

APPENDIX 'C'

CP OPERATIONAL CONSTRAINTS



**CANADIAN PACIFIC RAILWAY
ENGINEERING STANDARDS**

**OPERATIONAL CONSTRAINTS FOR
PROJECTS WITHIN OR FOUL OF THE
RAILWAY RIGHT OF WAY**

NOVEMBER 2018



CANADIAN PACIFIC – ENGINEERING STANDARDS OPERATIONAL CONSTRAINTS

The safe uninterrupted operation of CP's trains shall always be paramount. No project will be considered that has potential to impact CP's ability to serve our customers safely, and on time. Projects must be developed taking impacts to train operations into account. CP will challenge proponents to implement methodologies and designs which minimize disruption to train traffic to the fullest extent possible. In addition, train schedules vary dramatically by season, location, and day. There is no way to empirically predict train schedules in advance, and CP is not able to commit to specific working hours or any guaranteed productive hours per day. Proponents must appreciate the challenges inherent to coexisting with operating train traffic when planning and designing their work.

1. DEFINITIONS:

- a. Railway – Refers to Canadian Pacific
- b. Proponent – Refers to the Road Authority or Agency sponsoring the work
- c. Contractor – Refers to all resources retained by the proponent to undertake work on their behalf, either directly or indirectly.
- d. Flagman – Refers to the CP employee designated by the Railway to provide track protection during the work.

2. SAFETY STANDARDS & AGREEMENTS

a. AGREEMENTS

- i. No work may be undertaken on CP property without the applicable agreement(s) in place. In general terms, agreements are required to define liability, insurance, scope, schedule and budget of any work to be done. In some instances, right of entry permits or access licenses may be issued to support preliminary investigation work which is required in advance of the project being fully defined.
- ii. Proponents are encouraged to get the applicable agreements reviewed and approved at least a year prior to the work being undertaken. In addition, sufficient time for negotiation, and detailed scope definition should be built into the proponents schedule.

b. PROJECT & CONSTRUCTION RISK ASSESMENTS

- i. Under the Railway Safety Act, a risk assessment is required for any work which creates an Operational Change. Operational changes include relocation of tracks and signals, construction of new structures, and changes to the way trains interface with facilities.
- ii. A level one (Desktop) risk assessment is required for every project. Depending on the results of the Level one risk assessment, a Level two may then be required.
 1. Risk Assessments are to be completed by the proponent, with appropriate subject matter experts, and submitted to CP for review during the design phase of the project.
 2. Risk Assessments must be executed and compiled by competent and experienced experts in the field. All costs related to the administration of Risk Assessments, and preparation of the required submissions shall be at the proponents sole expense.



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3. For complex projects, CP staff may need to participate in the Risk assessment to ensure that all operational issues are addressed.

c. CONTRACTOR SAFETY REQUIREMENTS

i. Minimum Standards for Contractors working on CP Property

1. All work undertaken on CP property must be done in compliance with all of CP's applicable safety rules and requirements, including CP's Minimum Standards for Contractors working on CP Property
2. The minimum safety standards for contractors provides general minimum requirements – However, compliance with all other applicable rules (Track Safety, PPE, etc.) is mandatory.
3. It is the proponents responsibility to ensure they are fully versed in all applicable rules and requirements prior to commencing work, and to validate that full compliance is maintained throughout the entire duration of the work.
4. CP reserves the right to immediately halt any unsafe work, and immediately expel any personnel violating any of CP's safety rules.
5. CP Reserves the right to permanently ban contractors or subcontractors who fail to follow all required safety protocols, from working on CP property.

ii. Access control Matrix – eRailsafe

1. CP eRailsafe certification is required by all contractors engaged directly or indirectly by CP. Other railways eRailsafe certificates are not valid – A CP endorsement is required. For third parties accessing CP's property for their own purposes, eRailsafe is not a requirement.

3. FLAGGING REQUIREMENTS

- a. All work which can potentially affect the track structure or the safe movement of train traffic must have proper flagging protection in place unless other arrangements are made, in writing, in advance.
- b. CP will provide flagging protection, when deemed necessary, at the proponents sole expense, and subject to manpower availability. Requests for long term flagging must be submitted at least one year prior to the planned commencement of the work. Note that all flagging work is subject to CP's collective agreement, and changes to working days and hours can not generally be accommodated once established. For more information, refer to CP Third Party Flagging Guidelines.
- c. The proponent will be required to take steps to secure the work site at all times that a CP flagman is not present. This is particularly applicable to public access points to the ROW. The proponent shall put safeguards in place to guarantee that all site personnel are aware of the requirements to keep clear of the active right of way except when authorized by the flagman.
- d. The direction of the railway flagman must be followed without exception. The flagman has the authority to eject personnel from CP property for failing to follow direction, or for any other safety violation.



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- e. The provision of a railway Flagman shall not relieve the Contractor from liability for damages to Railway Facilities caused by the Contractor's operations.
 - f. The Contractor must provide adequate and properly serviced washroom facilities for the Flagmans use.
- 4. WORKING TIME AND TRACK BLOCKS**
- a. WORKING TIME NEAR, OR FOUL OF, TRACKS**
 - i. The contractor must expect the passage of trains, machinery and inspection vehicles on any track, in any direction at any time.
 - ii. Trains operate 24 hours per day, 365 days per year, and schedules are not available in advance.
 - iii. Generally, work will only be permitted during natural work windows between trains.
 - iv. Train schedules will not generally be altered unless an approved track block (Work block) is in place.
 - v. Depending on the corridor, the Contractor should expect significant downtime for train passage.
 - vi. Open cuts of main track will not be permitted where alternate technologies exist.
 - vii. Projects adjacent to main track shall be phased in such a way as to minimize the duration of work which has the potential to impact train traffic. Generally, work should start closest to the track and then progress away to the extent possible.
 - viii. Work adjacent to Spurs & service tracks is generally subject to less train traffic, but all other restrictions remain the same.
 - ix. Tracks may only be fouled when specifically authorized by the flagman.
 - x. All equipment must stop working on the approach of any train when the equipment is on the Railway right of way, or within 15m of the nearest track; or when said equipment is in the vicinity of track(s) and where the work, in the opinion of the Railway, may be exposed to, or interfere with, railway operations.
 - xii. The Contractor must stop work immediately and move all personnel and equipment into the clear when instructed by the Flagman. Failure to promptly comply with the Flagmans instructions which results in a train delay may expose the contractor to a financial penalty.
 - xiii. The Contractor must not resume work until authorized by the Flagman.
 - b. TRACK BLOCKS (EXTENDED WORK BLOCKS)**
 - i. Where significant work activities require uninterrupted working time (Installing girders, installing shoring, etc.) the contractor must request a track block in advance.
 1. Blocks up to 4 hours must be requested at least 30 days in advance.
 2. Blocks four hours or longer must be requested at least 60 days in advance (Blocks greater than four hours may not be available on key corridors).



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3. Blocks greater than 6 hours require Railway executive approval, and will generally not be considered. Work methodologies must be modified to reduce working time.
- ii. When requesting a track block, the contractor must provide all relevant details about the scope of work, the detailed methodology, and the breakdown of tasks and their durations.
- iii. Track block approval is subject to train schedules and operational requirements.
- iv. Track block start and end times will be established to minimize train impacts and may include holidays, nights and/or weekends. Track block start and end times are subject to adjustment, modification or cancellation at any time.
- v. Blocks cancelled by the contractor less than 96 hours in advance will not be rescheduled.

c. TRACK BLOCK WORK PLANS

- i. Where the railway approves a track block for contractor work, the contractor will be required to provide detailed plans describing the construction sequence that has as many intermediate steps (describing all activities planned in 15 minute intervals) to permit the work to be completed. Where applicable the plan should contain schematic diagrams, equipment details, labour resources, lift design, bracings and temporary works.
 1. Equipment details include, but are not limited to:
 - a. Number of equipment on site;
 - b. Equipment descriptions;
 - c. Location of equipment with respect to the project and the CP track;
 - d. Detailed description of methods and equipment to be used in handling materials;
 - e. Standby equipment;
 - f. Current calibration certificates for all equipment and standby equipment;
 2. Labour resources include, but are not limited to:
 - a. Type of crews present to perform the work;
 - b. Length of each shift, number of shifts per crew and crew leaders;
 - c. Work cycle;
 - d. Number of workers in each crew and number of crews;
 - e. Name of the leader of each crew and their relevant experience;
- ii. The Contractor shall also develop and submit a contingency plan that deals with actions that the Contractor will take to secure the work site for safe train movement at the end of the track block if for some unforeseen reason the work cannot be accomplished as planned.
- iii. All submissions shall be stamped and signed by an Engineer licensed to practice in the Province where the project is located, and shall be submitted to **the**



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Project Manager for review a minimum of 15 days prior to commencing of the planned work.

- iv. Once the extended track block(s) is agreed to by CP, then at least three (3) days prior to the commencement of extended track closure the Contractor shall call upon all key personnel executing the work to attend a meeting with the Contract Administrator and CP to review:
 - 1. All activities to be executed during that specific track closure;
 - 2. Methodology and equipment to be used, including backup plans;
 - 3. Conduct an audit to verify that all materials at the storage site are on hand and discuss loading and unloading procedures;
 - 4. Discuss with all participants the expected progress;
 - 5. Review all safety compliance procedures.
- v. At least twenty-four (24) hours prior to the scheduled track closures, the Contractor shall have all resources and equipment in place to carry out the work for that particular block.

d. CP TRACK MAINTENANCE AND INSPECTION

- i. CP regularly patrols and inspects the track, ROW and structures. The contractor will not be permitted to interfere with these activities.
- ii. During the course of the work, the railway may need to undertake track maintenance (Either emergent or planned).
- iii. Emergent work will be undertaken by the Railway without notice and may impact the Contractor's ability to work. The Contractor must adjust their work plans to accommodate Railway work.
- iv. Planned track work (Rail, Tie and Ballast production gangs) may have a significant impact on the Contractor's ability to work for a period of a week or more. However, this work is generally scheduled in advance, and the contractor will be provided with at least 7 days notice so they can adjust their works plans as required.

e. WEATHER RESTRICTIONS

- i. The Railway reserves the right to suspend any construction activity which may affect the stability of the roadbed, ballast or track structure as a result of hot weather or excessive precipitation.
- ii. When the ambient air temperature is equal to or greater than 25 Degrees C, the Railway may impose excavation restrictions
- iii. When the ambient air temperature is expected to exceed 30 Degrees C, excavation of the Zone of Potential track Loading (ZPTL) or ballast shoulders is prohibited.
- iv. Backfilled excavations must be protected from erosion until natural vegetation properly germinates. This may include tarping slopes when significant precipitation is expected.

5. CLEARANCES & SIGHTLINES

a. CLEARANCES



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- i. Proposed clearances must be clearly shown on the application and approval drawings.
- ii. All clearances must meet or exceed those depicted on CP's Minimum Clearance Diagram (STDCLR-01).
- iii. The proponent will be required to field validate that all required minimum clearances have been adhered to and immediately modify or remove any clearance encroachments.
- iv. Where minimum clearances cannot be met or a temporary exemption is being requested, the proponent must complete and submit Form MWS170 to CP.

b. SIGHTLINES

- i. The contractor shall not undertake any work, place any machinery, materials or equipment where such activity impedes the required sightlines near crossings, crossing warning systems, railway signage or railway signals.
- ii. The proponent shall be required to protect for CP's future needs including sightlines for future wayside signals.
- iii. Activities which obstruct, or in any way inhibit, the timely observation and interpretation of railway signals are prohibited.

6. CONSTRUCTION REQUIREMENTS

a. LOCATES & UTILITIES

- i. The Contractor is required to obtain and maintain locates for the entire working area prior to commencing any excavation or subsurface work.
- ii. Fibre Optic locates must be requested through the CP Operations Desk at 1-800-387-1833. Fibre Optics are located parallel to the ROW throughout most of the Railways network.
- iii. Fibre Optic cables must be protected, and physically exposed where directed by the Fibre Optic Owners representative.
- iv. Railway Signal locates must also be obtained through the CP Operations Desk.
- v. All other utility locates must be obtained through the utilities directly, or through a One-Call service as appropriate.
- vi. The contractor shall be solely responsible for properly locating, protecting and restoring any utilities within Railway Property.

b. SETBACKS

- i. Required construction clearances shall be maintained at all times throughout the work.
- ii. No permanent facilities shall be constructed within 7.62M (25') of any main track centerline
- iii. No temporary facilities shall be constructed within 4.0M (13') of any main track centreline, and then only with expressed written authorization by CP
- iv. Where ii) or iii) above have the potential to impact wayside signal or crossing sightlines, the distances must be increased to comply with sightline requirements



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c. CROSSING TRACK(S)

- i. Personnel may only cross tracks on foot when authorized by the flagman unless using a designated public crossing. Cross the tracks at a 90 degree angle, and never step on the rail.
- ii. The operation of any machinery, vehicle or equipment on or across tracks at a location other than a designated crossing is prohibited.
- iii. Temporary crossings shall only be installed where authorized by CP, and shall comply with all applicable Crossing safety regulations.
- iv. Temporary crossings will be installed and removed by CP forces, and shall not be constructed or used unless a signed agreement is in effect.
- v. Temporary crossings must be secured by a locked gate on both sides of the track at all times that the flagman is not present.
- vi. When crossing tracks at a crossing, contact with the rail by machinery tracks or other metal components is strictly prohibited. Blasting mats or other means must be installed to prevent mechanical contact between metal surfaces and the rails.
- vii. Crossings must be kept clear of material, mud or debris. The crossing must be inspected and cleaned as required, with particular attention to the flangeways, prior to the passage of each train.
- viii. The contractor must ensure that both rails of the same track are never connected with any metal conductor (such as bare wire, steel tape measures, equipment, etc).

d. HOUSEKEEPING

- i. The project site must be kept clean and tidy. Debris must be promptly removed.
- ii. Storage of materials on Railway property is prohibited
- iii. Positive drainage away from the tracks must be maintained at all times.
- iv. All scaffolding, falsework, formwork, Protective coverings etc. must be secured against movement during the passage of trains at track speed.
- v. Open excavations must be protected by signage and fencing. Consideration must be given to the safety of train crews who may be required to walk through the work site at night.
- vi. Wherever practical, open excavations shall be fully covered and secured in lieu of fencing.
- vii. Storage of equipment and machinery on Railway property is prohibited.
- viii. Tracks must be protected from debris during work operations. Plywood, filtercloth or other measures shall be installed at the direction of the Railway to prevent contamination of the track ballast.
- ix. The contractor shall be liable for any cost incurred by the railway to restore fouled track ballast.

e. BLASTING REQUIREMENTS

- i. Any blasting on CP property must be done by a licensed contractor specializing in the work to be undertaken



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- ii. Maximum allowable vibration is 50mm/s within 10m of track centerline. Vibration monitors shall be installed, and the results logged and provided to CP. Track alignment must be checked after each blast to ensure that there is no deflection or deviation.
- iii. All track must be fully protected with blast mats or other means to prevent any impact to track structure
- iv. All blasted material must be cleared from the clearance envelope prior to the passage of trains.
- v. Blasting adjacent to CP property shall not be undertaken without proper track protection in place. Blasting during the passage of trains is prohibited.
- vi. All blasting is subject to CP's Guideline for Blasting on or near CP Tracks or Property