job Aid	
Sub: Galt	***Advance Flag Location:*** N/A
Applicable Mileage: 1.9	***Flag Location:*** To the left of Galt sub TRK at mile 1.9 ***(See USRC Timetable 1.10)
Special Instructions: YELLOW OVER RED SIGNAL GOVERNING WESTWARD MOVEMENTS WILL NOT BE DISPLAYED	



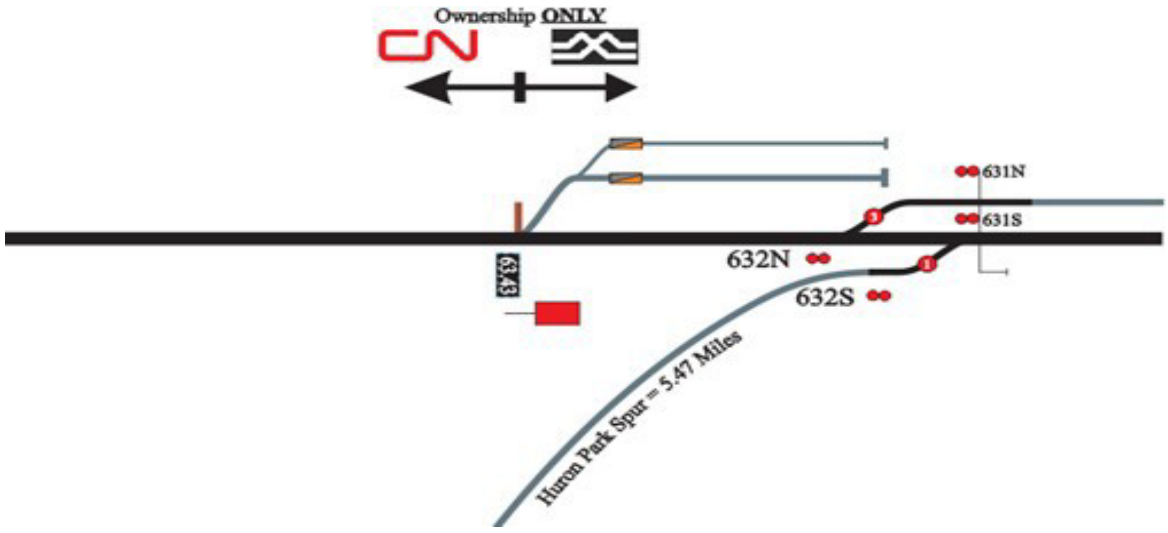
General Rule O Applicable Locations Job Aid	
Sub: Galt	***Advance Flag Location:*** N/A
Applicable Mileage: 4.78	***Flag Location:*** To the outside of outer main TRKs at mile 4.78 Galt sub
Special Instructions: YELLOW OVER RED SIGNAL GOVERNING EASTWARD MOVEMENTS FROM CP GALT SUB WILL NOT BE DISPLAYED	



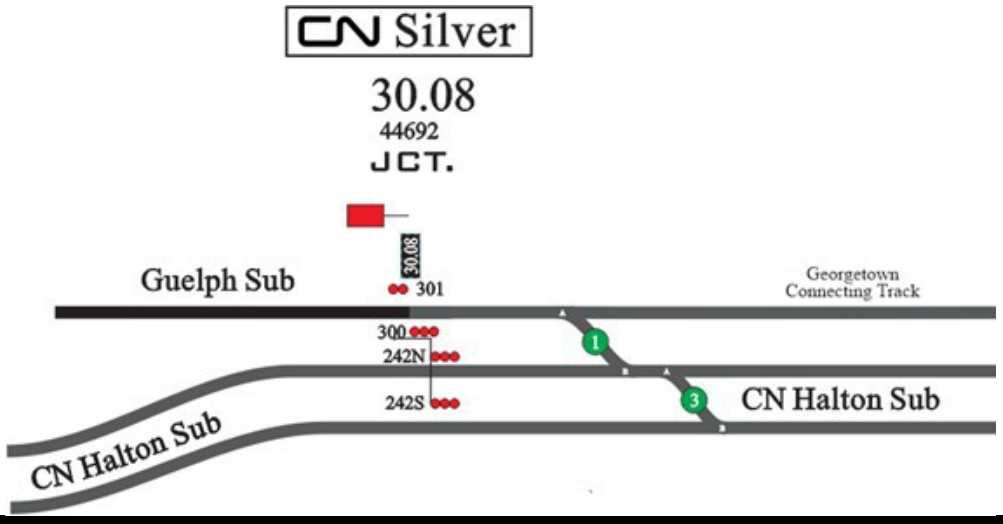
General Rule O Applicable Locations Job Aid	
Sub: Go	***Advance Flag Location:*** N/A
***Applicable Mileage:* 11.7**	***Flag Location:*** *11.7 North of the North TRK*
Special Instructions: YELLOW OVER RED SIGNAL GOVERNING WESTWARD MOVEMENTS WILL NOT BE DISPLAYED	



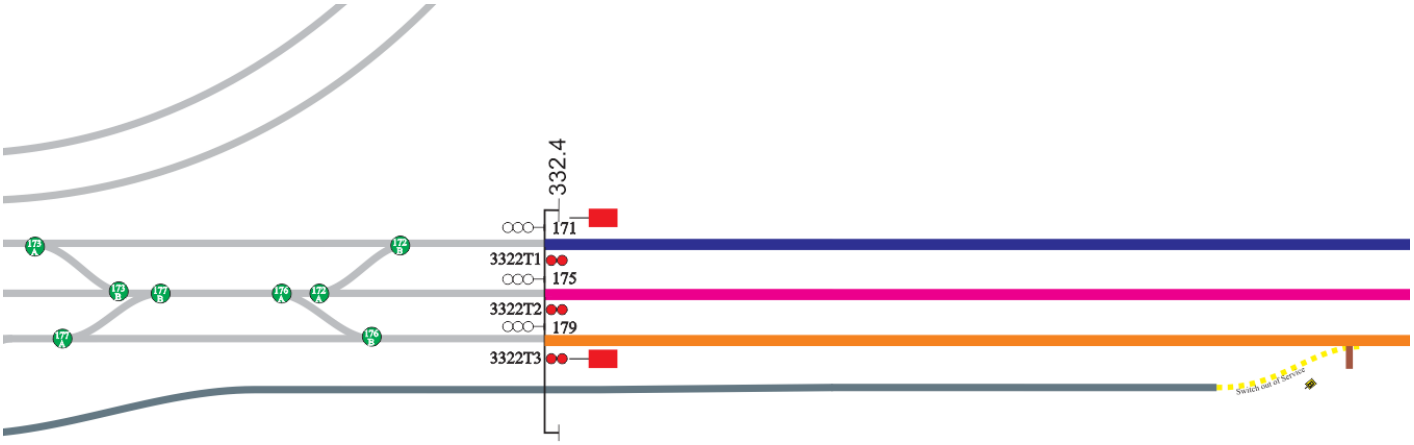
General Rule O Applicable Locations Job Aid	
Sub: Guelph	***Advance Flag Location:*** N/A
***Applicable Mileage:* 63.43**	***Flag Location:*** *63.43 to the right of the TRK*
Special Instructions: YELLOW OVER RED SIGNAL GOVERNING EASTWARD MOVEMENTS FROM CN GUELPH SUB WILL NOT BE DISPLAYED	



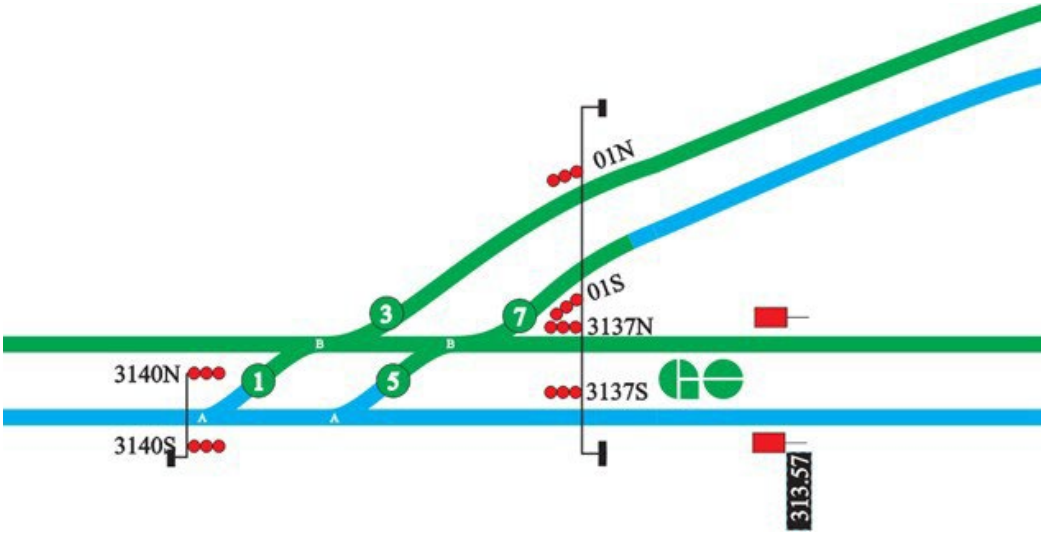
General Rule O Applicable Locations Job Aid	
Sub: Guelph	***Advance Flag Location:*** N/A
***Applicable Mileage:* 30.08**	***Flag Location:*** *30.08 to the right of the TRK*
Special Instructions: YELLOW OVER RED SIGNAL GOVERNING WESTWARD MOVEMENTS Will NOT BE DISPLAYED	



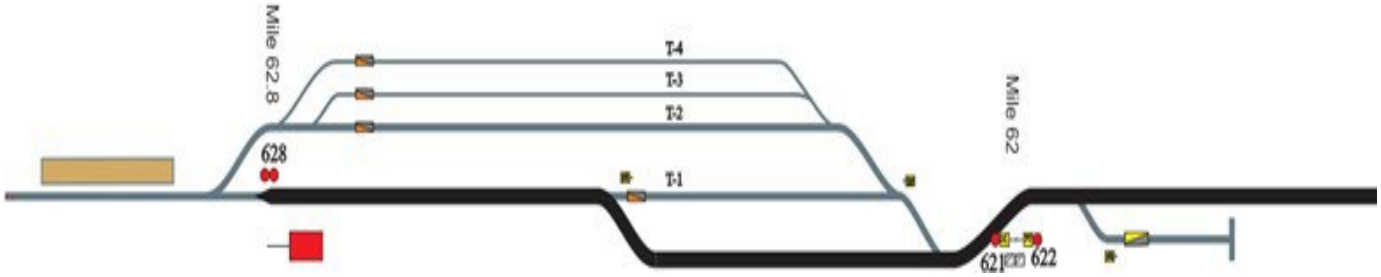
General Rule O Applicable Locations Job Aid	
Sub: Kingston	***Advance Flag Location:*** N/A
***Applicable Mileage:* 332.4**	***Flag Location:*** *332.4* outside of outer main TRKs
Special Instructions: YELLOW OVER RED SIGNALS GOVERNING EASTWARD MOVEMENTS Will NOT BE DISPLAYED	



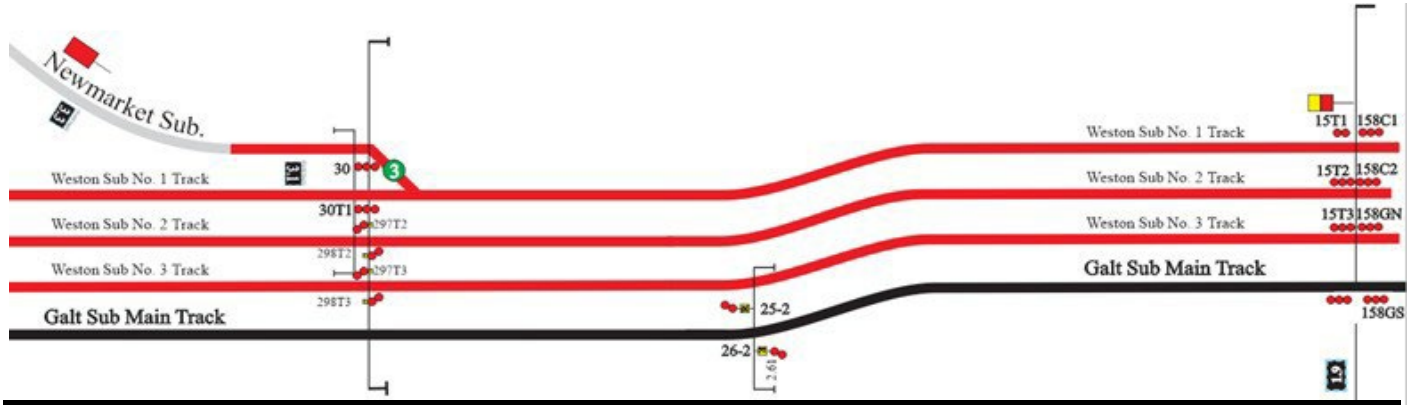
General Rule O Applicable Locations Job Aid	
Sub: Kingston	***Advance Flag Location:*** N/A
***Applicable Mileage:* 313.57**	***Flag Location:*** *313.57 Kingston Sub* outside of outer main TRKs
Special Instructions: YELLOW OVER RED SIGNALS GOVERNING WESTWARD MOVEMENTS FROM CN KNIGSTON SUB Will NOT BE DISPLAYED	



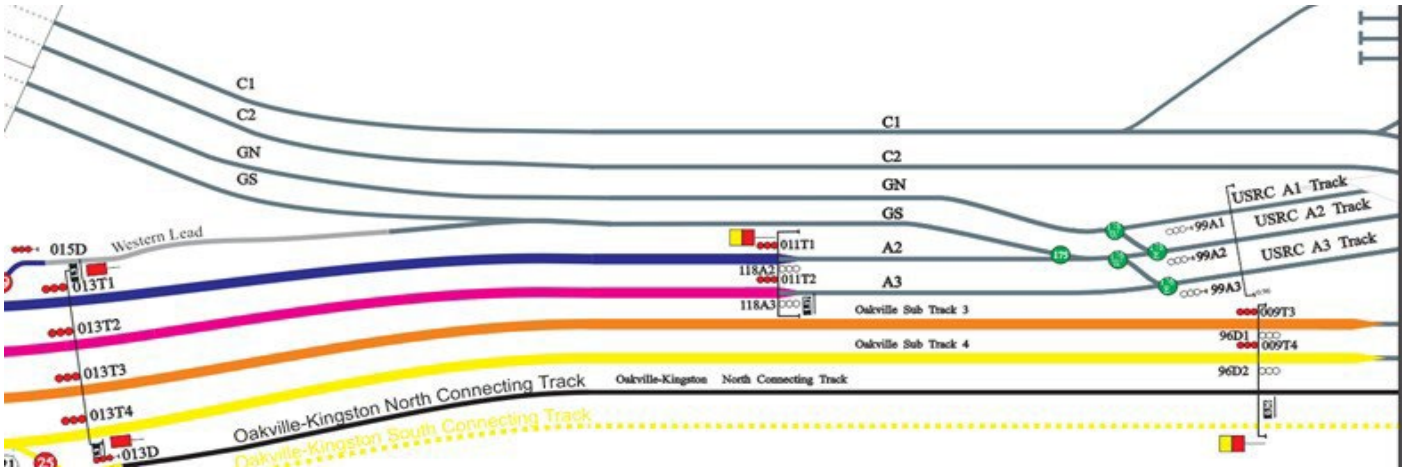
General Rule O Applicable Locations Job Aid	
Sub: Newmarket	***Advance Flag Location:*** N/A
Applicable Mileage: 62.8	***Flag Location:*** To the right of the TRK at mile 62.8
Special Instructions: YELLOW OVER RED SIGNAL GOVERNING SOUTHWARD MOVEMENTS Will NOT BE DISPLAYED	



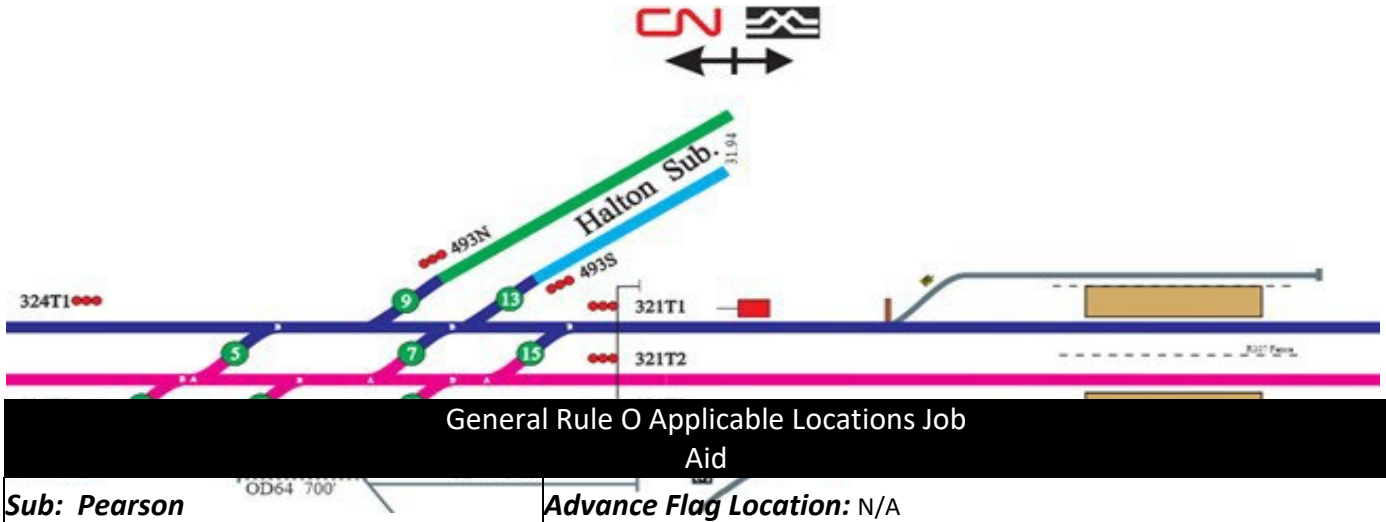
General Rule O Applicable Locations Job Aid	
Sub: **Newmarket**	***Advance Flag Location:*** To the North of TRK 1 at mile 1.9 Weston Sub ***(See Timetable 1.1 Rule 45/845)
Applicable Mileage: **3.3**	***Flag Location:*** To the right of the TRK at mile 3.3 Newmarket Sub
Special Instructions:	
Special Instructions for other subs: YELLOW OVER RED SIGNAL LOCATED AT MILE 1.9 WESTON SUB GOVERNS MOVEMENTS TO NEWMARKET SUB	



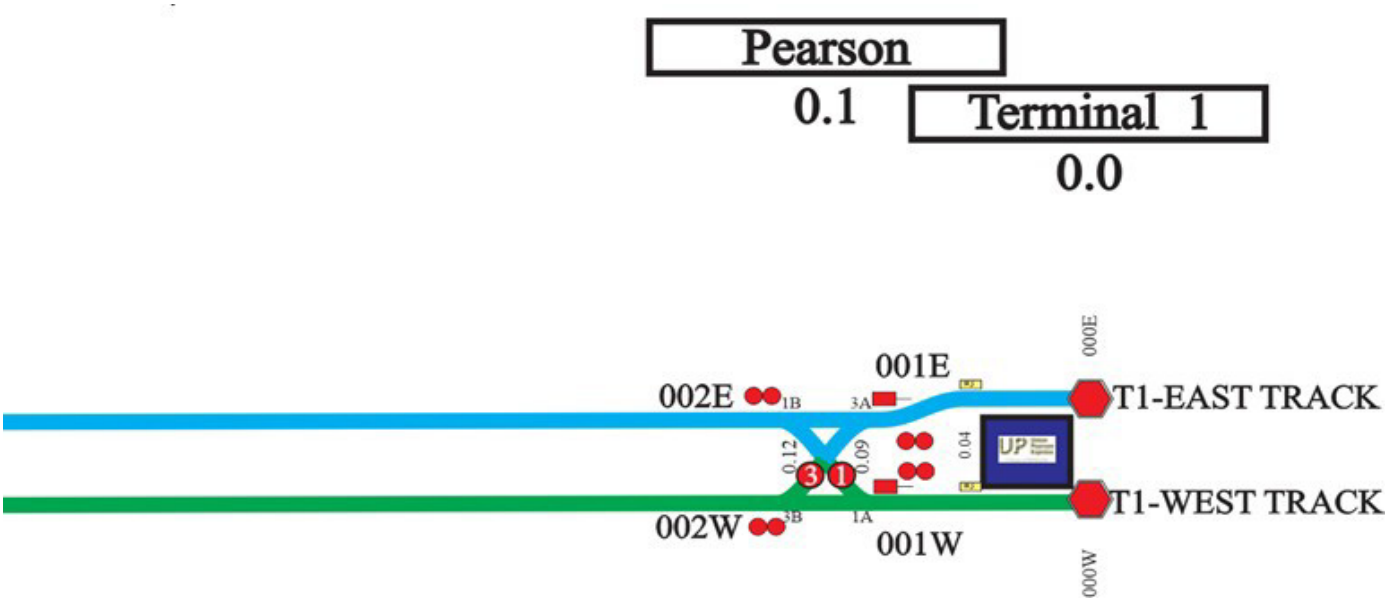
General Rule O Applicable Locations Job Aid	
Sub: Oakville	***Advance Flag Location:*** N/A
Applicable Mileage: **1.3**	***Flag Location:*** mile 1.3 outside of outer main TRKs
Special Instructions: YELLOW OVER RED SIGNAL GOVERNING WESTWARD MOVEMENTS ON TRACK 1 & TRACK 2 IS LOCATED AT MILE 1.17 OAKVILLE SUB ***Special Instructions:*** YELLOW OVER RED SIGNAL GOVERNING WESTWARD MOVEMENTS ON TRACK 3 & TRACK 4 IS LOCATED AT MILE 0.96 OAKVILLE SUB	



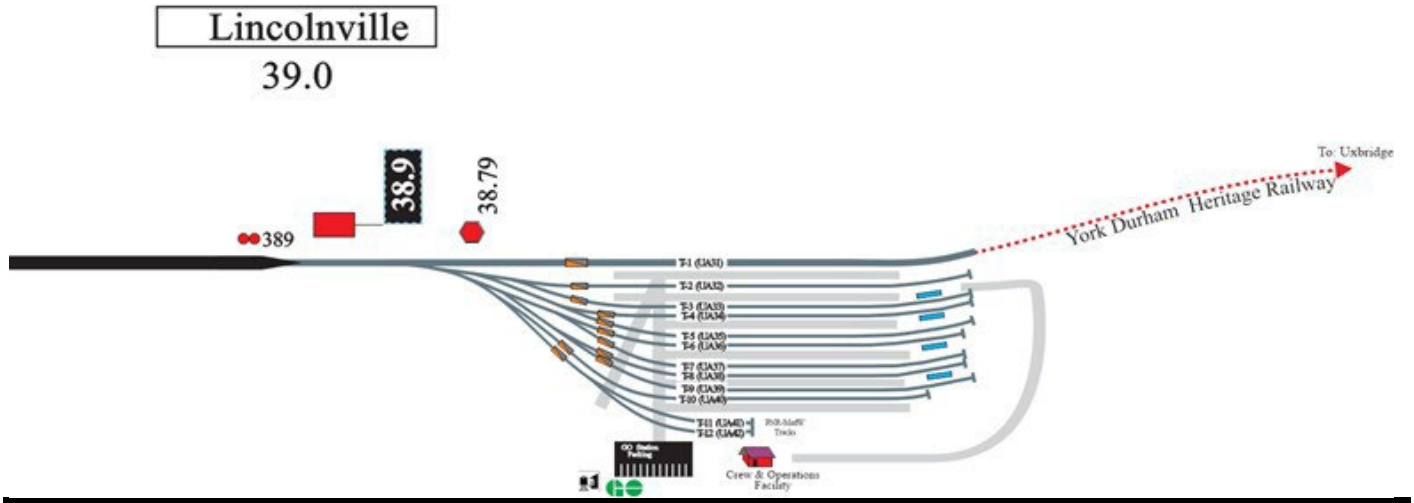
General Rule O Applicable Locations Job Aid	
Sub: Oakville	***Advance Flag Location:*** N/A
***Applicable Mileage:* 31.94**	***Flag Location:*** *31.94* outside of outer main TRKs
Special Instructions: YELLOW OVER RED SIGNALS GOVERNING EASTWARD MOVEMENTS FROM CN OAKVILLE SUB WILL NOT BE DISPLAYED	



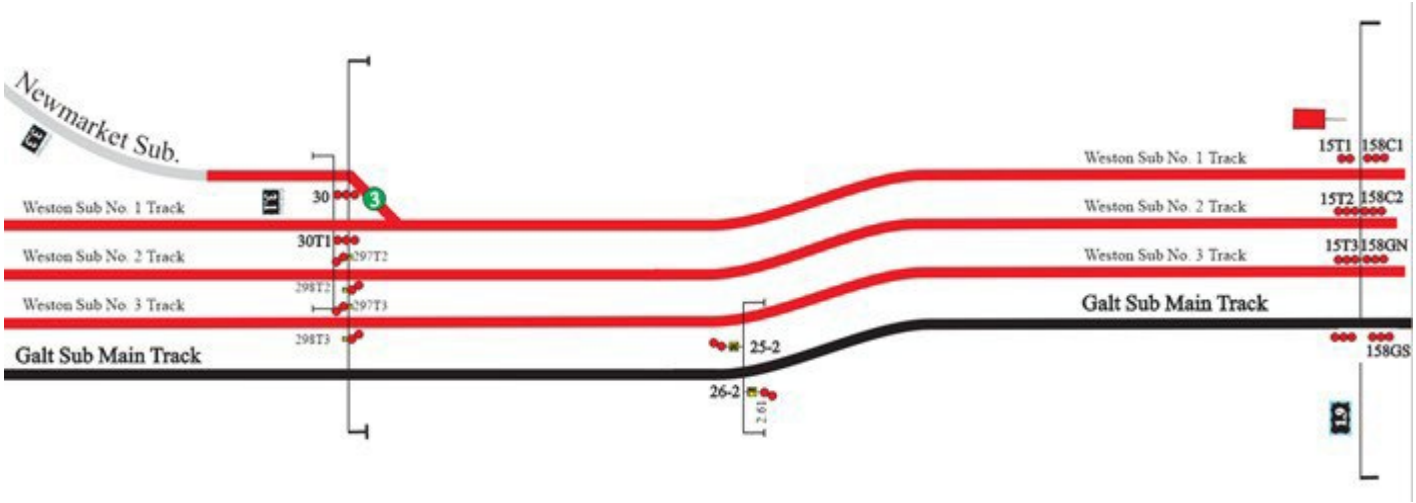
General Rule O Applicable Locations Job Aid	
Sub: Pearson	***Advance Flag Location:*** N/A
***Applicable Mileage:* 0.1**	***Flag Location:*** To the right of the track on which they govern
Special Instructions: YELLOW OVER RED SIGNALS GOVERNING NORTHWARD MOVEMENTS Will NOT BE DISPLAYED	



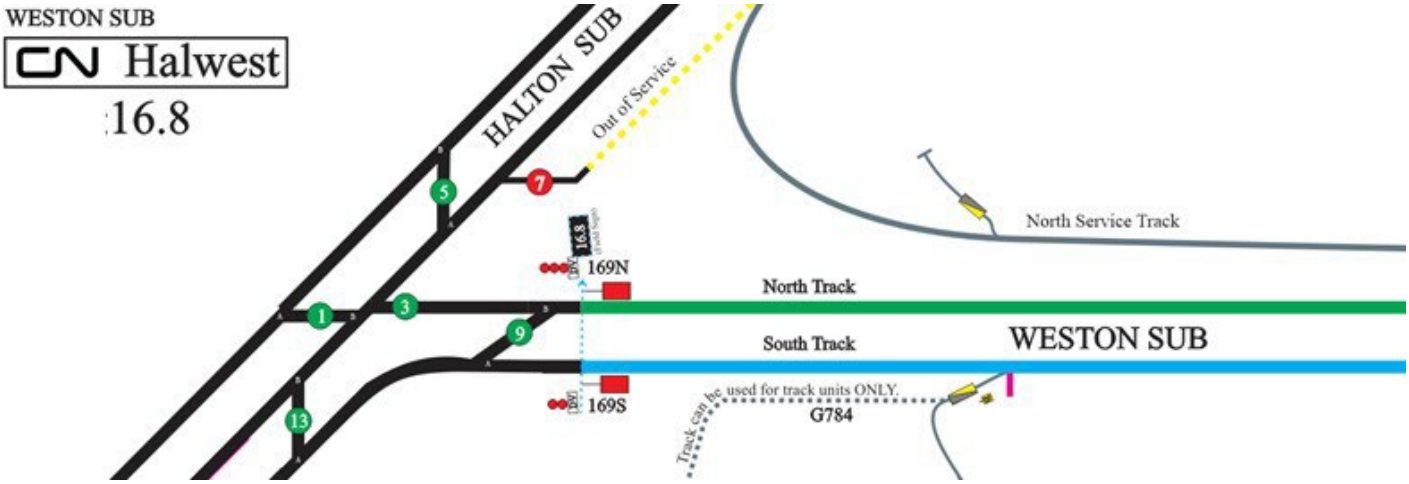
General Rule O Applicable Locations Job Aid	
Sub: Uxbridge	***Advance Flag Location:*** N/A
Applicable Mileage: **38.9**	***Flag Location:*** To the right of the track
Special Instructions: YELLOW OVER RED SIGNAL GOVERNING WESTWARD MOVEMENTS Will NOT BE DISPLAYED	



General Rule O Applicable Locations Job Aid	
Sub: Weston	***Advance Flag Location:*** N/A
Applicable Mileage: **1.9**	***Flag Location:*** To the North of TRK 1 at mile 1.9 ***(See Timetable 1.1 Rule 45/845)
Special Instructions: YELLOW OVER RED SIGNAL GOVERNING WESTWARD MOVEMENTS Will NOT BE DISPLAYED	



General Rule O Applicable Locations Job Aid	
Sub: Weston	***Advance Flag Location:*** N/A
***Applicable Mileage:* 16.8**	***Flag Location:*** 16.8 outside of outer main TRKs
Special Instructions: YELLOW OVER RED SIGNALS GOVERNING EASTWARD MOVEMENTS FROM CN HALTON SUB WILL NOT BE DISPLAYED	



12.2. JOB AID #2 - DTMF Codes for Engineering Employees

DTMF Table of Codes by Subdivision

a) Bala Sub

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

b) Canpa Spur

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

c) Guelph Sub

MILEAGE	CROSSING NAME	DTMF ON	DTMF OFF	CHANNEL
62.08	Lancaster St. W.	0620811#	0620810#	CN3

d) Kingston Sub

MILEAGE	CROSSING NAME	DTMF ON	DTMF OFF	CHANNEL
321.97	Scarborough Golf Club Rd.	3219771#	3219770#	CN3
320.95	Galloway Rd.	3209511#	3209510#	CN3
320.65	Poplar Rd.	N/A	N/A	
320.41	Morningside Ave. North Track	3204111#	3204110#	CN2
319.90	Manse Rd.	3199071#	3199070#	CN3
318.88	Beechgrove Dr.	3188871#	3188870#	CN3

MILEAGE	CROSSING NAME	DTMF ON	DTMF OFF	CHANNEL
317.22	Chesterton Shores	3172211#	3172210#	CN3
315.95	Rodd Ave.	3159531#	3159530#	CN3

e) Newmarket Sub

MILEAGE	CROSSING NAME	DTMF ON	DTMF OFF	CHANNEL
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

MILEAGE	CROSSING NAME	DTMF ON	DTMF OFF	CHANNEL
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	
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	

MILEAGE	CROSSING NAME	DTMF ON	DTMF OFF	CHANNEL
54.56	7th Line	0545611#	0545610#	CN3
55.55	Innisfil Beach Rd.	0555511#	0555510#	CN3
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

f) 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	

g) 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
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 Ave.	*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

MILEAGE	CROSSING NAME	DTMF ON	DTMF OFF	CHANNEL
53.61	McNicoll Ave.	0536111#	0536110#	CN3
54.41	Finch Ave.	0544111#	0544110#	CN3
54.88	Huntingwood Dr.	0548811#	0548810#	CN3
55.16	Havendale Rd.	0551631#	0551630#	CN3
56.72	Progress Ave.	0567211#	0567210#	CN3
59.96	Corvette Ave. Ped. Xing	N/A	N/A	
60.18	Danforth Rd.	0601811#	06018103	CN3

h) Weston Sub

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

12.3. Portable Derail Job Aid

A. Application of Portable Derails. In addition to CROR and Company Policy:

Railway securement equipment such as portable derails, chocks, rail skates, etc., must not be applied nor removed unless authorized and properly qualified to handle the appliance.

Portable derails are not to be used on Main track. The only exception is when Equipment/Machinery is to be stored on track with a TOP or Rule 42/842 protection with prescriptive routing in place.

Other factors that must be consider when using Portable Derails:

1. Portable derails used on Metrolinx property 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.
2. The use of portable derail(s) must be outlined in the work plan, communicated to the appropriate authority, and documented on the prescribed forms.
3. When using portable derails, all manufacturers' specifications regarding installation, removal and maintenance must be followed.

B. CROR Rule 41/841 Protection:

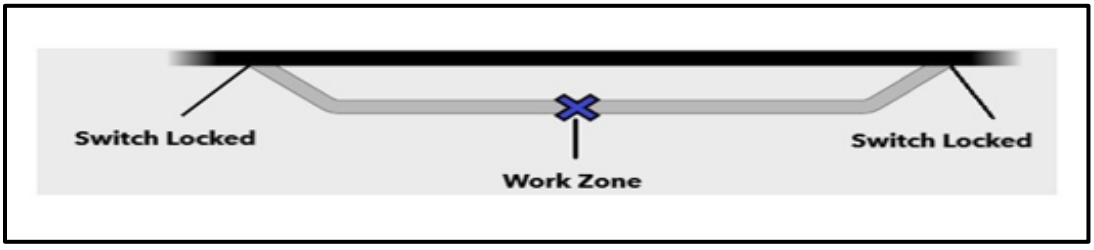
Important: Always refer to Metrolinx GEI Module 3, Section 3.7.2 - 3.7.3 for full instructions regarding CROR Rule 41/841 Protection, Portable Derail Requirements, and examples of their use on non-main tracks. Some highlighted instructions from the GEI are provided below for additional guidance.

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

1. Willowbrook Yard and Mimico South Layover Facility – WOCC
2. Whitby Yard – YCC
3. Lower Yard at Mimico South – TMC and NOC
4. All Layover Facilities – NOC
5. USRC – RTC
6. All other non-main tracks – RTC

In conjunction with CROR Rule 841, the preferred method to protect a work location is to lock out the entire track using private locks (and tags) to prevent movements from operating on the track where work is being performed.

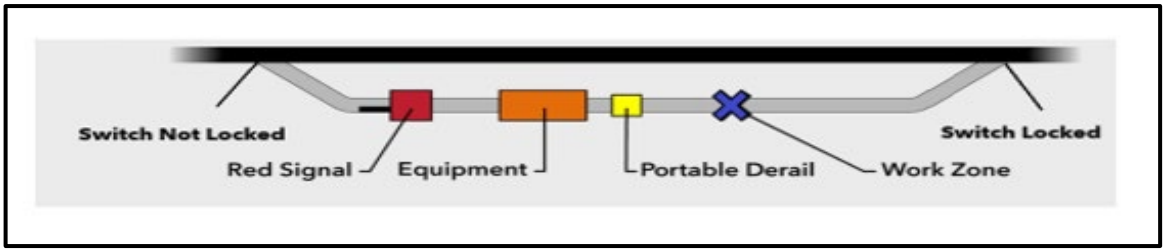
Example 1: Shows how you would protect your work zone in the event that you can lock out the entire track.



Portable derails must be used when:

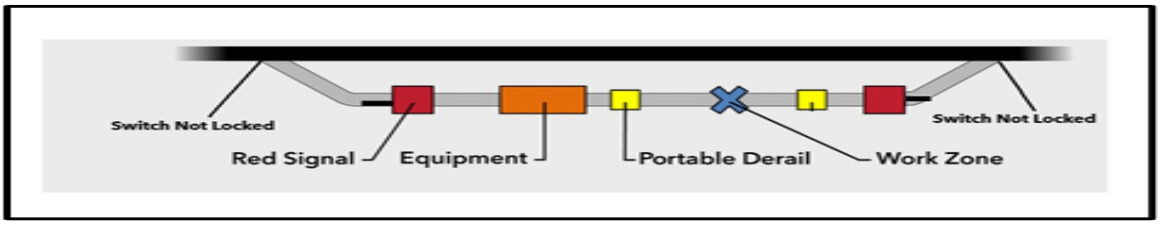
1. CROR Rule 841 protection cannot be used on the entire track and there is standing equipment outside the CROR Rule 841 limits. In this case, the portable derail must be placed within your protection (Red signals) in an orientation that will derail the equipment toward your work location if it were to roll away.

Example 2: Shows how you would protect your work zone in the event there is standing equipment and you can only lockout one end of the track.



2. There is a concern about standing equipment inside the CROR Rule 841 limits and you cannot lock out either end of the track.

Example 3: Shows how you would have to protect your work zone including the standing equipment if it is within your limits and you cannot lockout either of the switches.



C. Portable Derail Requirements:

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

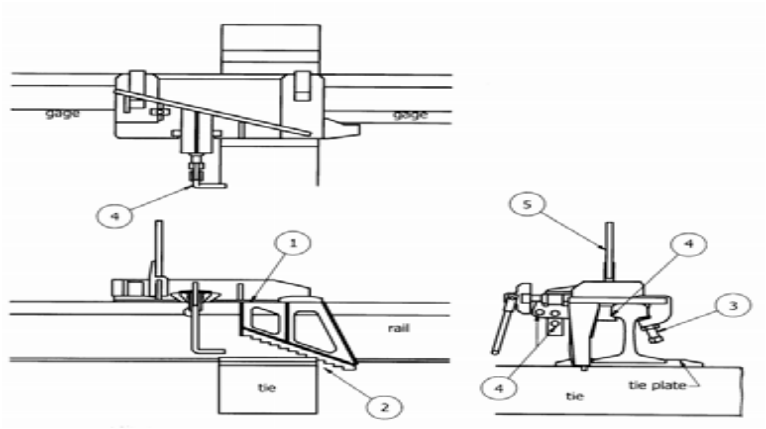
1. Company name/initials and name of the Foreman responsible for the protection.
2. Protecting Foreman's cell phone number.
3. Protecting Foreman's radio work channel.
4. Direct supervisors' name and cell phone numbers.

b. Consider the following when selecting the orientation of the derail:

1. Materials and equipment – select the derail orientation and place the derail so that a derailed car moves away from any stored material or equipment.
2. Adjacent live track – select the derail orientation and place the derail so that a derailed car moves away from the adjacent live track.
3. 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.

Note: As a general rule of thumb when considering orientation, for 841 protection the derail is positioned and oriented to derail anything from coming into the work limits, but for stored track units the intent is to stop the track unit from rolling out toward the main line.

D. Portable Derail Installation Job Aid



1. If providing Rule 841 protection, ensure red flag(s) has/have been installed before setting up derail(s).
2. Loosen set screws and screw handle. Place derail on top of rail, make sure the derail is level and parallel to the gage line of the rail.
3. Derail should be oriented to derail in the appropriate direction for protection of track work versus storing equipment.
4. The graduated teeth must be against the corner of the tie or tie plate, on the gage side of the rail. Remove ballast as needed. Do not install derail on the inside rail of a curve.
5. Adjust set screws on the field side of the derail to a light bearing under the rail head and tighten jam nuts.
6. Hand tighten the screw handle to secure derail to railhead. Align holes and apply private lock and tag.
7. Position the derail warning flag.

Note: Securement screw should be tight to and hooked under the ball of the rail. Derail to be locked with a private lock and tagged.

E. Portable Derail Removal Job Aid:

1. Open and remove the private lock. The securement plate swings down enabling the screw to be turned.
2. Wearing gloves, from the screw handle side of the derail (between the rails), turn the screw handle counterclockwise until the hook is free from the ball of the rail and the derail can be tilted towards the field side of the rail.
3. Utilizing the handle and the flag pole (secured to the derail with a locking pin), carefully lift the derail using your legs, keeping the derail close to your body without twisting in any way.

4. In keeping with situational awareness, carefully step over the rail and set the derail down at least 4 feet from the rail on the field side, again, bending with your legs, not your back. Place the derail on the ground as indicated with the flag portion parallel to the rail to avoid creating an additional tripping hazard and so the flag will not be observed by a passing train mistaking it for a stop signal of some kind.
5. Once the derail is on the ground, turn the screw handle clockwise until it stops (ensure that the securement plate does not get in the way of tightening it fully) and replace the lock ensuring that the derail cannot be placed back on the rail. Photo shows proper placement of the portable derail while on the ground. Be aware of its placement when walking around that location to prevent any trips or falls.

6. If using Rule 841 protection, always removed the portable derail(s) from track before removing the red flag(s).
7. Ensure the portable derail is removed from site (secured in truck or job bin, or other appropriate locked storage location) and not left lying on ground after work is completed.
8. Ensure appropriate departments/controllers have been contacted to cancel protection and return track to service.