

## Night Work Specification

### 1.0 HOURS OF WORK

*“Night time hours”* are defined as per the Tender documents.

### 2.0 TRAFFIC CONTROL PLAN

Prior to the start of work the Contractor shall submit 4 bound copies of a detailed “Night-Time Work Plan” for review and approval by the Department. The plan shall be updated by the Contractor as operations require.

The plan shall include, but may not be limited to:

#### **Traffic Control**

- ▲ Detailed written description of all traffic control procedures (as applicable to the project - referenced to drawings)
- ▲ Detailed drawings of all traffic control procedures and signing including controls for ramp traffic (as applicable to the Project) - all drawings shall be on either letter or tabloid size sheets with title blocks
- ▲ Detailed description of set-up/tear down and lane shift times, sequences & procedures
- ▲ Detailed description of all channelization and guiding devices to be used (as applicable to the Project)
- ▲ Detailed plan for handling emergency vehicles passing through the site (as applicable to the Project)
- ▲ Frequency of inspection and detailed procedure of patrolling the traffic control set-up
- ▲ Details for placing temporary traffic markings and erection of shoulder hazard signing (as applicable to the Project)
- ▲ Details of Traffic Control Person (as they may be required) personal protective equipment
- ▲ Detailed sketch of proposed temporary sign stand design

#### **Lighting Plan**

The lighting plan shall be prepared by a Professional Engineer knowledgeable in the science of photometrics and vision.

- 💡 Descriptions and sketches of the layout of light towers including spacing, luminaire height, lateral placement and anticipated illuminance provided.
- 💡 Photometric & physical specifications of all lighting equipment
- 💡 Calculated glare levels and methods to be employed to reduce glare
- 💡 Detailed description of all lighting to be used on construction equipment
- 💡 *Contractor’s* frequency and procedure for checking illumination levels

#### **Special Safety Elements**

- 🧑‍🚒 Details of personal protective equipment which will be required for workers

- 🔔 Details of equipment warning devices which will be employed
- 🔔 Detailed Hazard Assessment for night work
- 🔔 Emergency response plans

### **Other Elements**

- Noise and vibration abatement methods which *shall* be employed *where* necessary

## **3.0 MINIMUM REQUIREMENTS**

The provisions of the Nova Scotia Temporary Traffic Control Manual apply to this Project. *A pilot vehicle shall be used to guide traffic during all lane closures on this Contract, unless otherwise directed by the Engineer.*

Additional minimum requirements for work at night on this Contract are as follows:

### **3.1 Signing**

- 3.1.1 **Materials:** All orange warning signs shall have retroreflective sheeting which meets the requirements of ASTM Type III sheeting. White signs, where required, shall have retroreflective sheeting which meets the requirements of ASTM Type I sheeting.
- 3.1.2 **Placement:** Signs shall be erected as detailed in the Traffic Control Manual. They shall be essentially perpendicular to the direction of traffic and vertical. The sign shall be adequately supported to ensure minimal movement from this position.
- 3.1.3 **Flashing Light Units:** Units shall have lights capable of being dimmed in order to prevent glare. Non-functioning lamps and bulbs shall be replaced immediately. Red and white reflective tape shall be applied to all sides of the unit such that it defines the outline of the unit.

The unit shall be erected and aimed so that it is clearly visible from the *greatest* distance *practical* to the approaching construction traffic (as applicable to the Project).

### **3.2 Channelization Devices**

- 3.2.1 **Materials:** Retroreflective sheeting for all channelization devices (cones and barrels) shall meet the requirements of the Traffic Control Manual.

All cones shall be as detailed in the latest edition of the Traffic Control Manual with one reflective band as described in the latest edition of the Traffic Control Manual. Barrels may be used in place of cones.

Ballast for all channelization devices shall be placed at ground level.

- 3.2.2 **Placement:** The maximum distance permitted between channelization devices shall be five (5) metres. Devices used at gores and intersections shall be spaced at three (3) metre intervals.

### **3.3 Traffic Control Persons**

- 3.3.1 Training: As they may be required to control construction vehicle traffic all traffic control persons shall receive training which deals specifically with night time traffic control procedures as approved by the Engineer.
- 3.3.2 *Illumination*: The traffic control person shall be illuminated on the vertical face which shows to oncoming traffic. Illumination shall not impair the vision of the Traffic Control Person and shall be a minimum of Level 3 illuminance as defined in section 3.6 of this specification.
- In the event of failure of any portion of the lighting system at a traffic control person station, all operations must be discontinued until the required illumination is restored.
- 3.3.3 Visibility: In addition to their standard protective equipment, Traffic Control Persons shall wear a high-visibility vest which meets the requirements of the Traffic Control Manual. They shall also have a minimum of 80 cm<sup>2</sup> of reflective material added to their hard hats which is visible from all sides. They shall also be equipped with a flashlight complete with semi-transparent red cone.
- 3.3.4 Communications: All traffic control persons shall be equipped with radios so that they have communication with each other and the pilot vehicle operator.

### **3.4 Workers**

- 3.4.1 Training: All workers shall receive specific training on night work operations.
- 3.4.2 Visibility: In addition to their standard protective equipment, all workers shall wear a high-visibility vest or jacket which meets the requirements as stated in the Traffic Control Manual. They shall also have a minimum of 80 cm<sup>2</sup> of reflective material added to their hard hats which is visible from all sides.

### **3.5 Work Vehicles**

- 3.5.1 Training: All vehicle operators shall receive specific training on night work operations.
- 3.5.2 Visibility: In addition to their standard protective equipment, all equipment operators who leave their vehicles shall wear a high-visibility vest or jacket which meets the requirements as stated in the Traffic Control Manual. They shall also have a minimum of 80 cm<sup>2</sup> of reflective material added to their hard hats which is visible from all sides.
- 3.5.3 Flashing Lights: All vehicles in the work area must operate rotating or flashing incandescent amber lights visible in 360 degrees around the vehicle. Strobe lights are not permitted.

### **3.6 Lighting**

3.6.1 Illuminance: The level of illuminance required for various tasks will be defined in three "levels". Luminaires must be of sufficient wattage and quantity to provide a minimum average maintained horizontal illuminance as follows:

Level 1:	60 Lux
Level 2:	110 Lux
Level 3:	220 Lux

3.6.2 Work Area: Level 1 illumination shall be provided in all areas which workers and inspection staff regularly carry out their duties. In addition to this basic requirement the following illuminance levels shall be provided:

3.6.2.1 For Paving Operations:

Level 2 - a minimum of 15 m ahead of the paver or material transfer vehicle to 30 m behind the paver

Level 1 - a minimum of 120m ahead to 250 m behind the paver

3.6.2.2 For Cold Planing and Shouldering Operations:

Level 1 - a minimum of 120m ahead to 250 m behind the planer or shouldering machine

3.6.2.3 For Guard Rail Operations:

Level 1 - a minimum of 100 m ahead to 100 m behind the section under construction

3.6.3 Glare: All luminaires shall be located and directed in such a way to minimize glare to both motorists and work vehicles. If severe glare is noted from any travel path, the Contractor shall adjust the lighting to reduce the glare to an acceptable level.

3.6.4 Measurement of Illuminance: Measurements shall be taken at a height of 500 millimeters above the roadway, in a uniform pattern spaced at 3 meters throughout a representative test area. Illumination measurements shall be made by a person familiar with using a photometer and the operator shall not wear reflective materials while taking the measurements.

The Contractor shall check the illumination levels on the site each time a change in lighting configuration is made and/or at least once every 5 working days. A copy of the measurements shall be given to the Engineer within 24 hours.

The Contractor shall also provide on-site, for use by the Engineer, a photometer capable of measuring the level of illuminance.

3.6.5 Lighting Maintenance: The Contractor shall replace non-functioning lamps immediately. The luminaire aiming shall be checked daily. The luminaires shall be cleaned regularly.

### **3.7 Traffic Control Maintenance**

The Contractor shall employ a full time traffic control supervisor with enough staff to ensure constant patrol and maintenance of all traffic control devices.

- 3.7.1 Traffic Control Devices: All signs, channelization devices and other traffic control devices shall be kept clean and in acceptable condition. The minimum standard for acceptability shall be the latest edition of "Quality Standards for Work Zone Traffic Control Devices" by the American Traffic Safety Services Association.

All traffic control devices shall be completely removed from the roadway and shoulders when not being used.

- 3.7.2 Lane Openings: Prior to opening any lane to traffic all the temporary pavement markings, hazard markers and low/high shoulder signs must be in place.

Temporary markings shall be spaced at a maximum of 10 meters. Markings may be made with an approved temporary marking tape or with a combination of painted marks and temporary overlay markers. Where painted marks are used they must be coated with glass beads and temporary overlay markers (TOMs) must be placed at a maximum spacing of 10 meters over the painted marks.

### **4.0 TRAFFIC CONTROL TRIAL**

Prior to the start of work a traffic control trial shall be carried out for inspection by the Contractor and a Department representative. The trial shall involve setup and operation of the full traffic control system and work area lighting system. No work shall commence until approval is given by the Department to proceed.