Purpose

The process of determining whether or not to install or modify a Grade Crossing Warning System is typically initiated when safety concerns are raised as a result of inspections, public complaints, or reported accidents, or when other criteria as defined by Transport Canada warrant it.

The initial review requires that preliminary train information be provided to the Road Authority. This information should be provided by Metrolinx to the Road Authority using the form prescribed in SCP 1210-5 Grade Crossing Train Movement Data and does not require a site survey. At that time, the Road Authority should also be provided with a blank SCP 1210-7 Grade Crossing Vehicular Traffic Data form.

If further investigation is warranted, the Road Authority will complete the SCP 1210-7 form and provide a completed copy to Metrolinx prior to a scheduled site meeting.

Metrolinx will arrange a site survey to be attended by:

- A Transport Canada Inspector, and
- A Road Authority representative, and
- Metrolinx Designate(s).

The forms provided in this document are designed to record all field information collected at the site meeting by Metrolinx Designate.

After the site meeting, if it is agreed by all concerned parties that either a new or modified Grade Crossing Warning System may still be warranted, Metrolinx Designate will forward all information captured on forms SCP 1210-5,6,7 along with any other pertinent information, to Metrolinx.

Responsibility

It is essential that the data recorded in this document be accurate and complete. It will be used to complete estimates, design and order the material for a warning system, should it be required. The quality of the recorded information contained in this document will directly impact the time it will take to address the safety issues and may also affect the installation cost.

Completed By Enter Applicable Information:

MX Project # or Contract #		Contractor			
Name		Address			
Phone		Fax		Date	

Location Identification

Enter applicable location information.

Subdivision	
Mileage	
Road/Street Name	
GPS Co-ordinates (Lat/Long) (if available)	
Lot / Concession	
Location (Town/City)	
Province	

Proposed System

What type of control system and warning device are required at this location? Mark selection boxes with an (X).

Control System *NOTE: Criteria for selecting these are defined on the following page*	**Main Track**	CWD ❒ MS ❒ AFO, DC ❒ AC/DC ❒
	Siding	CWD ❒ MS ❒ AFO, DC ❒ AC/DC ❒ Stop Sign ❒
	Are there one or more adjacent crossings that may require DAXing in the future? ❒Yes ❒No	
Options	**Main Track**	Wrap Circuit ❒ DC Island for CWD/MS ❒ Standby Control Equipment ❒ If selected, state why:
	Siding	Wrap Circuit ❒ DC Island for CWD/MS ❒ Standby Control Equipment ❒ If selected, state why:
Foreign Railways	Are there any interconnects with other railways? ❒Yes ❒No Does the other railway run: ❒Parallel ❒Across ❒None Are there joint railway facilities within one mile? ❒Yes ❒No If "yes", how are the maintenance responsibilities shared:	
Batteries	The sizing of batteries will depend in large measure on the accessibility of the crossing installation, as well as the local winter climate. <u>Accessibility:</u> Urban ❒ Rural ❒ Remote ❒ <u>Winter Climate:</u> Mild ❒ Cold ❒ *NOTE: A mild climate is one where the local temperature rarely if ever drops below 15°F (-10°C).*	

Control System Selection Criteria

Use the criteria defined below when deciding the type of control system to recommend on the previous page.

CWD

Constant warning equipment is required if the difference in train speed between the fastest train normally using the crossing (normally the timetable passenger or freight speed) and the slowest train normally using the crossing (as determined by actual train movements) causes a difference in warning time of greater than 13 seconds. This happens when the ratio between fastest and slowest train speeds is greater than 1.52:

Fastest Train Speed ÷ Slowest Train Speed > 1.52

Constant warning equipment is also appropriate where trains regularly stop or switch within the approach of a crossing.

MS

Motion sensor equipment should be used when trains regularly stop or switch within the approach of a crossing but the difference in the speed of through train movements does not warrant the use of constant warning equipment.

AFO, DC

The use of AFO, or DC track circuits are appropriate where there is little variation in train speed and trains do not regularly stop or switch within the crossing approach. The decision to use one technology over the other will normally be made by the signal design group. When used, special features (cut out circuits, etc.) may be required if trains are occasionally required to stop or switch within the crossing approaches.

AC/DC

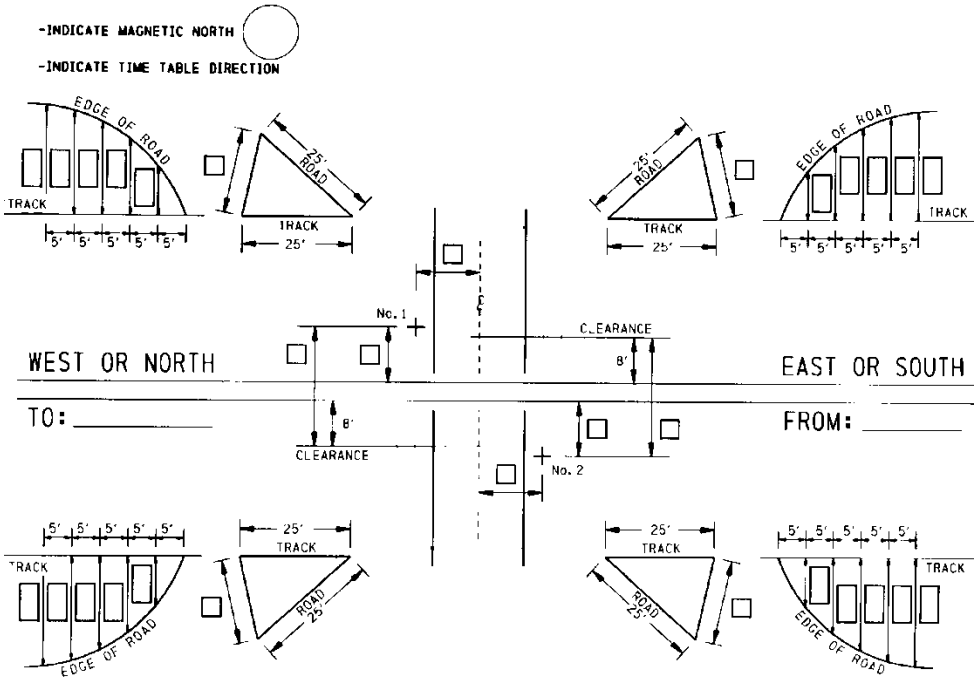
Also known as "Style C", these track circuits may only be used in dark (not signaled) territory for low speed train approaches (less than 50 mph). Style C circuits are better at ensuring that a train will activate the crossing where the track is infrequently used. When used, special features (cut out circuits, etc.) may be required if trains stop or switch within the crossing approaches.

Location and Road Details

If available, provide the road angle and cross section details, or construction plan, as supplied by the Road Authority; otherwise indicate field measurements on the following diagram.

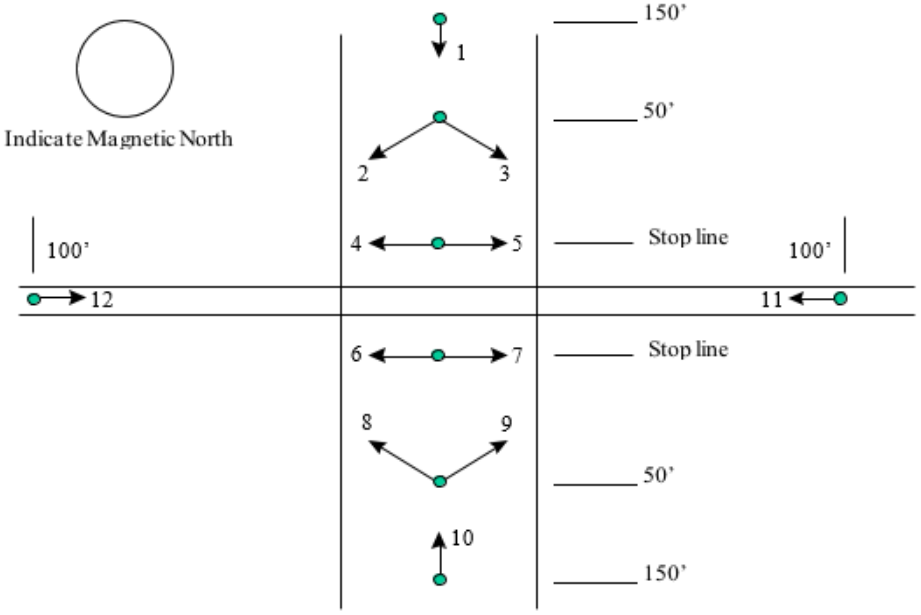
- For curved roads, record the distance (in feet) from the rail to the roadway at 5′ intervals and record in the boxes provided for both relevant quadrants.
- For angled roads, record the length of the third side of the triangle (in feet) made by measuring 25′ from the intersection along both the rail and roadway and record in the box provided for both relevant quadrants.

- Record the road widths and clearance distances in the other boxes provided.



Photographs

Include photographs of the site as described below. Also include pictures of any abnormal condition that may require special attention. This information will be used to confirm the adequacy of existing sight lines and additional construction issues. Label the pictures with the numbering scheme prescribed below.



Track Data

Record track data in this table. Mark selection boxes with an (X).

Crossing Track			
Are there any rail joints within the grade crossing? Yes❒ No❒ Does the rail need to be changed on account of joints in the crossing? Yes❒ No❒ Does there appear to be conductive ballast at or near the crossing? Yes❒ No❒ Does the crossing road surface need to be changed? Yes❒ No❒ Is the existing crossing surface concrete? Yes❒ No❒ If the surface is concrete, is there a continuous metal band around the outer edge of the concrete? Yes❒ No❒			
Description	**Mainline**	**Siding**	**Other**
Rail weight (lbs.) ?			
Rail Length (ft./cwr) ?			
Type of rail joints ?	4 Hole ❒ 6 Hole ❒	4 Hole ❒ 6 Hole ❒	4 Hole ❒ 6 Hole ❒
Rail Condition ?	Rust ❒ Normal ❒	Rust ❒ Normal ❒	Rust ❒ Normal ❒
Type of ties ?	Wood❒Concrete❒	Wood ❒ Concrete❒	Wood❒Concrete❒
Is Rail Bonding required ?	Yes ❒ No ❒	Yes ❒ No ❒	Yes ❒ No ❒
Type of Bonds used/ required?	5″ ❒ 34″ ❒ 42″ ❒ Cadweld ❒ Pin Brazing ❒	5″ ❒ 34″ ❒ 42″ ❒ Cadweld ❒ Pin Brazing ❒	5″ ❒ 34″ ❒ 42″ ❒Cadweld ❒ Pin Brazing ❒
Ballast Condition:	Poor ❒ Fair ❒ Good ❒	Poor ❒ Fair ❒ Good ❒	Poor ❒ Fair ❒ Good ❒

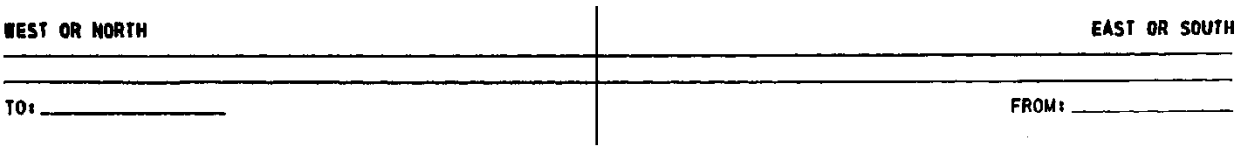
Track Layout Details

Either use the form below or draw a similar diagram showing all existing or proposed related appliances up to 100 feet beyond the likely approach start limits and along the road approaches. Show all appliance measurements (feet), in relation to the center line of the road. If the installation is at a new road or a relocation of an existing road ensure the center line is defined by the Road Authority. Attach additional sheets if necessary.

NOTE: it is much easier to photocopy and mark-up existing T plans if they exist.

Be sure to include: Turnouts (size), bridges(length), AEI sites, WIS sites, insulated joints, adjacent crossings, additional roads, snow melter ducts, power service, U.G. utilities[1], location of pushbuttons, stop signs, gauge rods, uninsulated gauge plates, placement of instrument housing(s), and the placement of signals.

- Show all existing tracks, including track center spacing.
- Show anticipated placement of power service pole.
- Show approximate cable lengths.
- Include offset distances (from track and roadway) when showing placement of housings, signals, and service pole[2].



NOTE:

[1]Underground utility need only be identified where there are markers, and where it is reasonable to believe excavation will be required.

[2]For new installation, make reference to another known rail reference such as mile board or switch point.

Excavation Data

Will any special excavation work be required? No ❒ Yes ❒

If yes, record ballpark excavation data in this table. Mark selection boxes with an (X).

Description	Data				
	Sig #1	Sig #2	Sig #3	Sig #4	Case/ Bungalow
Land Fill Required? (type & amount)					
Cribbing required? (type & amount)					
Barricades required? (type & amount)					
Culvert required? (size & length)					
General ground condition affecting excavation?	Clay ❒ Black dirt ❒ Sand ❒ Swamp ❒ Gravel ❒ Rock❒ Comments:				
Will underground utility or communication cable affect excavation?	Yes ❒ Indicate location and depth on track layout diagram. No❒ Cable owner_____Phone:_____				
Will underground utility gas lines affect excavation?	Yes ❒ Indicate location and depth on track layout diagram. No ❒ Gas Line owner_____Phone:_____				
Will storm drains, sewers or culverts affect excavation?	Yes ❒ Indicate location and depth on track layout diagram. No ❒ Pipe owner_____Phone:_____				
Bores	# Track Bores_____Total Footage:_____feet # Road Bores_____Total Footage:_____feet				

Power Service Data

Record power service data in this table and mark selection boxes with an (X).

<table>
<tr><th>Description</th><th colspan="2">Data</th></tr>
<tr><td rowspan="6">Is there an existing power service?

Yes ❒

No ❒</td><td>What is the main service breaker rating and meter number?</td><td>Rating =_____Amps
Meter number = _____</td></tr>
<tr><td>Does the service have to be relocated or upgraded?</td><td>Yes ❒ Indicate location on the
No ❒ Track layout diagram page 7</td></tr>
<tr><td>How does the service cable enter the case/bungalow and what is the cable size?
Distance from service to case?</td><td>Underground❒ Overhead ❒
Cable size = _____
_____feet</td></tr>
<tr><td colspan="2">Is a utility power line available at the crossing site?</td></tr>
<tr><td>Yes</td><td>Take a picture of the utility power line and mark the probable location for the proposed AC service on the track layout diagram on page 7.</td></tr>
<tr><td>No</td><td>Indicate distance to nearest possible utility power line access and the probable location for the proposed AC power service on the track layout diagram on page 7.</td></tr>
<tr><td colspan="3">Who is the Electric Power Authority?</td></tr>
<tr><td colspan="2">Company Name
Name:
Address:
Tel:</td><td>Contact Person
Name:
Address:
Tel:</td></tr>
</table>

Clearance Data

Record clearance data in this table. Mark selection boxes with an (X).

Description	Data
Will the proposed installation of any signal structures or housings compromise any overhead clearance standards? *This is a very important detail.* NOTE: Consider cantilever and vertical gate clearances. No ❒ Yes❒	Provide explanation: Would an articulated gate help? Yes❒ No❒
Are there obstructions that will hinder sightlines approaching the crossing or obscure the visibility of approaching train traffic? No ❒ Yes❒	Sightline obstruction is being caused by: Trees❒ Embankments❒ Buildings❒ Structures❒ Poles❒ Indicate the nature and location of the obstruction on the track layout diagram on page 7. Any suggestions or improvements to mitigate obstructions?
Will there be any need to create a no parking zone to avoid cantilevers? No ❒ Yes❒	Indicate the parking zone on the track layout on page 7, including barriers which may be required and their effects on sightlines.

Hardware Data

Record hardware data in this table and mark selection boxes with an (X).

<table>
<tr><th>Description</th><th colspan="4">Data</th></tr>
<tr><td rowspan="8">Gates</td><td colspan="4">If articulated gates are required due to clearance restrictions, specify signal number, #____#____</td></tr>
<tr><td colspan="4">If there are existing gate mechanisms, specify manufacturer and model.</td></tr>
<tr><td>Signal No.</td><td colspan="2">Manufacturer</td><td>Model</td></tr>
<tr><td></td><td colspan="2"></td><td></td></tr>
<tr><td></td><td colspan="2"></td><td></td></tr>
<tr><td colspan="4">Indicate length of gate arms required</td></tr>
<tr><td colspan="2">Signal No.</td><td colspan="2">Gate Length</td></tr>
<tr><td colspan="2"></td><td colspan="2"></td></tr>
<tr><td colspan="2"></td><td colspan="2"></td></tr>
<tr><td>Existing Foundations</td><td colspan="4">Precast❒ Poured❒ Steel ❒</td></tr>
<tr><td>Extra Masts</td><td colspan="4">If extra masts are required, indicate them on the track layout diagram on page 7. Refer to S&C Codes of Practice SCP 703.
Are extra signals required? No❒ Yes❒
Why? (record in Notes)</td></tr>
<tr><td>Extra Lights</td><td colspan="4">If extra lights are required, indicate them on the track layout diagram on page 7. Refer to S&C Codes of Practice SCP 703.
Are extra lights required? No❒ Yes❒ Why? (record in Notes)
What diameter? 8″ ❒ 12″ ❒
Reuse? Yes❒ No❒
Extra lights required on Signal #_____Signal #_____</td></tr>
<tr><td rowspan="5">Case/Bungalow</td><td colspan="4">If there are existing case/bungalows, can they be reused?</td></tr>
<tr><td>Mile</td><td colspan="2">Case/Bungalow Type</td><td>Re-useable?</td></tr>
<tr><td></td><td colspan="2"></td><td>Yes❒ No❒</td></tr>
<tr><td></td><td colspan="2"></td><td>Yes❒ No❒</td></tr>
<tr><td></td><td colspan="2"></td><td>Yes❒ No❒</td></tr>
</table>

NOTES