

Southeastern Pennsylvania Transportation Authority

TRANSIT RAIL ON-TRACK SAFETY MANUAL

4th Edition

Effective Sunday, November 1, 2015

For The Government Of SEPTA Employees Performing Transportation, Maintenance, Construction and Dispatching Related Services

ON-TRACK SAFETY POINTS

- 1. Never foul a track unless it's necessary in the performance of your duties.
- 2. Always conduct a job briefing before beginning work.
- 3. Conduct a follow-up job safety briefing whenever work conditions change.
- 4. Know and understand how on-track safety is being provided.
- 5. You have the right to challenge any directive to violate an on-track safety rule.

AUTHORIZED METHODS OF ESTABLISHING ON-TRACK PROTECTION

- 1. Individual Train Detection (lone worker only)
- Train Approach Warning (watchperson / lookout)
- 3. Foul Time
- Establish a Work Zone on an in-service track
- Remove a track from service
- Working on Station Platforms
- Protection by Location
- 8. Protection On Other Than Main Tracks

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INTRODUCTION

This Manual governs SEPTA personnel and contractors performing facility inspection, construction, maintenance, and repair duties in its rail transit system. It was developed to enhance safety of roadway workers.

A number of these rules are co-published from the Rail Division Rules (RDR) section of the Rail Operations Rules Manual. Where applicable, the associated RDR rule number is shown in parenthesis after the title of the on-track safety rule.

All policies, rules, special instructions and procedures contained herein are referred to as "rules" for convenience and clarity, only, as well as the use of the male gender throughout. All rules apply equally to male and female personnel.

Compliance with all rules is mandatory. Failure to comply as required may result in disciplinary action.

Each employee responsible for the on-track protection of roadway workers, QPE, must have a copy of this manual with them and ensure a copy is available to roadway workers whose duties are affected by this manual while they are performing those duties. Those employees whose duties require them to be qualified on these rules and procedures must attend a program of instruction and pass the required examination. Qualified employees must attend periodic recertification classes and pass the required examinations. When there is uncertainty or questions about the proper application or interpretation of any rule, employees must consult with a supervisor or other authority for an explanation.

SAFETY NOTICE

Safety is the priority in the performance of duty. In case of doubt, the safe course must be taken.

The rules, procedures, practices, information, and guidelines prescribed for the employee provide for a safe and efficient operation. If in doubt, the safest course must always be followed.

Employees must give full cooperation to individuals performing safety-related functions on behalf of the Authority, its unions, or outside agencies.

DEFINITIONS AND AUTHORIZED ABBREVIATIONS

Approved Protective Equipment - Personal protective equipment that has been tested, approved and assigned for a specific purpose.

Braced Position - Firm footing with feet apart, set to resist movement and, if possible, with handhold.

Casual Inspection - an inspection performed by an individual who is not qualified as a lone worker and involves routine observations that do not interfere with the person's ability to detect the approach of trains.

Certified Employee - A qualified employee who has been authorized to perform a specific purpose.

Effective Locking Device - A switch padlock that is vandal and tamper resistant, and can be unlocked only by the group or craft of employees who locked it.

Employee-In-Charge (EIC) - The person in charge of a work group and the work being performed.

Flagperson - The SEPTA employee identified in the job briefing, who is responsible for holding trains and other equipment clear of a work area or other designated location.

Fouling - Being in a position to be struck by moving ontrack equipment.

Foul Time - A method of establishing a work area on an in-service track segment in which all movements are held clear of the track and fouling is authorized for a specified time limit by the Train Dispatcher / Controller.

Handhold - Grip with both hands, when possible, on handrail or other suitable support.

Immediate Supervisor - The supervisor who is immediately and directly next in line within the established chain of command at that location for the purpose of reporting incidents or defects, obtaining authorizations, etc.

In The Clear - Being at least 4 feet away from the nearest running rail. Not fouling.

Individual Train Detection (ITD) - A procedure by which a Lone Worker acquires on-track safety by detecting approaching trains and leaving the track area before they arrive.

Lone Worker - An individual roadway worker who is not being afforded on-track safety by another roadway worker, who is not a member of a roadway work group, and who is not engaged in a common task with another roadway worker.

Materials Safety Data Sheet (MSDS) - A printed publication prepared by the manufacturer of a product which contains information on the proper and safe handling of the product.

Non-Fouling Work - Work that is not obstructing, or in any event having the potential to come within four feet of, an in-service track.

Pilot - A qualified employee who operates or guides a train, work cars, or other vehicles.

Portable Train Stop - A device affixed to the bottom of a wayside style Stop Sign used to activate the trip arm on certain equipment.

Qualified Employee - An employee who has been formally tested and approved, within the required length of time, to perform a purpose defined by the Authority.

Qualified Protection Employee (QPE) - A SEPTA employee qualified on the operating rules, physical characteristics, and on-track protection procedures and is responsible for establishing on-track protection and safety.

Roadway Worker - An employee, or an employee of a private contractor, who is engaged in inspection, construction, maintenance, or repair of track or facilities who has the potential to foul a track. Roadway workers include individuals who repair or maintain on-track maintenance equipment.

Track Area - That area along the right-of-way that is off the station platform.

Track Car (TC) - Equipment, other than trains, operated on track for inspection or maintenance that may not operate signals.

Track Equipment Operator (TEO)

Train Approach Warning (TAW) - A method of providing on-track protection for a work group in which a watchperson(s) is positioned in such a manner to provide warning of an approaching train or equipment.

Verbal Hold - A spoken directive to hold or stop vehicle movement at a designated physical characteristic location.

Watchperson - The person stationed at the work area who is responsible for warning workers when a train is approaching.

Work Car - Equipment dedicated to maintenance, inspection, construction type work. Non-revenue equipment.

Work Group - Two or more roadway workers engaged in a common task.

Work Zone - A method of establishing protection for roadway workers by the use of flagging personnel and signs used to restrict the movement of trains and other track equipment. The Work Zone begins at the Stop Sign/ Work Area Speed Limit Sign and ends at the Work Area Resume Speed Sign.

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GENERAL RESPONSIBILITIES

OTS-1. Rules and Instructions

Employees must be familiar with and obey all rules and special instructions that relate to their duties. If in doubt as to the meaning or application of a rule or special instruction, an employee must request an explanation from the proper authority.

OTS-2. Safety; Following the Safe Course

Safety is of first importance. These rules provide for a safe and efficient operation. In case of doubt, the safe course must be followed.

OTS-3. General Responsibilities of Individual Roadway Workers

Roadway workers must follow the on-track safety rules and procedures.

Roadway workers must not foul a track unless necessary in the performance of their duties. Make sure on-track safety is being provided before fouling a track. Roadway workers may challenge a directive to violate an on-track safety rule.

Roadway workers must be familiar with the On-Track Safety Manual. A copy of the On-Track Safety Manual must be available at every work location for roadway workers to review.

All roadway workers must have and display a valid Roadway Worker ID card indicating current qualifications.

OTS-4. Job Briefings (RDR-2)

a. General

Employees whose duties require coordination with other employees must hold a job briefing to review all operational and safety conditions before, during and after such duties, as outlined below. If these conditions change, employees must hold an additional job briefing to discuss the new conditions.

Job briefings should be conducted face to face. When not practical or possible to do so, radio or telephone communication is authorized.

Job briefings must not be considered complete until all involved employees have acknowledged their understanding of the information covered.

b. Standard Job Briefing Topics

Job briefings for all situations must include, but are not limited to, the following topics:

- 1. The nature of the work to be performed;
- Operational and safety hazards known to be present or that may be encountered relative to the tasks to be performed;
- Current information on Bulletin Orders, Form W's, or other Notices that could affect safety;
- 4. The location and responsibilities of each person involved in the task;
- 5. If applicable, a review of the current situation;
- The means of communication to be used between workers.

c. Operations and Safety Condition Topics

Operational and safety conditions that require a job briefing include, but are not limited to:

- 1. Shoving and reverse movements;
- 2. Movement directives from Control Center;
- 3. Speed restrictions (if applicable);
- 4. Any known special operating condition;
- Responsibilities for the handling of switches and derails:
- 6. The placement and / or securing equipment to be uncoupled or left unattended.
- 7. Known safety hazards, including the presence of other crews or employees working in the area;
- 8. Work assignments for each employee involved in the task.

d. Job Briefings for Roadway Workers

For roadway workers, a job briefing documentation sheet must be completed by the Qualified Protection Employee and signed by all roadway workers participating in the job briefing, when practical. In addition, the following topics must also be addressed.

- The means by which on-track safety is to be provided, including any necessary protection on adjacent tracks.
- 2. The means of communication to be used between roadway workers.
- 3. The location where employees will clear the track, when required.
- Identification and location of key personnel, including the qualified protection employee, flagpersons, watchperson / lookout, etc.
- 5. Any known special operating conditions.

OTS-5. Personal Protective Equipment (PPE)

a. General

All roadway workers are required to comply with SEPTA's PPE program. The requirements outlined below relate specifically to outer garments, head and eye protection, and footwear. Roadway workers affected by other issues such as hearing and respiratory protection, and confined space concerns that are generally outside the scope of on-track protection should address those concerns with the appropriate supervisor.

b. Industrial, Maintenance, And Construction Employee's Safety Personal Dress Code

Roadway workers shall wear clothing suitable for the weather and work conditions. Work clothes should be sturdy, fit well, and be washable. It is necessary that employees wear, at a minimum, full short sleeve T-shirt and long pants.

The following is/are prohibited.

- Tank shirts and cut down T-shirts;
- Short pants, cut-offs, warm-up suits, or clothing of a similar nature;
- Loose clothing on or near moving machinery;
- Shoes with a heel high enough to create a tripping hazard, or otherwise in excess of one inch;
- Soft-soled shoes (such as athletic shoes), slippers, sandals, or similar light-weight footwear:
- Shoes with worn heels and torn soles;
- Shoes in disrepair;
- Jewelry, including but not limited to rings, medals, identification bracelets, necklaces, pendants and lanyards.
- Oil soaked clothes or those contaminated with flammable or otherwise hazardous material.

c. High Visibility Outer Garments

High visibility outer garments (fluorescent materials for daylight and retro-reflective materials for nighttime) are to be worn by roadway workers while working in or adjacent to tracks, roadways, depot locations, station platforms, etc. Appropriate garments must comply with the following:

- Safety Standard: ANSI Standard 107, Class 2 or 3;
- Approved Color: Fluorescent yellow with optional contrast fluorescent fabric on each side of the retro-reflective material;
- Retro-reflective material: 2 inches wide applied vertically over each shoulder down the front and back from hem to hem with a horizontal band around the waist to maintain 360 degree visibility.
- Label stating: ANSI compliant, fire retardant, size and care instructions.

In addition, the garment must be fire retardant.

d. Head Protection

Each employee must:

- Wear the appropriate protective headwear that is required for their designated area and/ or for their assigned task.
- Maintain protective headwear in good condition.

General Guidelines

Appropriate Type I or Type II protective headwear must comply with American National Standards Institute (ANSI) Z89.1, Class E and bear an ANSI identification mark (Manufacturer, ANSI Z89.1, Class E). Class E headwear is not to be used as a primary barrier against electrical hazards.

- Only helmet winter liners that have no metal parts may be used.
- Before each use, the helmet shell and suspension system must be inspected for defects both inside and outside.
- The helmet must be stored in a clean, dry area where it is not exposed to the sun, extremes of heat or cold.
- Do not sit or stand on the headwear since it tends to stress the outer shell in ways that it was not designed. Mishandling diminishes the headwear's effectiveness.
- Unless otherwise specified by the manufacturer, headwear must be worn with the bill (peak) in the front.

"Bump" caps do not meet ANSI Z89.1 requirements for head protection. and therefore, do not qualify as appropriate headwear.

e. Eye & Face Protection Program

Protective eye and facewear must be worn, when required.

Appropriate protective eye and facewear must meet the requirements for the hazards described in the American National Standard, ANSI Z87.1. Protective eye and facewear that does not meet these standards is not considered appropriate.

The following are appropriate protective eyewear and facewear.

- Spectacle Type Safety Eyeglasses that have lenses that are impact resistant, reinforced frames and side shields. Regular eyeglasses must not be used in place of protective eyewear. Safety goggles must be worn over eyeglasses. Alternatively, prescription safety eyeglasses may be used.
- Safety goggles that are impact resistant, meet ANSI Standard Z87.1, and have direct or indirect ventilation to protect against fogging.
- Chipping Goggles are untinted and should be used where flying chips or flakes of material are a problem.
- Face Shields are designed to provide general protection to the face and the front of the neck.
 Face shields are available with crown protectors to protect the front part of the head. Face shields are secondary protectors and must be used only with a primary protector (a device which may be worn alone or in conjunction with a secondary protector.)
- Welding Helmets that are designed to provide protection to the face and the front of the neck from heat, ultraviolet rays, glare, weld spatter and impact hazards.
- Welding Goggles that are designed to protect the eyes from both hazardous light (infrared) and hot particles.
- Specialty Filter Lenses must be used to protect against harmful light or other rays, e.g. infrared, ultraviolet, laser light, when required.

OTS-6. Fall Protection Program

Each roadway worker on a walking/working surface six feet or more above lower levels shall be protected from falling by a guardrail system, safety net system, or an approved Personal Fall Arrest System (PFAS).

OTS-7. Right to Challenge On-track Safety Procedures

A roadway worker has the right to challenge, in good faith, whether the on-track safety procedures to be applied at the job location comply with the rules and procedures designed to provide protection. The roadway worker must inform the Qualified Protection Employee whenever a good faith determination is made that the on-track safety procedures being applied do not comply. The roadway worker must remain clear of the track until the challenge is resolved.

OTS-8. Clearing the Track or Work Area

When necessary to clear the track or work area for passing trains or on-track equipment, clear-up at least 15 seconds before the train or equipment passes. Upon receiving a warning or detecting the approach of a train or on-track equipment, all employees are to:

- a. Stop work:
- Ensure all co-workers within 15 feet are aware
 of the approaching equipment by verbal
 communications or hand signal (awareness
 must be demonstrated by repeating the verbal
 communication or hand signal by unmistakable
 signs of stopping work and moving to the clearing
 location);
- c. Ensure adjacent tracks are clear of obstructions;
- Clear to a safe location at least 15 seconds before the approaching equipment reaches the work area;
- e. Observe the passage of the equipment;
- f. Remain clear until it is safe to resume work.

OTS-9. Standing or Walking on Track

Do not stand or walk on tracks except when necessary in the performance of duty. Roadway workers must not walk or stand in a fouling location unless:

- a. On-track protection has been established;
- The non-fouling location poses additional safety hazards such as limited visibility, tripping hazards or insecure footing, etc., and the roadway workers are following other procedures to ensure safety.

OTS-10. Crossing Tracks

Look in both directions before fouling or crossing each track. Take the shortest route. Stop and look before crossing any track.

OTS-11. Crossing Tracks Near On-track Equipment

Look in both directions before going between or around the end of equipment. Do not cross tracks closer than 15 feet from standing on-track equipment. Do not pass between on-track equipment standing closer than 30 feet apart.

OTS-12. Crossing Tracks In Front of Moving Equipment

Do not cross track in front of moving trains or equipment unless absolutely necessary. When necessary, make sure you can reach the opposite side at least 15 seconds before the train or equipment arrives.

OTS-13. Remaining Alert Around Tracks

Expect equipment to move at any time, in any direction, on any track.

Look in both directions before moving from between or from under equipment, before getting on or off equipment, or before performing any other function on or around the track structure.

OTS-14. Responsibility for Protecting Self

Do not rely on others for your personal safety if it can be avoided.

Maintain a position that will enable train approach warning to be communicated.

Roadway workers may refuse any directive to violate an on-track safety rule, and shall inform the supervisor under the provisions of the Right to Challenge On-track Safety Procedures.

OTS-15. Occupying or Fouling Signal System Territory (RDR-101)

Persons Entering Main Track Area

Except for locations equipped with crosswalks, all employees whose duties require them to walk on or about the track, including catwalks, trestles and bridges, must be qualified on the applicable rules.

Except when crossing tracks at crosswalks, employees must notify the Train Dispatcher / Controller prior to entering the track area, giving name, title, location and purpose for entering the track area. When the task involves escorting non-qualified personnel, a sufficient number of qualified employees must be present to control the group and ensure safety. They must report clear when they have left the track area.

Upon notification, the Train Dispatcher / Controller must, when possible, immediately broadcast a safety alert over the appropriate radio channel announcing the location of the people in the track area.

RULES FOR THE QUALIFIED PROTECTION EMPLOYEE

OTS-20. Designate Qualified Protection Employee

One employee must be designated the Qualified Protection Employee anytime roadway work is to be performed. A lone worker is the Qualified Protection Employee.

The Qualified Protection Employee is responsible for a safe operation and must exercise every reasonable precaution to provide protection.

OTS-21. Determine Method of Providing Protection

The Qualified Protection Employee must determine the method of providing protection to be used according to the operating rules.

OTS-22. Conduct A Job Briefing

The Qualified Protection Employee must conduct a job briefing as prescribed by the operating rules before any track is fouled. The job briefing is not complete until all employees acknowledge an understanding of the ontrack protection procedures being used.

OTS-23. Release of Tracks

The Qualified Protection Employee must not release the working limits until all affected roadway workers have been notified and are either clear or are protected by train approach warning.

RULES FOR THE EMPLOYEE RESPONSIBLE FOR PROVIDING ON-TRACK PROTECTION

OTS-30. Roadway Work Groups

Each roadway work group whose duties will require them to foul a track must have a QPE designated to be responsible for providing on-track safety for the group.

The QPE must be qualified on the operating and safety rules and procedures. Also, the QPE must be qualified on the physical characteristics of the territory where protection will be provided. This employee will be responsible for positioning watchpersons\ lookouts, as required.

OTS-31. On-track Safety Manual

Each roadway worker responsible for the on-track safety of others must have a copy of the On-Track Safety Manual. It must always be accessible when performing that function. The Manual must be readily accessible by all roadway workers who are performing duty that requires on-track safety procedures.

OTS-32. Assigning Flagpersons and Watchpersons

The QPE is responsible for ensuring flagpersons, watchpersons and advance watchpersons, when necessary, are assigned and properly positioned.

Watchpersons or advance watchpersons are not required when employees are protected against approaching trains on the track on which working and also on adjacent tracks by exclusive track occupancy.

RULES FOR LONE WORKERS

OTS-35. On-track Safety Manual

Each lone worker must have a copy of the On-track Safety Manual available when performing that function.

OTS-36. Job Briefing

Each lone worker must have a job briefing with his or her designated supervisor before beginning work that may foul a track.

The lone worker must advise the supervisor of the location(s) and time period(s) the worker can be expected to be in the location(s), and the planned method of protection.

If all channels of communication are broken, the briefing must be conducted as soon as possible after communication is restored. An interruption in communication does not prevent the lone worker from beginning work. In this case, the lone worker must assure that protection is sufficient to prevent incident or injury.

RULES FOR FLAGPERSONS

OTS-40. Protecting Work Locations: Qualified Employee's Duties

Qualified employees assigned as flagpersons must:

- a. Secure Equipment
 Flagpersons must secure proper equipment for flagging, including equipment for giving signals and appropriate signs, when required.
- Maintain Proper Position
 Flagpersons must be in proper position at the beginning of the work area to ensure visibility, and maintain a visible position whenever required to direct the passage of any on-track equipment.
- c. Convey Signals to Control On-Track Movements After receiving assurance that all roadway workers are clear of the track, flagpersons must convey permission to proceed using the proper hand signals.
- d. Report Failure to Comply by Workers If workers fail to comply with on-track safety procedures, the flagperson must immediately stop approaching on-track movements and report the non-compliance to the QPE or other proper authority.
- e. Take Action if Safe Passage is Endangered If any event occurs that would interfere with the safe passage of trains, the flagperson must take immediate action to stop trains by radio communication to trains and the Train Dispatcher / Controller. If protection cannot be immediately ensured, or if communications fail, flagperson must take action to stop approaching on-track movements by the quickest available means.

OTS-41. Qualification Requirements for Flagpersons

Roadway workers assigned to the duties of flagperson shall be a SEPTA employee, qualified on the operating rules pertaining to giving hand signals to stop trains and holding trains clear of working limits.

OTS-42. Conveying Hand Signals

Hand signals must be given from a position where they can be clearly seen, and must be given in a manner in which they can be clearly understood.

Day signals must be given by hand with or without a white light.

Night signals must be given by hand with a white light. Night signals must always be used from sunset to sunrise, in tunnels and subway areas, and at other times when visibility is limited by weather or other conditions.

Movement must be stopped immediately if:

 There is doubt concerning the meaning of a hand signal,

OR

b. There is doubt for whom the hand signal is intended,

OR

The hand signal disappears from view.

OR

 d. Any object is waved violently by anyone on or near the track.

RULES FOR WATCHPERSONS AND ADVANCE WATCHPERSONS

OTS-45. Attention to Duty

Watchpersons must give their full attention to watching for trains and warning roadway workers. They must not perform any other duties.

They must not leave their position until instructed by the Qualified Protection Employee or until relieved by another watchperson.

OTS-46. Equipment

Watchpersons must have the required watchperson's kit and ensure that it has the equipment necessary to perform their duties.

Equipment				
Good Visibility				
Watchperson	Warning horn or whistle Standard white or orange disc / mitt			
Advance watchperson	Warning horn or whistle Standard white or orange disc / mitt			
Poor Visibility				
(in tunnels, at night or in poor weather conditions)				
Watchperson	Warning horn or whistle Suitable white light			
Advance watchperson	Warning horn or whistle Suitable white light			

Note: The visual warning device is only required in areas where clearance does not present a safety hazard.

OTS-47. Provide Train Approach Warning

Train approach warning can be used to protect roadway workers outside working limits by using one or more watchpersons. Train approach warning shall be given in sufficient time to enable each roadway worker to move to and occupy a previously arranged place of safety no less than 15 seconds before the train moving at the maximum authorized speed can pass the location of safety.

OTS-48. Watchpersons

Watchpersons must warn workers when a train or on-track equipment approaches from either direction. Warning must be given so that roadway workers can clear the work area at least 15 seconds before the train passes the location.

Watchpersons must warn workers of an approaching train:

- 1. by sounding the warning horn or whistle,
- by holding the white disc at arm's length above your head in areas where clearance does not present a safety hazard, and
- by holding the white disc horizontally at arm's length toward the place to go to clear the tracks in areas where clearance does not present a safety hazard.

The Watchperson(s) assigned to work group(s) in the work area(s) must ensure that Roadway Workers are aware of any train movements on Adjacent Track and that such Roadway Workers do not foul occupied adjacent tracks in order to clear their work area.

Watchpersons must signal workers that it is safe to return to work by holding the white disc horizontally toward the work site.

Watchpersons must not allow anything to distract them from their duty of watching for the approach of trains and other equipment. Watchpersons must not leave their assigned position unless relieved by another watchperson or their supervisor.

OTS-49. Advance Watchpersons

Advance watchpersons are responsible for watching for approaching trains or on-track equipment and signaling the watchperson.

Warning must be given so that roadway workers can clear the work area at least 15 seconds before the train passes the location.

Advance watchpersons must warn watchpersons of an approaching train or on-track equipment:

- 1. by sounding the warning horn or whistle,
- by holding the white disc at arm's length above your head.

Advance watchpersons must signal watchpersons that it is safe to return to work by holding the white disc horizontally toward the work site. If the warning is not acknowledged by the watchperson, the advance watchperson must signal the train to stop.

Advance watchpersons must not allow anything to distract them from their duty of watching for the approach of trains and other equipment. Advance watchpersons must not leave their assigned position unless relieved by another watchperson or their supervisor.

WAYSIDE SIGNS

OTS-230. Placement of Signs (RDR-230)

Wayside signs must be placed to the right of track requiring protection. In-gauge signs, when used, must be placed between the running rails. All signs must be in a location where they can be clearly visible to an operator of an approaching train/vehicle or other ontrack equipment. Consideration must be given to track curvature, obstructions, and other issues that could limit visibility. Stop Signs and portable train stops must not be placed within the limits of a passenger station. The following signs must be placed at braking distance from the restriction to which they apply:

- a. Approach Speed Limit Sign
- b. Approach Sign
- c. Diverting Approach Sign
- d. Diverting Approach Speed Limit Sign

The following signs must be placed in both directions, unless otherwise directed by the Train Dispatcher/ Controller:

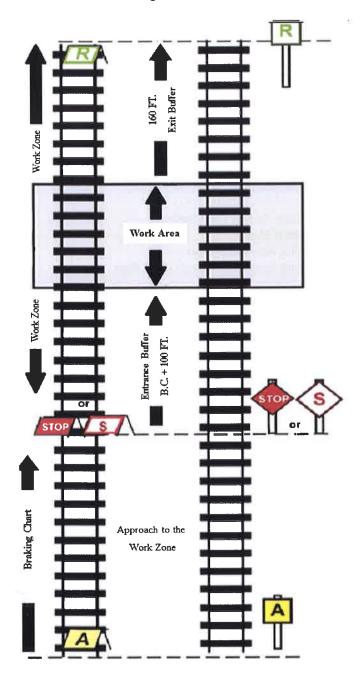
- a. Approach Speed Limit Sign
- b. Diverting Approach Sign
- c. Speed Limit Sign
- d. Resume Speed Sign
- e. Approach Sign
- f. Diverting Approach Speed Limit Sign
- g. Stop Sign
- h. Work Area Speed Limit Sign
- i. Work Area Resume Speed Sign
- j. Workers Portable Warning Signal

The Speed Limit Sign must be placed at the start of the speed restriction. The Resume Speed Sign must be placed not less than 160 feet beyond the actual point where the speed restriction ends.

OTS-230A.Work Zone Sign Placement (RDR-230A)

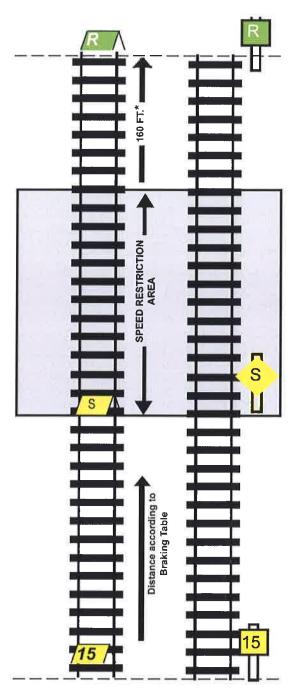
Work zone signage must be arranged in accordance with the diagram below.

This illustration shows signs established in one direction.



OTS-230B. Placement of Signs (RDR-230B)

Temporary speed restrictions sign placement must be arranged in accordance with the diagram below.OTS-231.



OTS-231 Braking Chart (RDR-231)

Placement of temporary signs is based on the maximum authorized speed of the territory, in accordance with the following chart.

F (1)	T- (1)	Distance /ft
From (mph)	To (mph)	Distance (ft.)
70.0	60.0	370
U.G.	50.0	680
04	40.0	930
, w	30.0	1130
Torris	20.0	1270
(40)	15.0	1320
15463	10.0	1350
W.	0.0	1380
60.0	50.0	310
. 144.7	40.0	560
(##)	30.0	760
1.60	20.0	900
	15.0	950
· W	10.0	990
	0.0	1010
55.0	50.0	150
iii	40.0	400
u,	30.0	600
iii	20.0	740
α _Ξ	15.0	790
W:	10.0	820
u.	0.0	850
50.0	40.0	250
16	30.0	450
« :	20.0	590
E	15.0	640
40	10.0	680
<u>iii</u>	0.0	700
40.0	30.0	200
*	20.0	340
ŭ.	15.0	390
ii.	10.0	420
16	0.0	450
30.0	20.0	140
IK.	15.0	190
и	10.0	230
ıı.	0.0	250
20.0	15.0	50
# ::	10.0	80
15.0	0.0 10.0	110 40
15.0		60
10.0	0.0 0.0	30
Distances have been		earest 10 MPH

Distances have been rounded to the nearest 10 MPF increment.

OTS-232. Approach Sign (RDR-232)





<u>Wayside</u>

<u>In-Gauge</u>

Indication:

- Sound one long on horn as soon as the front of the train/vehicle passes the Approach Sign
- Trains / vehicles exceeding 30 MPH must reduce to that speed as soon as the train / vehicle passes the Approach Sign.
- c. Proceed prepared to stop at the Stop Sign.

OTS-233. Diverting Approach Sign (RDR-233)



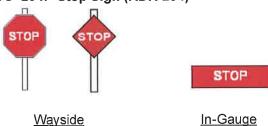


<u>Wayside</u>

In-Gauge

Indication: Work zone established on an adjacent track. When diverting into the work zone, proceed at not exceeding 30 MPH prepared to stop at the Stop Sign. One long on the horn must be sounded as the front of the train / vehicle passes the Diverting Approach Sign.

OTS-234. Stop Sign (RDR-234)



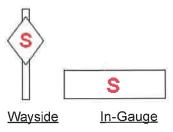
Indication:

- a. Sound two short sounds on train/vehicle horn
- b. Stop, unless permission to proceed is received before a stop occurs.
- c. Remain standing until permission to proceed is received.
- d. Acknowledge permission to proceed with two short sounds on the horn prior to moving.
- e. Proceed not exceeding 30 MPH unless otherwise directed by Bulletin Order, Form W, the flagperson or QPE. Resume speed when the front of the train/vehicle reaches the Work Area Resume Speed Sign.

Placement: The Stop Sign must be placed in advance of the Work Area according to the Braking Chart (RDR-231). The maximum authorized speed must be used plus 100 feet when making the calculations, except when used for diverting movements directly into the Work Area.

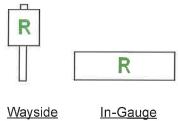
Note: Portable train stops must be used for movements in the normal direction of travel.

OTS-235. Work Area Speed Limit Sign (RDR-235)



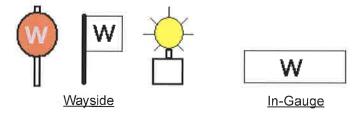
Indication: Proceed not exceeding 30 MPH until the front of the train/vehicle reaches the Work Area Resume Speed Sign.





Indication: Resume normal speed when the front of the train/vehicle reaches the Work Area Resume Speed Sign.

OTS-242. Worker's Portable Warning Signal (RDR-242)



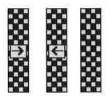
Indication: Sound one long on the horn.

When displayed, signal must be positioned to the right of and adjacent of the affected track a minimum of 10 feet in advance of the work location to provide adequate warning to work location. Signs may be placed on the left at island platforms, when necessary.

Day Signal Outside Tunnel: Whistle sign, black "W" on white background, or white "W" on orange background, or an in-gauge sign.

Night Signal And Inside Tunnel: Flashing yellow lantern or an in-gauge sign.

OTS-244. No-Clearance Signs (RDR-244)



Indication: No clearance between signs. When train is approaching, do not position self between sign and train.

Note: Where arrows are indicated, non-clearance area exists.

RULES FOR ESTABLISHING ON-TRACK PROTECTION OF ROADWAY WORKERS

General Information

The following requirements apply to SEPTA employees and employees of private contractors who perform work that requires on-track protection while performing duties involving the maintenance, construction, inspection or repair of rail facilities.

OTS-500. General Requirements (RDR-500)

a. Qualification Requirements

All roadway workers must be qualified on the on-track protection procedures and re-certified annually.

All roadway workers must be afforded on-track protection whenever their duties involve fouling or the potential to foul.

b. Qualified Protection Employee Requirement All work groups must include a Qualified Protection Employee who is responsible for ensuring on-track protection and compliance with the applicable ontrack protection procedures.

Lone Workers must be Qualified Protection Employees.

c. Authorization to Perform Work

The employee in charge of a track must be notified before any roadway worker fouls the track. No work may begin without authorization of the employee in charge of the track. Upon receiving notification of the intended work, the employee in charge of the track must advise the QPE of any condition that could affect the QPE's duties, such as other work not published in the Bulletin Order, the presence of other roadway work groups, traction power outages, etc.

The QPE must:

1. Ensure all work is performed in accordance with the rules for establishing on-track protection.

AND

2. Check the Bulletin Order for scheduled outages within the area where work is to be performed.

AND

Contact the QPE in charge of any work zone, foul time or out-of-service track before entering that area.

4. On other than main tracks, notify the employee in charge of the track which method of on-track protection will be used.

d. Personal Protective Equipment

All personnel engaged in the work activity in any capacity must wear the approved reflective safety vest, safety shoes, and full cover clothing. Additional personal protective equipment, such as hard hats, eye protection, ear protection, etc., must be worn as required by Authority policy or as specified by contract.

e. Protection Requirements

No work that fouls, or has the potential to foul, a track may be performed without an appropriate level of on-track protection. On-track protection must be established by applying one of the following methods:

- Individual Train Detection (ITD, Rule RDR-502)
- Train Approach Warning (TAW, Rule RDR-503)
- 3. Foul Time (Rule RDR-504)
- Protection by Establishing a Work Zone (Rule RDR-505)
- Removing Tracks From Service (Rule RDR-506)
- 6. Working on Station Platforms (Rule RDR-507)
- Protection by Location Control (Rule RDR-510)
- 8. Protection on Other Than Main Tracks (RDR-511)

OTS-501. Protection When Fouling or Working On Any Track (RDR-501)

Trains, vehicles, or other equipment must be protected against any known condition that may interfere with their safe passage.

The Train Dispatcher / Controller must be advised if the work will disturb the track or electrical structure.

a. Work That Doesn't Involve Occupancy or Disturbing the Track or Electrical Structure

For work that does not disturb the track or electrical structure, the Train Dispatcher / Controller may verbally authorize Foul Time, or the Qualified Protection Employee can decide to use ITD, TAW, or perform a casual inspection. The Train Dispatcher / Controller must be advised if ITD or TAW is used, or if a casual inspection is to be performed. Individuals performing casual inspections must be briefed by a QPE before performing inspection tasks.

b. Work Involving Occupancy or Disturbance of the Track or Electrical Structure

For work that involves on-track equipment, or will disturb the track or catenary structure so that movement would be unsafe for Normal Speed, the Train Dispatcher / Controller must issue a Form W. If an event occurs or conditions are found that may interfere with the safe passage of trains, vehicles, or other equipment, and no protection has been provided, employees must immediately attempt to stop all movements and communicate the condition to the Train Dispatcher / Controller.

OTS-502. Protection By Individual Train Detection (ITD) (RDR-502)

Individual Train Detection may be used by lone workers who are qualified on track safety, the operating rules, and physical characteristics of the territory.

ITD may only be used when:

a. The work to be performed is routine inspection or minor repair work,

AND

- b. The Lone Worker is able to detect approaching trains, vehicles, or other equipment operating at maximum authorized speed and is able to move to the previously determined point of safety not less than 15 seconds prior to arrival of equipment at that location. The place of safety may not be a track unless:
 - 1) a work area has been established on that track, or

2) the track is previewed to be safe to occupy AND provides sufficient time to clear for each direction of an approaching train, vehicle or equipment operating at maximum authorized speed.

AND

c. The ability to hear and see approaching trains, vehicles, and other equipment is not impaired by background noise, lights, precipitation, fog, passing trains, vehicles, or other equipment, nearby power-operated tools or roadway maintenance machines, or other loud physical conditions.

AND

d. The Train Dispatcher / Controller has been notified of the intent to use ITD.

AND

e. The Lone Worker has participated in a job briefing with their designated supervisor, or the Train Dispatcher / Controller when a supervisor is not available.

Lone Workers using Individual Train Detection may not occupy a position or engage in any activity that would interfere with that worker's ability to maintain a vigilant lookout for, and detect the approach of a train, vehicle, or other equipment moving in either direction.

Lone Workers may use a Worker's Portable Warning Signal in combination with ITD.

OTS-503. Protection by Train Approach Warning (RDR-503)

Train Approach Warning may be used to protect a work group. Before any work activity commences, the Qualified Protection Employee must ensure that a sufficient number of Watchpersons (and Advanced Watchpersons, when necessary) are assigned to provide proper protection for all roadway workers. Persons assigned as Watchpersons must be equipped with an approved audible warning device (e.g. portable horn or whistle) and an approved visual warning device (e.g. disc/mitt, sign.). The visual warning device is only required in areas where clearance does not present a safety hazard.

Watchpersons and Advanced Watchpersons must position themselves to provide sufficient warning to roadway workers whenever a train, vehicle, or other equipment approaches at the maximum authorized speed from either direction. Warning must be given so that all Roadway Workers can sufficiently clear the work area at least 15 seconds before a train, vehicle, or other equipment passes the location.

When Roadway Workers must be warned of an approaching train, vehicle, or other equipment, Watchpersons and Advanced Watchpersons must provide warning as follows:

Audible Warning: By verbalizing the warning, or by sounding the warning horn or whistle.

Visual Warning: By holding the disc vertically at arm's length above the head, then holding the disc horizontally at arm's length toward the direction where the workers are to proceed to clear the track area; when it is safe to return to the work area, by holding the disc horizontally at arm's length toward the track area.

A Worker's Portable Warning Signal may be used in combination with Train Approach Warning.

Watchpersons and Advanced Watchpersons must not allow anything to distract them from their duty of watching for the approach of trains, vehicles, or other equipment. They must not leave their assigned position unless relieved by another assigned person or the designated employee in charge.

OTS-504. Protection By Foul Time (RDR-504)

Foul Time may be used to establish protection by the Train Dispatcher / Controller, and only directly to the Qualified Protection Employee requesting the Foul Time.

a. Action Required Before Issuance Before authorizing Foul Time, the Train Dispatcher / Controller must: Determine the exact limits of the track segment to be fouled.

AND

Determine that no other trains, vehicles or other equipment have been authorized to occupy or are currently occupying the track segment to be fouled.

AND

- 3. Ensure the next on-track movement approaching the Work Area is held as follows:
 - a. Where signals are to be used, that Stop Signals have been displayed and blocking devices (where applicable) have been applied to the controls of switches and signals leading to the affected track, or
 - Implement a verbal hold. The Train
 Dispatcher / Controller must ensure the
 next approaching on-track movement
 is stopped at the hold point before
 authorizing roadway workers to foul the
 affected track area.

b. Foul Time Authority Record

When authorized, foul time information must be recorded electronically in the train dispatching system by the Train Dispatcher / Controller issuing the foul time and on the SFT-2 "Employee Record of Foul Time Authority" by the QPE being granted the foul time. The QPE must state the following when requesting foul time:

- 1. Title, first name and last name;
- Track designation;
- 3. Track limits;
- 4. Time limits.

Foul time must be requested in the following manner:

"Track Foreman John Doe to train dispatcher."
"Train dispatcher to Foreman Doe." "Dispatcher, I'm requesting foul time on No. 'X' track between 'Able' and 'Baker' for x minutes."

'Able' and 'Baker' for x minutes."

Train Dispatcher/Controller must not grant foul time if the request does not include the name of the person making the request, the track designation, the physical limits of the territory, and the duration foul time is needed.

After applying adequate blocking device protection, the Train Dispatcher/Controller must authorize foul time in the following manner:

"Track Foreman John Doe authorized foul time on No. 'X' track between 'Able' and 'Baker' from 10:15 AM to 10:30 AM." The QPE must not accept foul time that is not authorized in the proper manner. The QPE making the request must have his / her name, account number, date and columns 1 and 2 of the Employee Record of Foul Time Authority filled in before making the request, and fill in columns 3 and 4 after the Train Dispatcher/Controller indicates the start and end times. After entering the start and end times on the record, the QPE must repeat the foul time authority as follows: "Track Foreman John Doe authorized foul time on No. 'X' track between 'Able' and 'Baker' from 10:15 AM to 10:30 AM."

After the QPE repeats the foul time properly, the Train Dispatcher/Controller will give his / her first initial and last name, which the QPE will record in column 5 and repeat to the Train Dispatcher/ Controller. Train Dispatcher/Controller must not give his / her name if the information is not repeated in the proper manner. Foul time becomes effective after the QPE repeats the authorizing dispatcher's name.

c. Job Briefing Requirements

Before beginning work under foul time authority, the Qualified Protection Employee must conduct a job briefing with all affected employees, and review the track(s) being protected, the track and time limits of the authority, and all other factors affecting the work. The employees must not be permitted to foul the track(s) involved until they have verified their full understanding of all topics discussed during the job briefing.

Any additional roadway workers requesting permission to perform work within the foul time authority must comply with the job briefing requirements outlined above. In addition, the QPE must complete Work Limits Occupancy Authority Part 2 on the back of the SFT-2 form.

d. Releasing Foul Time

After all work is completed and the affected track(s) are clear of all workers and equipment the QPE must contact the Train Dispatcher/Controller and report clear. Upon receiving the report, the Train Dispatcher/Controller must give a released time to the QPE. The QPE must repeat the release time to the Train Dispatcher/Controller and record it in column 6.

A new Employee Record of Foul Time Authority must be used every day. Completed Employee Record of Foul Time Authority forms must be kept available for inspection upon request for seven days.

OTS-505. Protection By Establishing a Work Zone (RDR-505)

a. General

The authority to establish a Work Zone is issued by a Form W, line 4. It may only be authorized by the Train Dispatcher / Controller and only directly to the Qualified Protection Employee.

The limits of the Work Zone must be designated on the Form W, and identifiable by milepost, station, or other recognized physical characteristic location.

All Work Zones established per this rule must be supplemented by Adjacent Track Protection prescribed per OTS 512. Adjacent Track Protection must be provided for each Track that immediately flanks the Work Zone.

Information regarding the location of Work Zones and associated Adjacent Track Protection may be published in the Bulletin Order, as information only. Bulletin Order information does not authorize the establishment of a Work Zone. If a Work Zone identified in the Bulletin Order is not going to be established, or if the effective times change, the Train Dispatcher / Controller must notify trains, vehicles, or other approaching equipment verbally or electronically.

If the limits of the Work Zone and associated Adjacent Track Protection are not published in the Bulletin Order or Supplemental Bulletin Order, the Train Dispatcher / Controller must notify trains, vehicles, or other approaching equipment verbally, electronically, or Supplemental Bulletin Order, of the limits.

b. Structure of a Work Zone

The Work Zone is the area between the Stop Sign/ Work Area Speed Limit Sign and the Work Area Resume Speed Sign, made up of an Entrance Buffer, Work Area, and Exit Buffer.

The Entrance Buffer is the area between the Stop Sign/Work Area Speed Limit Sign and the Work Area. The Entrance Buffer must account for the maximum authorized speed of approaching movements. Therefore, the Stop Sign must be placed in advance of the Work Area according to the Braking Chart (RDR-231). The maximum authorized speed must be used plus 100 feet when making the calculation.

The Work Area is the location where roadway workers are actually working.

The Exit Buffer is a minimum 160' area between the end of the Work Area and the Work Area Resume Speed Sign.

The approach to the Work Zone is the territory between the Approach Sign and the Stop Sign/ Work Area Speed Limit Sign. This area is not controlled by the QPE. The Approach Sign must be placed in advance of the Stop Sign according to the Braking Chart (RDR-231). The maximum authorized speed must be used when making the calculation.

When the limits of the Work Zone extend through an interlocking, all switches allowing access to the Work Zone must be protected to prevent unauthorized movements.

The Qualified Protection Employee must ensure these switches are protected by the Train Dispatcher / Controller or by displaying additional work zone signage. If the Train Dispatcher / Controller provides switch protection, such protection must not be removed until permission has been granted from the Qualified Protection Employee.

When access to a work zone from adjacent track(s) is/are being protected by signs, a Diverting Approach Sign(s) must be placed on adjacent track(s). Additional Stop Sign(s) will be required if the switch is located within the Work Area. In these situations, there is no Entrance Buffer. The Stop Sign/Work Area Speed Limit Sign will be placed in the switch adjacent to the Work Area.

c. Placement of Signs

Before issuing the Form W, the Train Dispatcher / Controller must be assured that all signs have been properly placed. The employee requesting the Form W must arrange for the placement of signs and receipt of the Form W according to the following sequence:

The Work Area Resume Speed Sign,

The Approach Sign, and Diverting Approach Sign (if necessary)

THEN

IEN

The Work Area Speed Limit Sign,

Issuance and receipt of the Form W.

Replacement of the Work Area Speed Limit Sign with the Stop Sign and/or Portable Train Stop (where used) when the track is obstructed.

Once the signs are in place and the Form W has been issued, the Flagperson, when used, must be positioned near the Stop Sign and before the first worker.

Note: Roadway workers placing signs must not foul a track unless it is safe to do so. When placing signs for a bi-directional Work Zone, the order of placement need only be followed for one direction. Placing signs one direction at a time is not required.

d. Permission to Pass a Stop Sign

Permission to pass a Stop Sign must be issued verbally or by hand signal by the Flagperson. The Flagperson must be positioned close to the Stop Sign and prior to the first worker. The Flagperson must be clearly distinguishable from other people in the track area to vehicle or train operators.

When a Flagperson is not used, the Qualified Protection Employee must convey permission to pass the Stop Sign. When the Qualified Protection Employee cannot be positioned near the Stop Sign, permission to pass the Stop Sign can be relayed through the Train Dispatcher / Controller, but only after a clear understanding is established between the Train Dispatcher / Controller and the Qualified Protection Employee.

e. Movements Within Work Area

Trains, vehicles, or other equipment may only enter the Work Area:

- When permission has been given as follows:
 - A hand signal or verbal authority to proceed past Stop Sign has been received from the Flagperson or Qualified Protection Employee, or
 - The Portable Train Stop has been removed and a hand signal or verbal authority to pass Stop Sign has been received from the Flagperson or Qualified Protection Employee, or
 - Verbal permission has been received from the Train Dispatcher / Controller, and, when necessary, Portable Train Stop has been removed. OR
- 2. A Work Area Speed Limit Sign is displayed.

The Flagperson or Qualified Protection Employee must not authorize movements to enter the Work Area or display a Work Area Speed Limit Sign until he confirms the entire track through the Work Area is not obstructed and all Roadway Workers have been notified. Movements through the Work Area must not exceed 30 mph unless directed otherwise by Bulletin Order, Form W, the Flagperson or Qualified Protection Employee.

Exception: The Flagperson or Qualified Protection Employee may admit trains, vehicles, or other equipment that will be performing work and will be under the direct charge of the employee in charge of the work. Such equipment must operate at Restricted Speed when in the Work Area.

f. Removal of Signs

Before the Train Dispatcher / Controller cancels the Form W, he must be assured that the signs have been properly removed. The employee receiving cancellation of the Form W must arrange for the removal of signs and cancellation of the Form W according to the following procedure and sequence:

 Removal of Stop Sign (or Work Area Speed Limit Sign),

THEN

2. Removal of the Approach Sign and Diverting Approach Sign (if necessary),

THEN

Removal of the Work Area Resume Speed Sign.

THEN

4. Cancellation of the Form W.

OTS-506. Removing Tracks From Service (RDR-506)

Tracks must be removed from service by use of a Form W, line 3, which may only be authorized by the Train Dispatcher / Controller and must be issued directly to the person requesting the track out of service. The employee requesting the track must be a Qualified Protection Employee.

If the limits are not published by Bulletin Order, the Train Dispatcher / Controller must notify approaching movements either verbally or by Form W.

a. Action Required Prior to Issuance

All Tracks Removed From Service per this rule must be supplemented by Adjacent Track Protection prescribed per OTS 512. Adjacent Track Protection must be provided for each Track that immediately flanks the Out-of-Service (OOS) Track

Before removing the track from service, the Train Dispatcher / Controller must take the following actions:

1. Determine the exact limits of the track segment to be removed from service,

AND

 Determine that no other trains, vehicles, or other equipment have been authorized to occupy or are currently occupying the track segment to be removed from service,

AND

- 3. Ensure the next movement approaching the affected track segment is held as follows:
 - a). Where signals are to be used, that Stop Signals have been displayed and blocking devices, where applicable, have been applied to the controls of switches and signals leading to the affected track segment, or
 - b). Where Portable Train Stop or other barricade is used, that the device has been erected at the limits of the out-of-service area, or
 - c) At other locations, a Temporary Block Station(s) has been established to hold trains clear of the affected track, that any track barricades that have been erected are clear of adjacent track movements, and that switches or crossovers, if present, are lined away from the out-of-service track segment, or
 - d). A verbal hold is established. The Train
 Dispatcher / Controller must ensure the next
 approaching on-track movement is stopped
 at the hold point before authorizing roadway
 workers to foul the affected track area
 - **b.** Establishing Out-of-Service Limits
 Each end of the limits must be defined by one of the following physical features:
 - Station
 - Interlocking signal
 - Temporary Block Station
 - Hand-operated switch or crossover
 - 5. Numbered signal
 - Highway Grade Crossing
 - Authorized track barricade or train stop device
 - 8. Any other recognizable physical characteristic location

When track barricade or train stop device is used to designate a limit, the positioning must be stated on Form W. line 9.

c. Operation Within Out-of-Service Limits
Block, Automatic Train Control System, or
interlocking rules do not apply within the limits of
the out-of-service territory. Movement is under
the direction of the employee designated on the
Form W. All movements must operate at Restricted
Speed unless otherwise directed by the holder of
the Form W. When other than Restricted Speed
is required, Form W line 9 must read, "Operate in
accordance with the instructions of Track Foreman
Jones".

d. Admitting Additional Workers or Equipment From Locations Controlled By Train Dispatcher / Controller

The Train Dispatcher / Controller may admit additional workers or equipment into the out-of-service limits by:

1. Obtaining permission of the employee to whom the Form W was issued.

AND

2. Verbally authorizing entry by conveying permission to pass Stop Signal in signaled territory, or conveying permission to proceed into the out-of-service area.

The employee to whom the Form W was issued must conduct a job briefing with the roadway worker in charge of the additional equipment/ workers and record the additional equipment or workers on Part 2 of the Form W if they are not part of his work group.

e. Admitting Additional Workers or Equipment From Locations Not Controlled By Train Dispatcher / Controller

The employee to whom the Form W was issued may admit additional workers or equipment into the out-of-service limits from a location not controlled by the Train Dispatcher / Controller.

The employee to whom the Form W was issued must conduct a job briefing with the roadway worker in charge of the additional equipment/ workers and record the additional equipment or workers on Part 2 of the Form W if they are not part of his work group.

f. Qualified Protection Employee Going Off Duty

When a track is out of service by Form W Line 3, and the Qualified Protection Employee is to go off duty, Form W Line 3 must be issued to another Qualified Protection Employee if work is to continue.

The procedures below must be followed if work is to be suspended but the track is to remain out of service.

- The Train Dispatcher/Controller must ensure that Blocking Device protection, if available, remains applied. Other personnel involved in ensuring protection must be issued Form W, Line 9, instructing them to hold all trains clear of the affected track.
- 2. The QPE must ensure barricades are erected to protect out-of-service area.
- The QPE must contact the Train Dispatcher/ Controller and advise all conditions affecting the out of service track area, including the locations of barricades, equipment and condition of track structure. This information must be recorded by the Train Dispatcher/Controller and repeated back to the QPE.
- 4. After steps 1, 2, and 3 are completed, the Form W. Line 3 must be canceled.

No further movements shall be permitted or maintenance performed on affected track until Form W, Line 3 is issued to a QPE. Before requesting Form W, Line 3, the QPE must communicate with the Train Dispatcher/Controller to ascertain all conditions affecting the out of service track area.

Upon completion of work, the provisions of steps 1 through 4 above will apply if track must again remain out of service.

g. Returning the Track to Service

When the track is to be returned to service, the employee to whom the Form W was issued must take these two actions:

 Notify the Train Dispatcher / Controller of any restrictions necessary for the safe passage of trains, vehicles, or other equipment,

AND

Ascertain that all trains, equipment and personnel are clear of the track area, and notify the Train Dispatcher / Controller of such.

Exception: When authorized by the Train Dispatcher / Controller, the track may be returned to service while it is still occupied by trains, vehicles, equipment or personnel. Before canceling the Form W, the Train Dispatcher / Controller must ensure that the equipment or personnel to remain receives the proper authority to occupy the track after it is returned to service.

OTS-507. Working On Station Platforms (RDR-507)

Work may be performed on a station platform without establishing a Work Zone. Such work may only be performed if all four of the following criteria are met:

 The work does not foul or have the potential to foul the track area beyond the edge of the platform.

AND

b. A clear line of sight must be established, or a Watchperson used, between the platform working area and approaching trains, vehicles, or other equipment when the work is within two feet from the edge of the platform.

AND

c. All workers engaged in the work must position themselves a minimum of two feet from the edge of the platform at least 15 seconds prior to the arrival of a train or other equipment to enable passenger travel.

AND

d. All equipment or tools must be secured or moved a minimum of two feet from the edge of the platform at least 15 seconds prior to the arrival of a train or other equipment to enable passenger travel. A Worker's Portable Warning Signal must be used for work performed two feet or less from the edge of the station platform. When used, the sign must be secured in place and positioned at the entering end of the platform, or, where movement may enter from either direction, at both ends of the platform.

OTS-508. Speed Distance Table (RDR-508)

The following table must be used to determine distances to establish the 15-second protection requirement. The calculation for positioning must use the maximum authorized track speed, not a temporary restriction implemented by rule or track condition.

Speed (MPH)	Feet per Second	Feet per 15
		Seconds
10	14.7	221
15	22.0	330
20 25	29.3	440
25	36.7	551
30	44.0	660
35	51.3	770
40	58.7	881
45	66.0	990
50	73.3	1,100
55	80.7	1,211
60	88.0	1,320
65	95.3	1,430
70	102.7	1.541

OTS-509. Joint Occupancy of Work Zones, Foul Time and Out of Service Tracks (RDR-509)

The QPE may allow additional workers to occupy the track within the work zone, foul time area, and out of service limits. Before authorization is given, the employee must:

 Have a job briefing with the Lone Worker, or the EIC of the additional work group,

AND

- b. Complete Work Limits Occupancy Authority Part 2 by recording:
- 1. The name of the EIC of the additional work group.
- 2. The limits of the additional occupancy authority.
- 3. The time the occupancy was authorized.

Workers given authority to occupy the track within the designated area must report clear to the QPE immediately after clearing the track. The QPE must then record the time cleared on the Work Limits Occupancy Authority - Form W Part 2.

Prior to returning the track to service, the QPE must determine that all work groups given authority to occupy have reported clear.

OTS-510. Protection by Location Control (RDR-510)

Location Control may be used to establish working limits. The Train Dispatcher / Controller may issue Location Control to a QPE when a roadway worker who is qualified to manage the signal system is capable of causing interlocking signals at the entrance to the working limits to convey an aspect indicating Stop Signal. Location Control must be requested using the following format:

- 1. The signal maintainer / roadway worker who is qualified to maintain the signal system must contact the Train Dispatcher / Controller for permission to take Location Control. The request must include specific location/limits and affected tracks.
- 2. The Train Dispatcher / Controller must determine no other trains, vehicles or equipment has been authorized to occupy or is currently occupying the territory
- 3. The Train Dispatcher/Controller will then provide authorization for Location Control and an effective start time.

Individual train / vehicle movements may be allowed by the QPE while Location Control is in effect provided:

- 1. The QPE communicates with the Train Dispatcher/Controller and the work group, and
- 2. The QPE ensures all roadway workers and equipment are clear, and
- 3. Signal aspects can display a proceed indication or,
- If a Stop Signal is displayed permission must be given to pass it in accordance with rule RDR-205, Roadway workers must be in the clear before signal

protection is released and must not return to a fouling position until protection via Stop Signals is re-established.

Protection must be maintained until all roadway workers and equipment are clear of the working limits. The QPE must notify the Train Dispatcher / Controller as soon as working limits are released.

OTS-511 Protection on Other Than Main Tracks (RDR-511)

a. Methods of Establishing Protection
On-track protection may be established on
tracks not controlled by the Train Dispatcher
/ Controller by TAW or making the track
inaccessible at each possible point of entry.
The QPE must receive permission to work
on the track(s) from the employee in charge
of the track before the track is fouled. The
employee in charge of the track must be fully
informed as to nature of the work and the
tracks affected.

Any one of the following means may be used to establish protection:

- A hand-operated switch or derail aligned to prevent access to the working limits and secured with an effective securing device. The QPE must ensure a barricade is erected at the entrance(s) to the out of service tracks(s). The effective securing device and tag may be removed only by direction of the QPE.
- 2. A remotely controlled switch aligned to prevent access to the working limits and secured with a blocking device by the employee who controls the switch. When remotely controlled switches are involved, the QPE must communicate directly with the employee controlling such switches. Blocking device protection must not be considered in effect until it has been confirmed by the employee controlling the switch. In addition to

blocking the remote controlled switch, the QPE must ensure a barricade is erected at the entrance(s) to the out of service tracks(s). Blocking device protection must be maintained until the QPE who requested the protection has reported clear. The employee providing blocking device protection must make a record of the application of blocking devices, including the reason.

- 3. A disconnected rail.
- A flagperson assigned to hold trains and equipment clear of the working limits.
- 5. A watchman / lookout properly positioned and capable of warning workers of the approach of a train or on-track equipment that would allow the workers to be clear of the track not less than 15 seconds before the train or on-track equipment arrives at the location

Once the track is made inaccessible, no workers or equipment may enter the working limits without permission of the QPE.

b. Job Briefing Requirements

The QPE must conduct a job briefing with the employee in charge of the track, reviewing the tracks affected by the working limits, the means by which the working limits will be made inaccessible, estimated time frame working limits will be in effect, and any other additional information, such as traction power outages, if applicable. This briefing must be conducted face-to-face, unless the QPE and the employee in charge of the track are not at the same location.

c. On-Track Movements Within Working Limits

Unless part of the work group, stored equipment must be removed before the working limits are established. If stored equipment cannot be removed before working limits are established, the employee in charge of the track must ensure the equipment is secured and authority for movement is withheld until working limits are

released.

When authorized, movements of on-track equipment must be made at Restricted Speed not exceeding 5 MPH.

d. Additional Work Groups / On-Track Equipment Within the Working Limits

The QPE may admit additional workers or equipment into the working limits. The QPE must record the additional equipment or workers if they are not part of his work group.

e. Releasing Working Limits

Protection must be maintained until all roadway workers and equipment are clear of the working limits. The QPE must notify the employee in charge of the track as soon as working limits are released.

When remotely controlled switches are used to make the track inaccessible, the QPE must ensure track clamps are removed and the employee in charge of the remotely controlled switches are advised protection is no longer required before reporting clear to the employee in charge of the track.

OTS 512 – Adjacent Track Protection (RDR-512)

a. General

Whenever work requires a work zone (RDR-505) or a track removed from service (RDR-506) – and the work requires roadway workers / personnel to perform tasks in the track area – the track(s) immediately adjacent to the track in which work is performed must also be provided protection against movements. Protection by Establishing a Work Zone RDR-505 / OTS-505; or removing [the affected] track from service RDR-506 / OTS-506, are the only approved methods to provide Adjacent Track Protection.

The authority to establish Adjacent Track Protection is issued by a Form W Line 4 authorization for a Work Zone; or Form W Line 3 for removing the adjacent track from service. It may only be authorized by the Train Dispatcher / Controller and only directly to the Qualified Protection Employee.

The structure and limits of the Adjacent Track(s) Protection must be designated on the Form W, and identifiable by milepost, station, or other recognized physical characteristic location. When Adjacent Track Protection is established, the Train Dispatcher / Controller must notify trains, vehicles, or other approaching equipment verbally, electronically, or Supplemental Bulletin Order, of the limits.

- b. Structure of Adjacent Track Protection
 The QPE must establish Adjacent Track
 Protection for each and every track that
 immediately flanks either side of:
- A track Protected by a Work Zone (OTS-505 / RDR-505)
 Or
- Track Removed from Service (OTS-506 / RDR-506).

<u>Structure</u>

The Adjacent Track Protection structure and associated distance limits between signage must conform to the boundaries prescribed in Protection by Establishing a Work Zone RDR-505(c) / OTS-505(c); or by the Out of Service Limits prescribed in Removing Tracks From Service RDR-506(b) / OTS-506(b).

c. Adjacent Track Protected by Work Zone

Placement of Signs for Adjacent Track Protected by Work Zone

The QPE must place Adjacent Track Protection signage per the sequence prescribed in Protection by Establishing a Work Zone RDR-505(c) / OTS-505(c).

Roadway workers placing signs must not foul a track unless it is safe to do so. When placing signs for bi-directional Adjacent Track Protection, the order of placement need only be followed for one direction. Placing signs one direction at a time is not required.

Before Issuing the Form W, the Train Dispatcher / Controller must be assured that all signs for the Adjacent Track(S), and the track upon which work is performed, have been properly placed.

Once the signs are in place and the Form W has been issued, the Flagperson(s) assigned to the Adjacent Track(s) must be in-position at the Adjacent Track Stop Sign before the first workers enter the work area and commence work

<u>Current of Traffic Considerations</u>

Each employee responsible for the on-track protection of roadway workers, QPE, must identify all tracks that flank – on both sides, as needed – the track in which roadway workers are protected by a either Work Zone (WZ) or Track Removed from Service (OOS). The QPE must determine the established current of traffic on the adjacent tracks; and then place Adjacent Track Protection signage based on the established movement direction and maximum authorized speeds for that Adjacent Track section.

If the Adjacent Track is used for Bi-Directional movements (i.e. – single tracking) passed the work area, the QPE must place the Adjacent Track Protection signage In Both Directions per the sequence prescribed in Protection by Establishing a Work Zone RDR-505(c) / OTS-505(c).

If the Adjacent Track Movements are In Same
Direction as established current of traffic on WZ /
OOS Track
Example Sub / Surface Track adjacent to MEL

Example – Sub / Surface Track adjacent to MFL **Example** – BSS Express Track adjacent to BSS Local Track or opposing Express Track

Note 1: The Stop Sign (Flagperson) on the Adjacent Track must be positioned immediately adjoining to:

The Work Zone (WZ) Stop Sign (Flagperson)
Or
The Out-of-Service (OOS) Track Barricade

Note 2: Stop Signs on both the Adjacent Track(s) and the work track must be placed in advance of the Work Area according to the Braking Chart (RDR-231) – using the Highest Maximum Authorized Speed among the affected tracks. The Maximum Authorized Speed must be used PLUS 100 feet when making this calculation.

QPE's must be aware that Adjacent Track Protection may be required on multiple tracks, and that placement of appropriate signage on each affected track must consider both the established current of traffic and the Maximum Authorized Speeds (MAS) on each track.

Movements Pass the Adjacent Work Area Movements on Adjacent Track(s) protected by a Work Zone must be restricted until the Flagperson determines that all workers are clear of the affected Adjacent Track(s). Personnel preforming flagging duties on Adjacent Track(s) must have positive communication (radio or hand signal) with

the work area Employee In Charge (EIC) or Watchperson, and confirm that workers are clear of the adjacent track prior to allowing movement pass the Stop Sign.

Each workgroup within a Work Zone or Track Removed from Service must designate an Employee in Charge (EIC) or Watchperson who must:

- Be able to communicate (radio or hand signals) with the Adjacent Track Protection Flagperson(s); and the Work Zone Flagperson.
- Remain alert for notification from the Flagperson(s) about approaching movements on the work track and adjacent track(s)
 And
- Ensure that Roadway Workers are clear of the affected Adjacent Track(s) or Work Zone when notified by the respective Flagperson of an approaching movement – before advising the Flagperson that such movements are safe to proceed.
- Removal of Signs
- Removal of Adjacent Track Protection signage must conform to the sequence prescribed for Work Zones in RDR-505(f) / OTS-505(f).

MOVEMENT OF TRACK CARS RULES

General Information

These rules apply to the movement of track cars and equipment other than trains, designed for maintenance, inspection or repair, which may or may not activate track circuits.

OTS-800. Responsibilities Governing Rules and Qualifications (RDR-800)

A qualified track car operator or pilot will be in charge of track cars under their jurisdiction and will be governed by the operating rules and special instructions that apply to the movement of trains, except as modified by Rules OTS-801 through OTS-812. The qualified track car operator or pilot must be qualified on the operating rules and physical characteristics of the territory on which they are to operate.

Where such movements involve multiple pieces of equipment, only one qualified track car operator or pilot is necessary.

OTS-801. Inspection of Track Cars (RDR-801)

The qualified track car operator or pilot must perform a visual inspection to see that the track car is in safe operating condition before being operated. Track cars must not be operated if found in an unsafe condition.

OTS-802. Display of Lights (RDR-802)

Track cars must display a white light to the front and a red light to the rear.

Highway rail vehicles must have headlights on high beam when moving on any track.

OTS-803. Placing or Operating Track Cars on Track (RDR-803)

Form W, line 2 is the authority for the movement of track cars and must be obtained before track cars are placed or operated on a main track outside interlocking limits. Track car movements within Yard Limits may be made with verbal permission of the Yard Foreperson.

After receiving permission from Control Center, track cars may shift one train/vehicle length beyond a home signal or hand-operated switch for the purposes of making a movement in the opposite direction.

Track cars must approach interlocking signals prepared to stop, and must not pass interlocking signals indicating Stop without authorization of Rule RDR-205C, or the Form W, line 9. Movement must be made at Restricted Speed within interlockings limits.

Automatic Block Signal indications within the Form W line 2 limits do not apply to track car movements. Before issuing Form W, line 2 authority for the movement of a track car, the Train Dispatcher / Controller must determine that:

 No opposing or conflicting movements have been authorized,

AND

 Stop Signals are displayed and blocking devices are applied, when possible, to switch and signal control mechanisms leading to the affected track,

OR

 A Portable Stop Signal is applied to the track to the rear of the track car,

OR

 A flagperson is positioned at a location to protect the track car.

When protection cannot be provided by Stop Signals, Portable Stop Signals, or a flagperson, the Form W line 2 must not be issued until the Line is known to be clear of opposing, conflicting or following movements.

The Train Dispatcher / Controller must issue a copy of the Form W to all Tower Operators involved.

OTS-804. Specified Directions and Specified Limits (RDR-804)

A track car having received Form W authority to operate in a specified direction must not move in the opposite direction.

A track car having received Form W authority to operate in both directions may operate in either direction. The route must not be changed, protection must not be altered, and the Train Dispatcher / Controller must not authorize additional movements into the specified limits while the Form W authority is in effect.

OTS-805. Track Cars Following Other Equipment (RDR-805)

A track car may be permitted to follow a train or another track car authorized to move in the specified direction into the same block. The Train Dispatcher / Controller must notify the track car operator that a train or track car is ahead.

Passenger and truck type highway rail cars and multiple vehicles operating under the same Form W authority must operate at a speed that will allow stopping within one-half the range of vision, short of another track car. All other track cars must operate at Restricted Speed when following other equipment.

A track car following a train must not enter a passenger station platform until the train is known to have departed the station.

OTS-806. Trains Following Track Cars (RDR-806)

Except in an emergency, a train/vehicle must not be permitted to follow a track car into the same block. In an emergency, the Train Dispatcher / Controller may permit a train to follow a track car at Restricted Speed. The Train Dispatcher / Controller must advise all operators of the track car ahead.

OTS-807. Train Dispatcher / Controller or Tower Operator Responsibilities (RDR-807)

The Train Dispatcher / Controller or Tower Operator must properly line the route and display signals for the movement of track cars at interlockings, where possible, except the signal governing movement into Automatic Block Signal System, Automatic Train Control System, or Non-Signaled Territory, which must remain at stop and blocking devices, where used, applied.

OTS-808. Reporting Clear of Interlockings (RDR-808)

Unless otherwise instructed, except when the Form W authorizes movement in both directions the qualified track car operator or pilot must report clear of all interlockings.

OTS-809. Reporting Clear of Track (RDR-809)

When a track car clears the track specified on Form W, line 2 the Qualified Track Car Operator, or Pilot must report clear to the Train Dispatcher / Controller and cancel the Form W. A new Form W, line 2 must be issued if further movement is desired.

OTS-810. Maximum Authorized Speeds (RDR-810)

The maximum speeds for trains apply to track cars, except as specified below. The maximum authorized speed as specified for trains in the Special Instructions or Bulletin Order must not be exceeded.

Rail Detector	50 MPH
Geometry Car	35 MPH
Highway Rail Car:	
Passenger Type	
- Forward	50 MPH
- Backward	10 MPH
Truck Type	30 MPH
- Forward	30 MPH
- Backward	וט ועורח
- Forward	35 MPH
- Backward	10 MPH
Grinder	
- Forward	15 MPH
- Backward	10 MPH
All Other Track Cars	
- Forward	30 MPH
- Backward	10 MPH
Over switch points and self-guarded frogs	5 MPH
	0 1011 11
All types:	
Through crossovers and turnouts, and when	10 MPH
passing standing trains on adjacent tracks	
When pulling or pushing track cars or trailers	10 MPH
When being passed by a train on an adjacent	Stop
track	[

OTS-811. Operation through Switches and Over Moveable Point Frogs

Track cars must not pass over switches or movable point frogs until it is determined that such appliances are properly lined.

Track cars must not trail through semi-automatic or spring switches until such switch is lined for the movement.

OTS-812. Securing Equipment (RDR-812)

When any type of on-track equipment is not continuously attended by the employee placed in charge of the equipment, it must be secured to prevent movement.

RULES FOR EQUIPMENT AND MACHINERY

OTS-900. Qualifications

Do not operate self-propelled equipment or other roadway maintenance machinery unless qualified or are qualifying under the supervision of a qualified employee.

OTS-901. Operating Manual

Keep the operator's Manual available on the equipment, if possible, so you can refer to it to determine safe operating procedures.

OTS-902. Communication With Other Employees

Communicate with any employee(s) who are near the equipment. Explain:

- 1. the normal equipment operating procedures,
- 2. blind spots,
- 3. signals warning that the equipment will move.

OTS-903. Spacing Between Roadway Maintenance Machines

Keep at least 30 feet between standing or working equipment. Increase the distance between machines when the equipment is working on territory where grades or curves limit the sight distances or the rail is wet, icy or oily.

Whenever two or more roadway maintenance machines are to be operated in conjunction with each other, the machines must maintain a minimum distance from each other to ensure the personal safety of roadway workers who are working in proximity to the machines. (Exception: When necessary in the course of maintenance activities for two machines to operate at a distance closer than that specified above, the work must not be performed unless under the direct supervision of the immediate supervisor or his/her designee.)

Whenever two or more roadway maintenance machines are to be moved simultaneously in multiple from one work location to another, regardless of the distance to be traveled, a traveling distance of 30 feet must be maintained to prevent collision.

OTS-904. Spacing Between Other Roadway Workers and Roadway Maintenance Machines

Roadway workers who are not directly engaged in the manipulation of roadway maintenance machinery while it is being operated, but who will be working in close proximity to such machinery, are governed by the following:

- They must be fully informed of the safety procedures concerning the equipment around which they will be working.
- They must maintain a minimum distance of 15 feet from the machine, unless under the direct authorization or supervision of the immediate supervisor.
- They must not perform any work function along the right-of-way and within 4 feet of the right-ofway where inattentiveness may result in their fouling the path of any machinery approaching along the rail.
- They must not perform any work in the vicinity of any machinery where the movable parts of that machinery (e.g. boom, hydraulic arms, etc.) may foul the area on a frequent basis.

CHALLENGE TO ON-TRACK SAFETY PROCEDURES

OTS-905. Right to Challenge

A roadway worker has the right to challenge in good faith whether the on-track safety procedures to be applied at the job location comply with the rules and procedures designed to provide protection. The roadway worker must inform the employee in charge whenever a good faith challenge is made that the on-track safety procedures being applied do not comply with the rules.

A. Procedure for Resolution of Challenges

A challenge made in good faith by a roadway worker will be handled through a procedure designed to achieve a prompt and equitable resolution. There are three levels of review.

Level 1

Roadway workers who challenge the on-track safety procedures being applied will explain the concerns to the employee responsible for providing protection. The employee responsible for providing protection will review the procedures being applied.

- If the protection does not comply with the rules, it will be changed so it complies and the worker(s) will return to work.
- If the employee responsible for protection believes the protection complies with the rules, it will be discussed with the challenger to reach a resolution.

If no resolution is reached at this level, the challenge shall move on to Level 2.

Level 2

If no resolution is reached at Level 1, the Line Maintenance Director (or designee) will be contacted to resolve the challenge.

 If the Line Maintenance Director (or designee) determines the protection does not comply with the rules, it will be changed so it complies and the worker(s) will return to work. If the Line Maintenance Director (or designee)
determines the protection complies with the rules,
it will be discussed with the challenger to reach a
resolution.

If no resolution is reached at this level, the challenge shall move on to Level 3.

Level 3

If no resolution is reached at Level 2, the Manager of Operating Rules (or designee) will review the challenge and the protection being applied. The Manager of Operating Rules (or designee) will investigate the challenge and issue a final determination.

- If the Manager of Operating Rules (or designee) determines the protection does not comply with the rules, it will be changed so it complies and the worker(s) will return to work.
- If the Manager of Operating Rules (or designee) determines the protection complies with the rules it will be explained to the challenger. The challenge will be considered resolved and the worker(s) will return to work.

The resolution of challenges taken to Level 3 must be documented on the Record of Challenge Resolution Form. A copy of this record must be kept on file with the On-Track Safety Program documents.

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