



201 Grandin Road
Maineville, Ohio 45039
(513) 677-0500

Vehicle Detection Manual V2

Copyright 2018 E. F. Bavis & Associates, Inc.
All Right Reserved

Revised: 10/12/2018
PN: 00690012

Vehicle Detection Manual

Table of Contents

Features	1
Vehicle Detector Programming	1
Installation Instructions.....	2
Board Connections & LEDs	3
Teach Button & Adjustments.....	3
Troubleshooting the LED Status.....	4
TT Sensor Mounting Illustration	5
Vehicle Detector Board Illustration for TT	6
Vehicle Detector Board Mounting Option Illustration for TT.....	7
Underground Conduit Typical	8
Pipe Mounting Bracket Illustration.....	9
Pipe Mounting Illustration	10
Below-Grade Installation	11
Control Board Illustration.....	12
Wall Mount Position and Dimension.....	13
Outside Drill Dimensions	14
Sensor and Cover Illustration.....	15
Cable Illustration.....	16

Features

- Senses 3-dimensional changes to the Earth's magnetic field caused by the presence of ferrous objects.
- Compact, robust one-piece, self-contained sensor package replaces inductive-loop sensing technology.
- Designed to minimize the effects of temperature swings and destabilizing magnetic fields.
- Sensor learns ambient background and stores settings; sensor will not lose configuration or range when power is cycled.

Vehicle Detector Board Adjustments

When using this control board with the Bavis sensor, the two of potentiometers (pots) that can be adjusted control:

R3 – Controls how many times the chime will sound when it is activated, (1 to 4 chimes).

R4 – Controls the Volume of the chime tone.

Vehicle Detector Programming

The Bavis vehicle detection system can be installed into both exterior wall and remote drive-thru systems. When installed on the exterior wall, the sensor will detect vehicles in the first lane only. When installed on remote systems, the sensor will detect vehicles in both lanes if they are within the detection range up to approximately a 9' diameter. There are both visual and audible indications of the presence of a vehicle. The visual indicator is a high visibility red LED, which stays on as long as a vehicle is present. The audible indicator is a true chime tone audio alarm, which sounds once when a vehicle is present and will not sound again until the vehicle leaves and another is detected.

Drive-thru systems that are equipped with this vehicle detection system require programming to function properly. The first step is to insure that no vehicles or large metal objects are near the sensor. Begin by pressing the vehicle detector program or "teach" button once. The teach button is located on the vehicle detector control board (P/N 08907011), which is inside the control assembly for (see page 10). Both the LED and chime tone will come on 12 times as the sensor calibrates itself for the local magnetic conditions. The calibration is stored in non-volatile memory, and will not need to be reset after a power failure.

The sensitivity can be adjusted by pressing the teach button twice quickly in succession. The LED and chime tone will come on once every two seconds. This indicates a sensitivity level of one. Press the teach button once. The LED and chime tone will come on twice every two seconds. This indicates a sensitivity level of 2. You can repeat this process up to a sensitivity level of 6, the most sensitive position. You end the sensitivity-programming mode by pressing the teach button twice in quick succession.

Note that each time you perform the calibration, the sensitivity is reset to the default level of 5. The calibration may need to be done anytime the local magnetic conditions change.

Note: Holding the "teach" button for more than 1 second, will not allow the system to learn its surroundings.

Installation Instructions

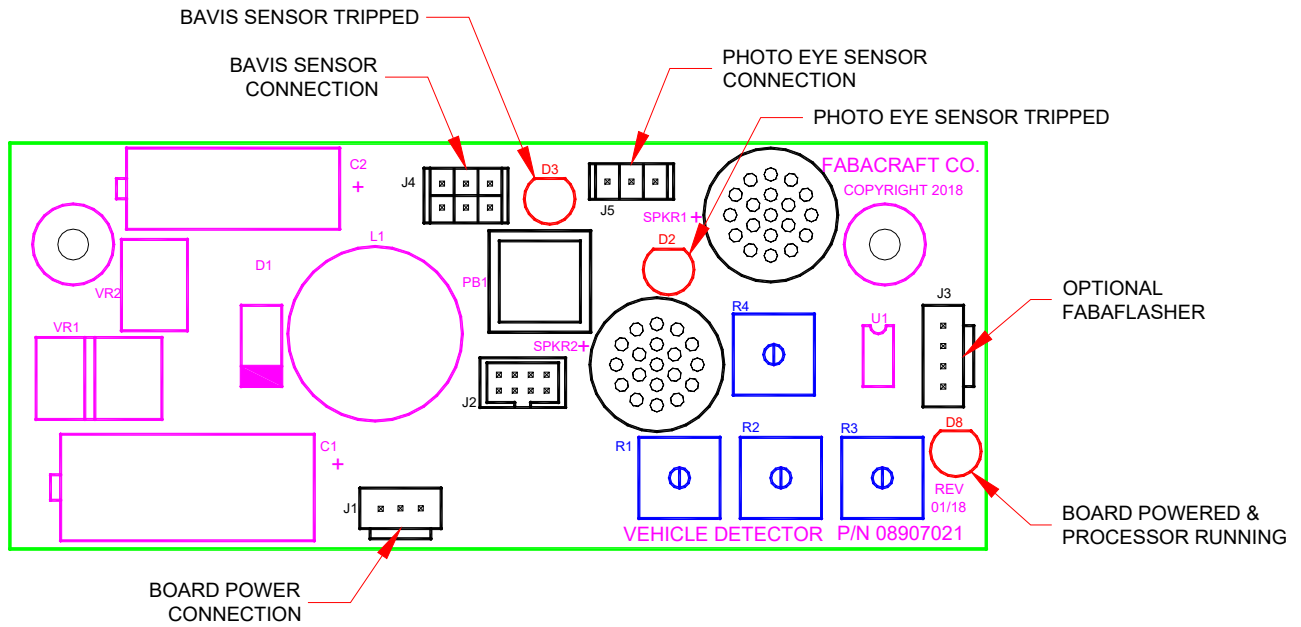
The following instructions assume the sensor is being installed on an exterior wall, near a drive-up window. When mounting in another application, only certain steps will apply. In mounting the sensor to anything, the centerline of the sensor should be 16" above the driveway surface. Illustrations of underground tube mounting are shown on pages 7 – 9.

NOTE: The Vehicle Detector's field of detection cannot read through steel objects. The Vehicle Detector Sensor must be mounted rigid, as any movement of the sensor will likely cause either false or missed signals.

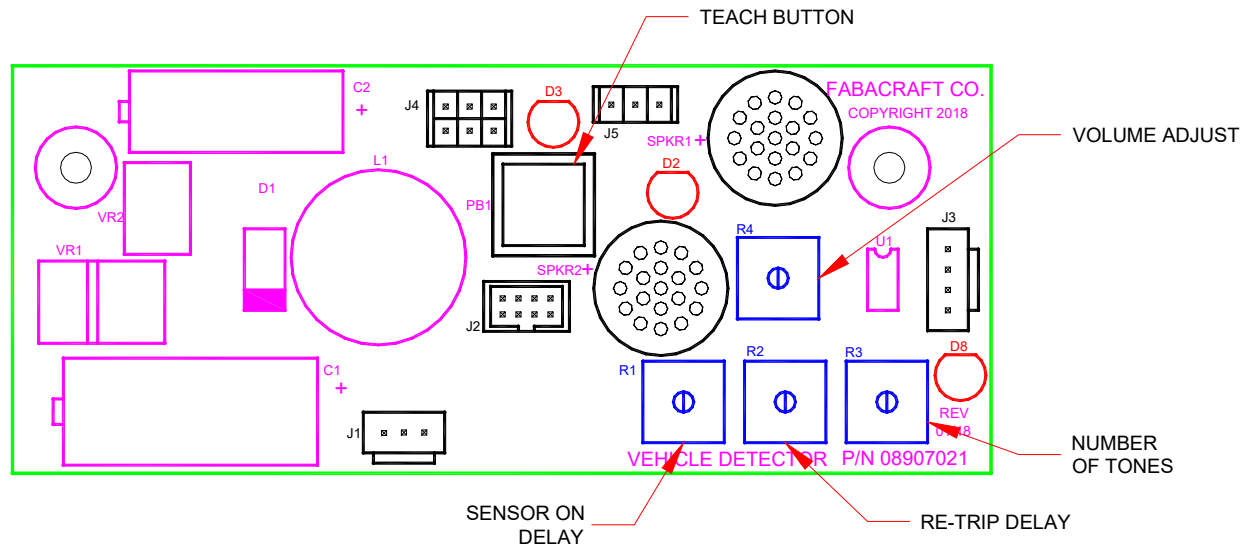
1. Measure and mark the location of the sensor, (page 11 & 12). **Note: Position the sensor more than 4'-6" from any moving metal object, including the drawer, to avoid false tripping of the detector.**
2. Using a center punch, mark only the locations for the top and wire chase holes.
3. Drill a pilot or anchor sized hole for a #6 screw for the top mounting screw.
4. Drill the wire chase hole to 5/8" diameter.
5. Using the molded sensor cover and one of the screws, temporarily mount the cover to the wall, to pattern match mark the bottom-mounting hole to insure a proper fit. **Note: Make sure that you completely cover the 5/8" hole with the molded cover before drilling the bottom hole.**
6. Remove the cover to drill the pilot or anchor hole for the bottom screw.
7. From inside the building, feed the connecting cable through the 5/8" hole to the outside of the building.
8. Attach the sensor assembly to the connecting cable.
9. Assemble the molded cover and the sensor assembly with #6 screws, (see page 13), feed the cable back into the wire chase hole, and attach to the wall. If the sensor and housing is in a position where it could be exposed to water, the top and sides of the housing should be caulked to the wall to prevent the sensor from getting wet. **Note: When running the cable inside the building, be sure to leave enough slack near the wire chase so that the cable connector can be pulled to the outside of the building for servicing the sensor.**
10. Find a suitable location for the control assembly, and remove the case top. **Note: Make sure the location that you choose is close to a 110-120VAC outlet for the power pack to plug into.**
11. Feed the connecting cable through the chase hole in the control assembly case, and the wire tie inside the case, and plug into the control board (see page 10).
12. Secure the connecting cable.
13. Plug the power pack into the jack in the top of the control assembly case, and secure with the wire tie provided (see page 10).
14. Using the wire ties and mounting blocks provided, secure the excess connecting cable.
15. Plug the power pack into the outlet.
16. Set the sensor sensitivity (follow instructions on page 1).
17. Re-install the case top.

Note: To mount inside a TransTrax® tube, layout the tube and drill the mounting hole with the 3/16" drill bit provided (see page 4). Insert the mount into the opening in the tube, slide down until the screw can be tightened to the mount. Feed the cable through the tube into the building. Other TransTrax® mounting illustrations are on pages 5 & 6.

Board Connections & LEDs



Teach Button & Adjustments



Troubleshooting the LED Status

Control Board LEDs

With Bavis Sensor - (D3) – Red

On – Vehicle Present

Off – No Vehicle Present

With Photo Eye – (D2) – Red

On – Vehicle Present

Off – No Vehicle Present

Power / Processor Running – (D8) – Red

Blinking – Board has Power and the Processor is running. If the Sensor has been tripped, (D2, or D3 is on), blinking will stop until the Sensor is cleared and the delay timers have run out their pre-set time and have reset.

Bavis Sensor Indicators

Sensor LED – Yellow

On – Vehicle Present

Off – No Vehicle Present

Sensor LED – Green

On – Power is on

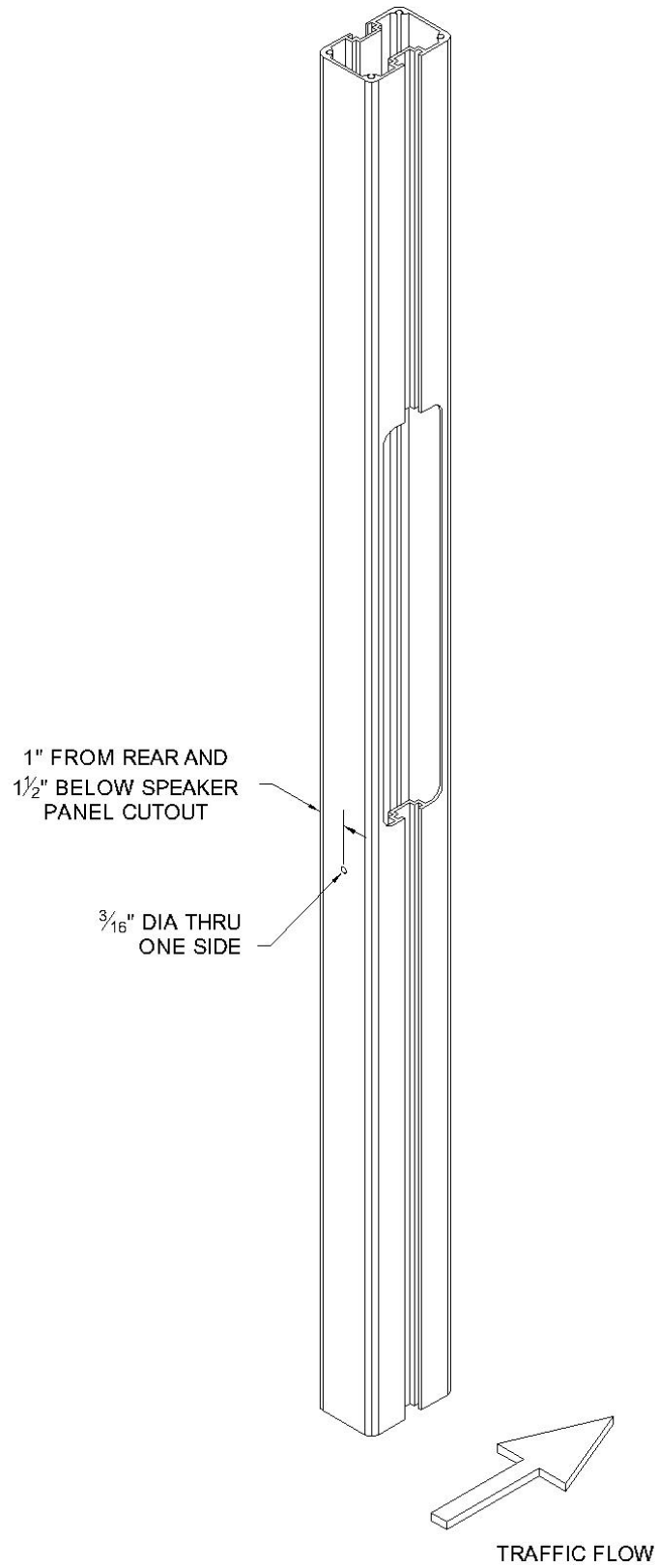
Off – Power is off

Both the Control Board and the Sensor Yellow LED will flash during the calibration, (Teach) mode. (NOTE: The Sensors' Yellow LED will flash Red during the calibration, (Teach), mode.)

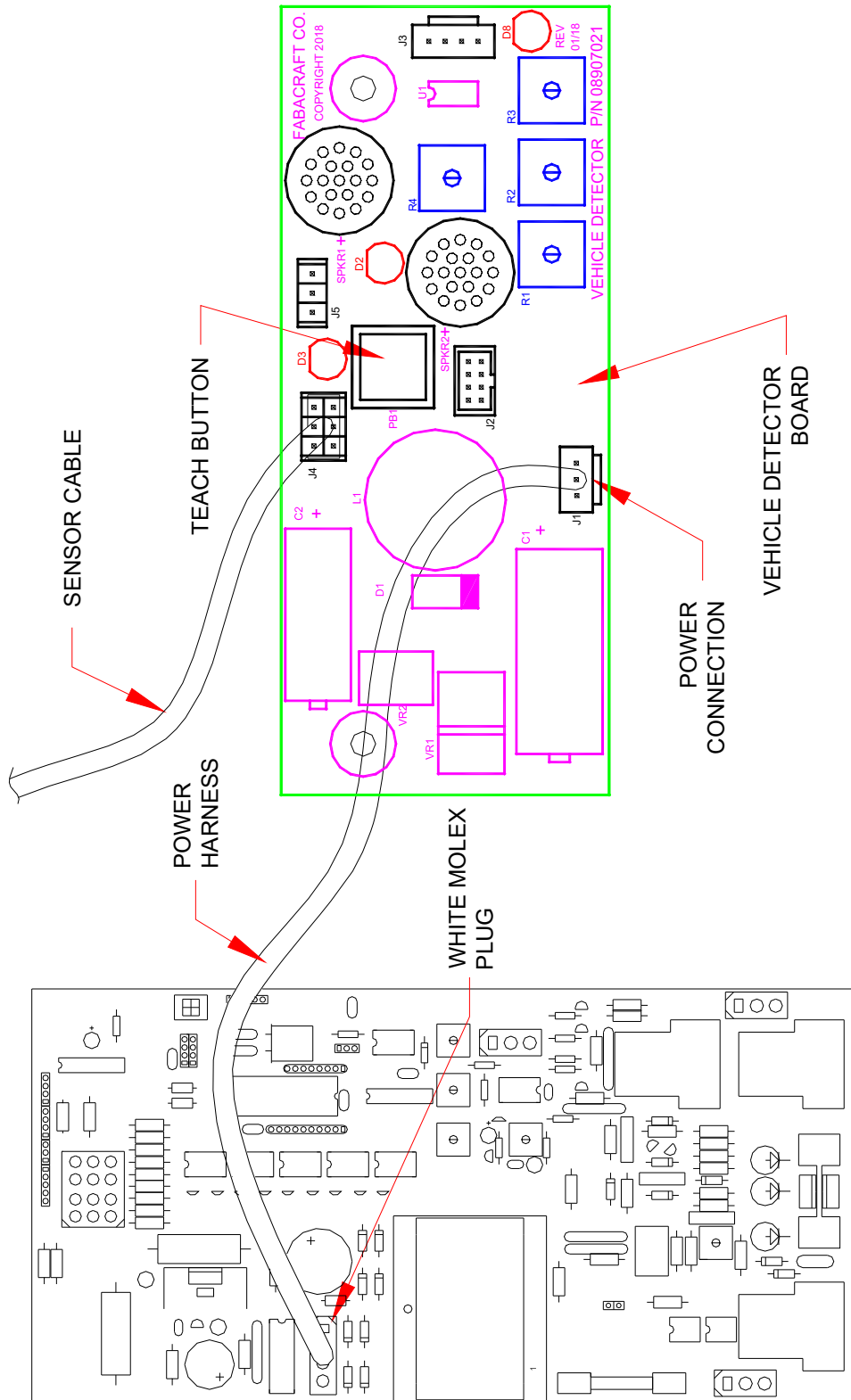
If both the Control Board and the Sensor Yellow LED are on steady with no vehicle present, the calibration, (Teach), procedure needs to be performed.

If you have any questions, please contact the factory at 1-800-937-3322

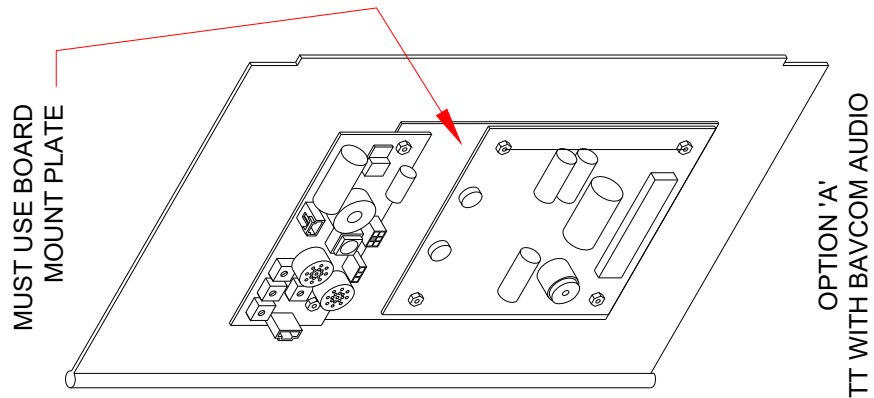
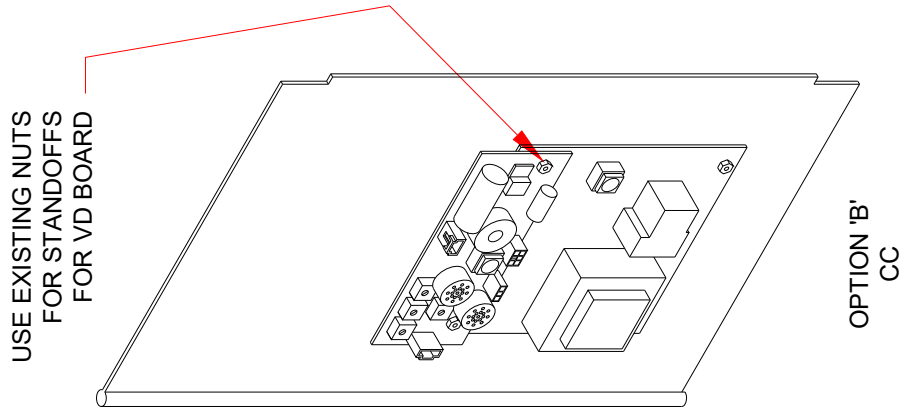
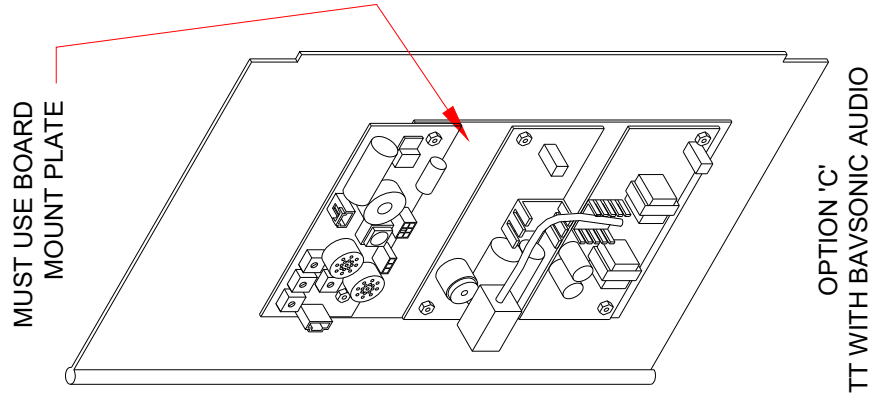
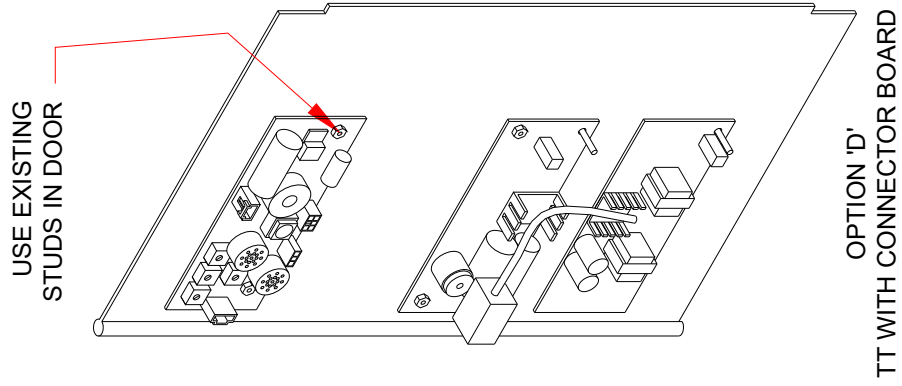
TT Sensor Mounting Illustration



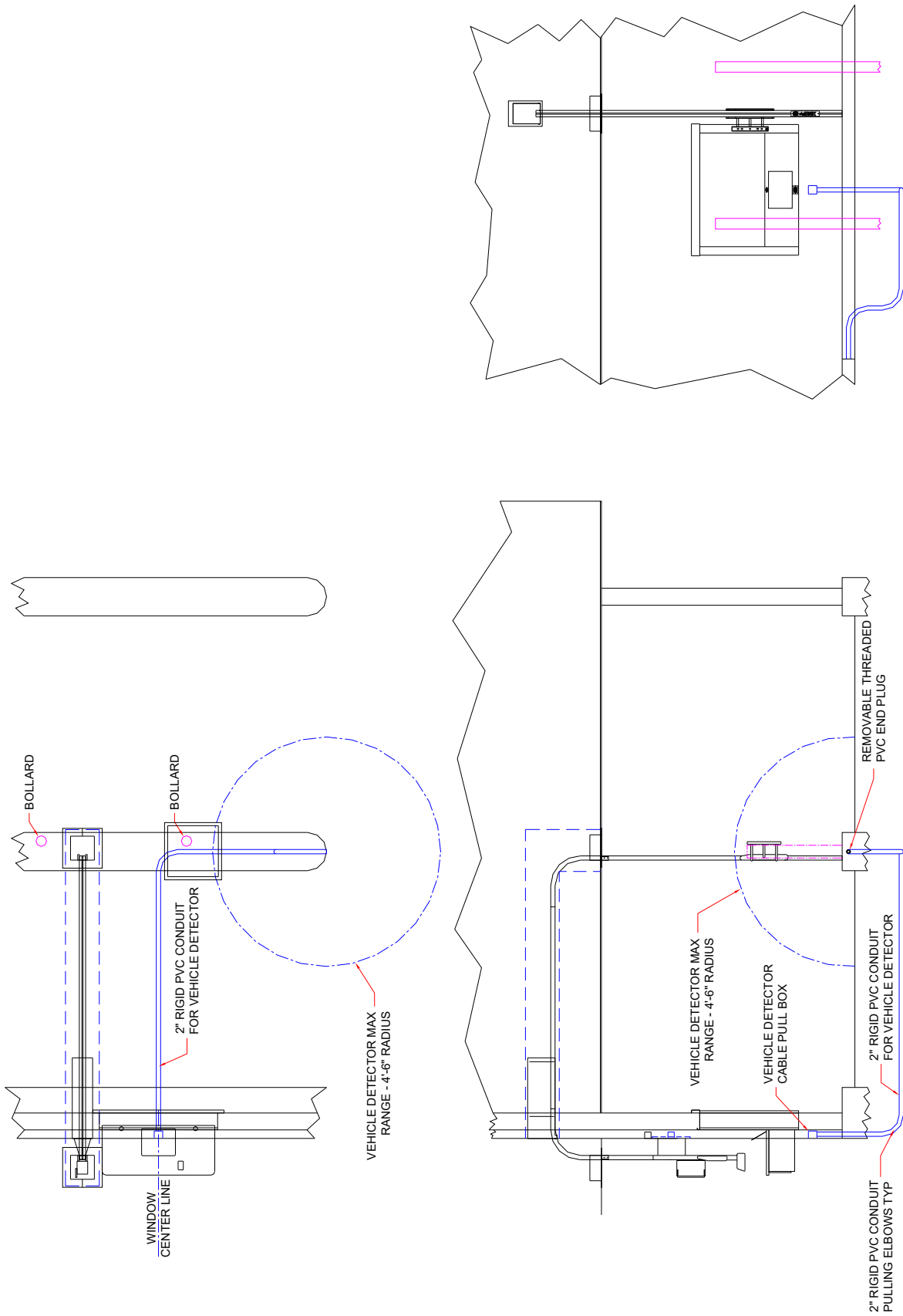
Vehicle Detector Board Illustration



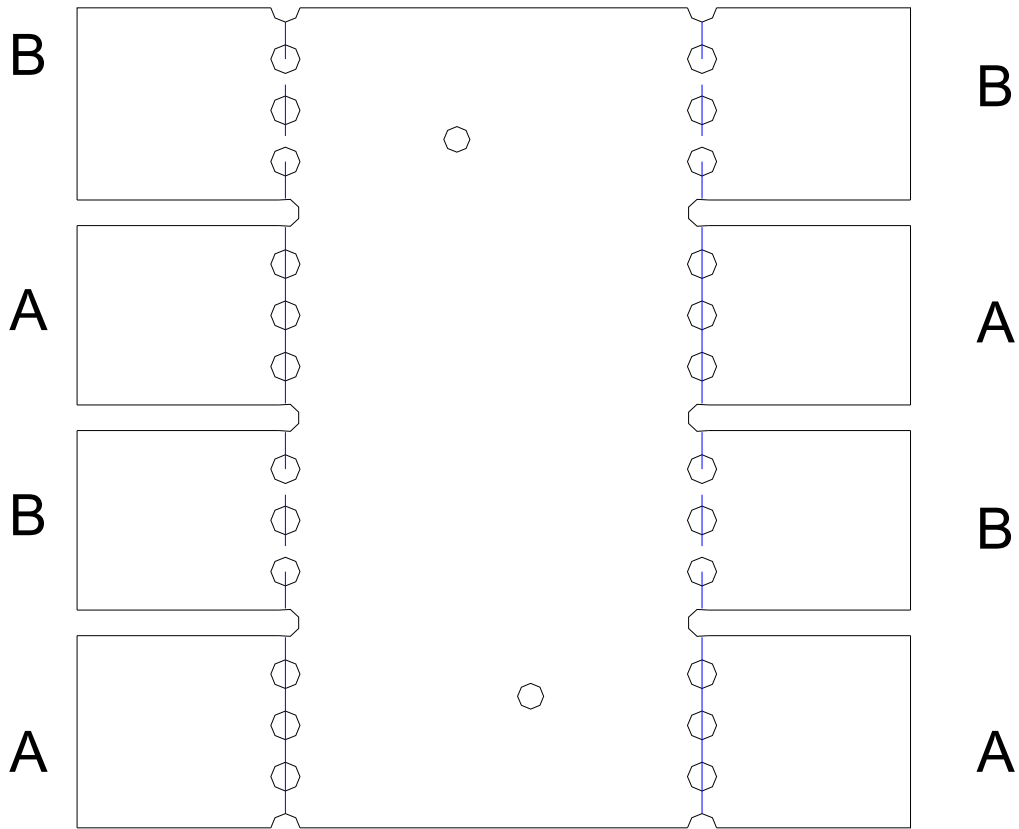
Vehicle Detector Board Mounting Option Illustration



Typical Layout of Underground Routing of Conduit
 (for a Vehicle Detector mounted in end of Island)

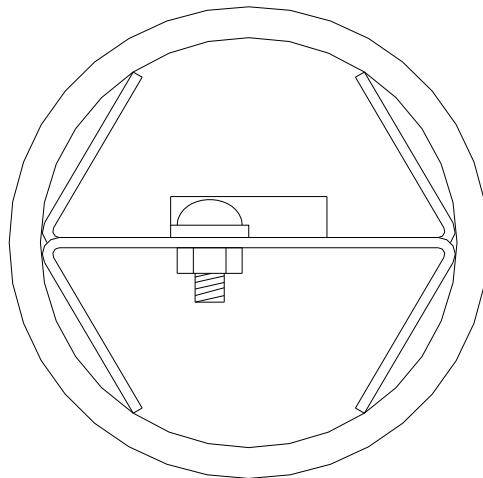


Pipe Mounting Bracket Illustration



HAND BEND TABS UP AND DOWN SO
BRACKET WILL FIT SNUG INTO 2" PVC PIPE.

A = BEND TAB UP
B = BEND TAB DOWN



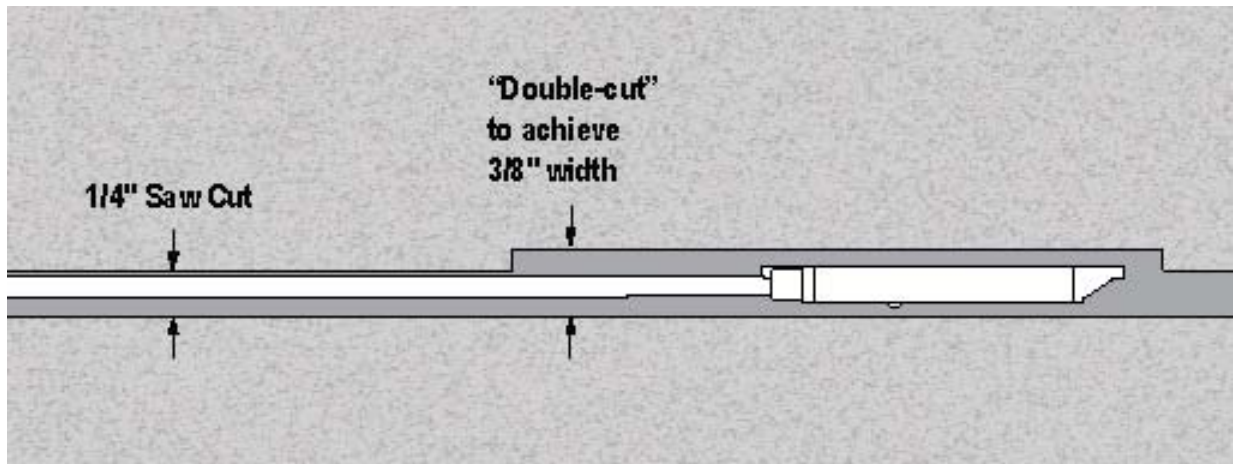
Pipe Mounting Illustration



Below-Grade Installation Instructions

The sensor should be mounted in the center of the vehicle traffic lane. The axles of the vehicles provide the most effective and most repeatable magnetic field changes.

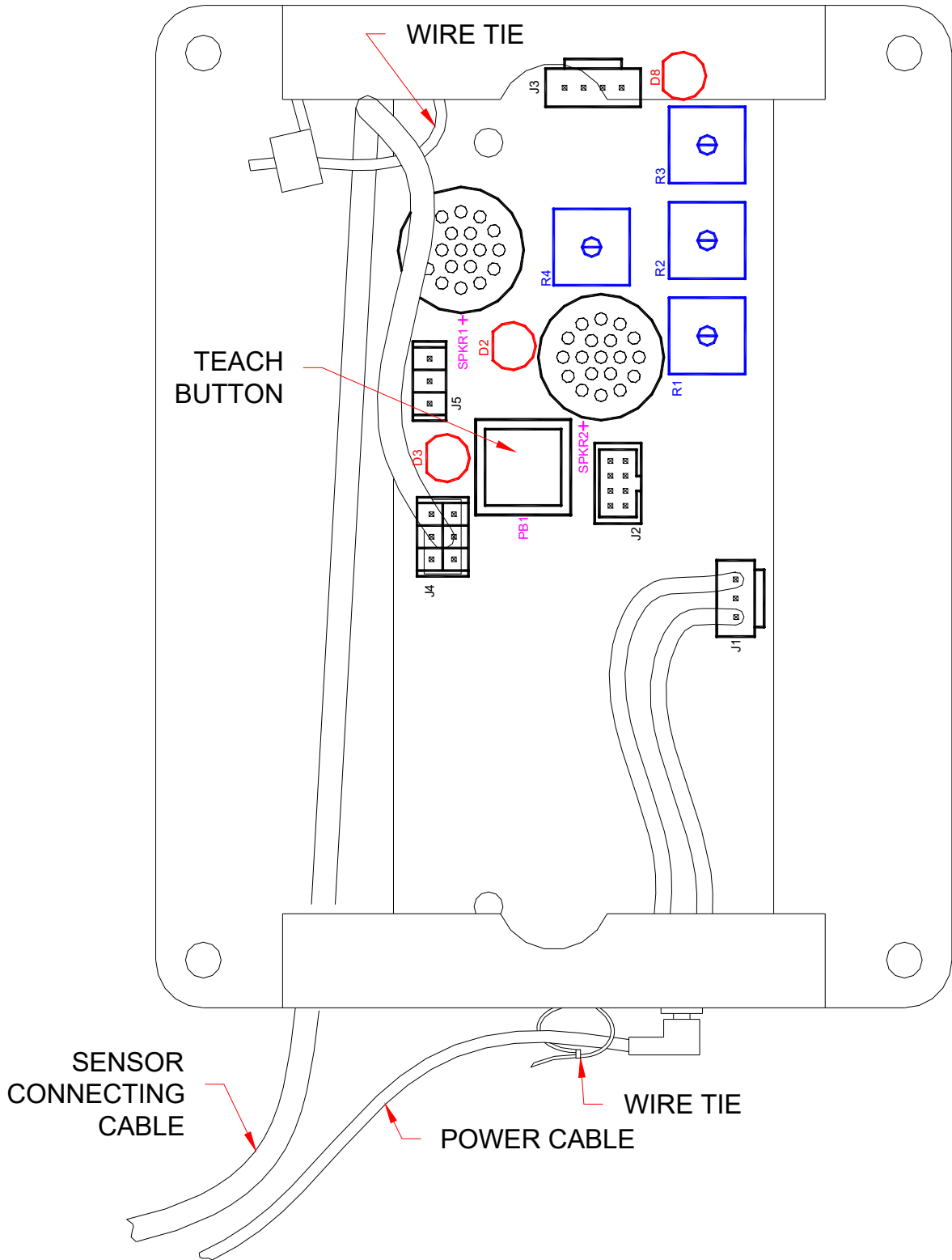
The sensor can be mounted in pavement within a single 3/8" saw cut. The cable will fit into slots as narrow as 1/4" wide. If the cut is narrower than 3/8", a double cut is needed where the sensor is to be installed. The cut should be 2" to 4" deep. Rebar or other metal embedded in the pavement will not affect the performance of the sensor.



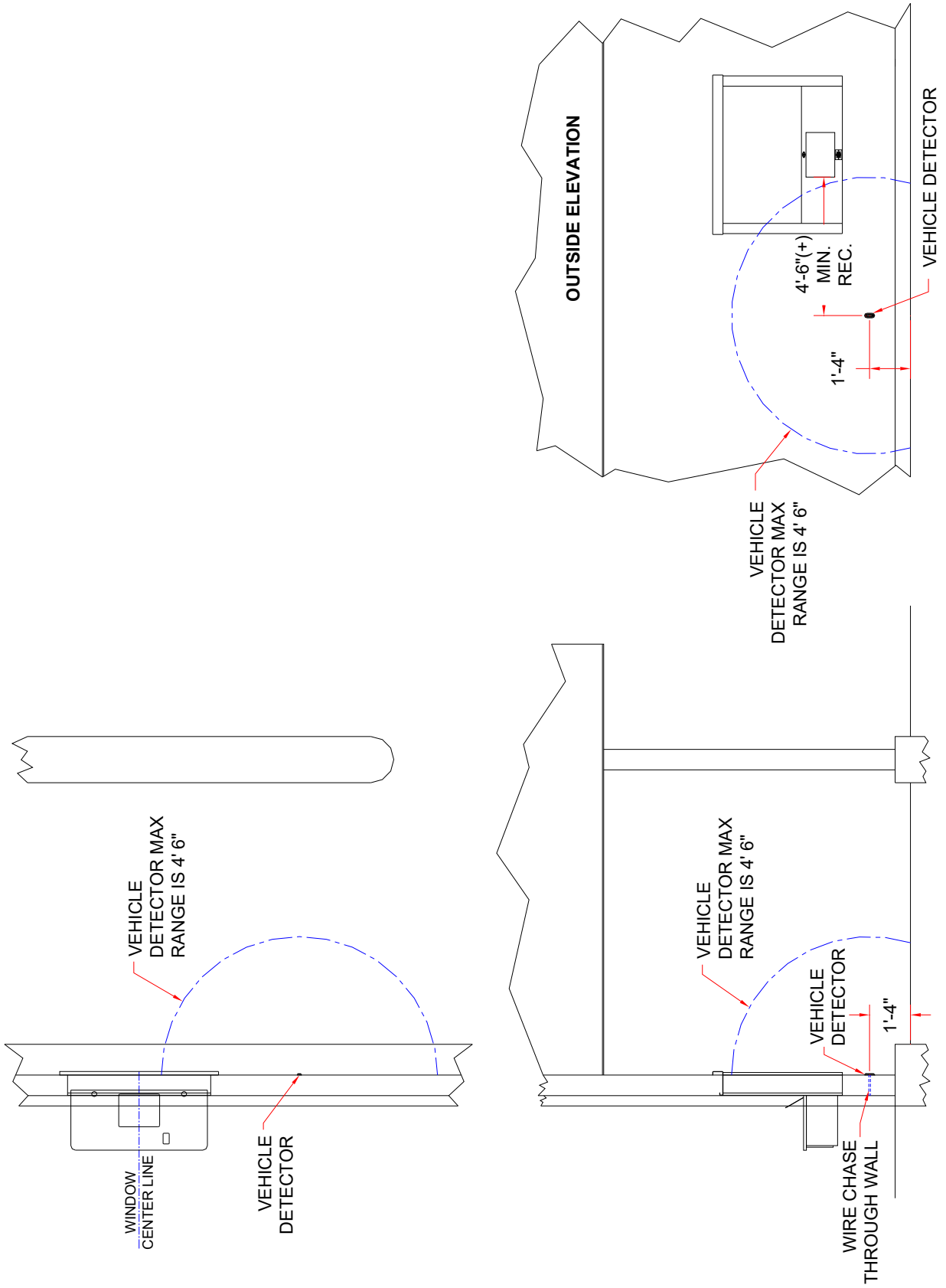
Use an air hose to remove loose particles and moisture from the saw cut. Lay the sensor and cable into the saw cut. Fill the saw cut with loop or pavement sealant. **Caution: Do not use heated asphalt to fill the saw cut.** Using a thin object like a putty knife, work the sealant around the sensor and cable to eliminate trapped air.

To remove the sensor simply pull the sensor cable straight up which will pull the cured sealant and sensor from the saw cut.

Control Board Illustration

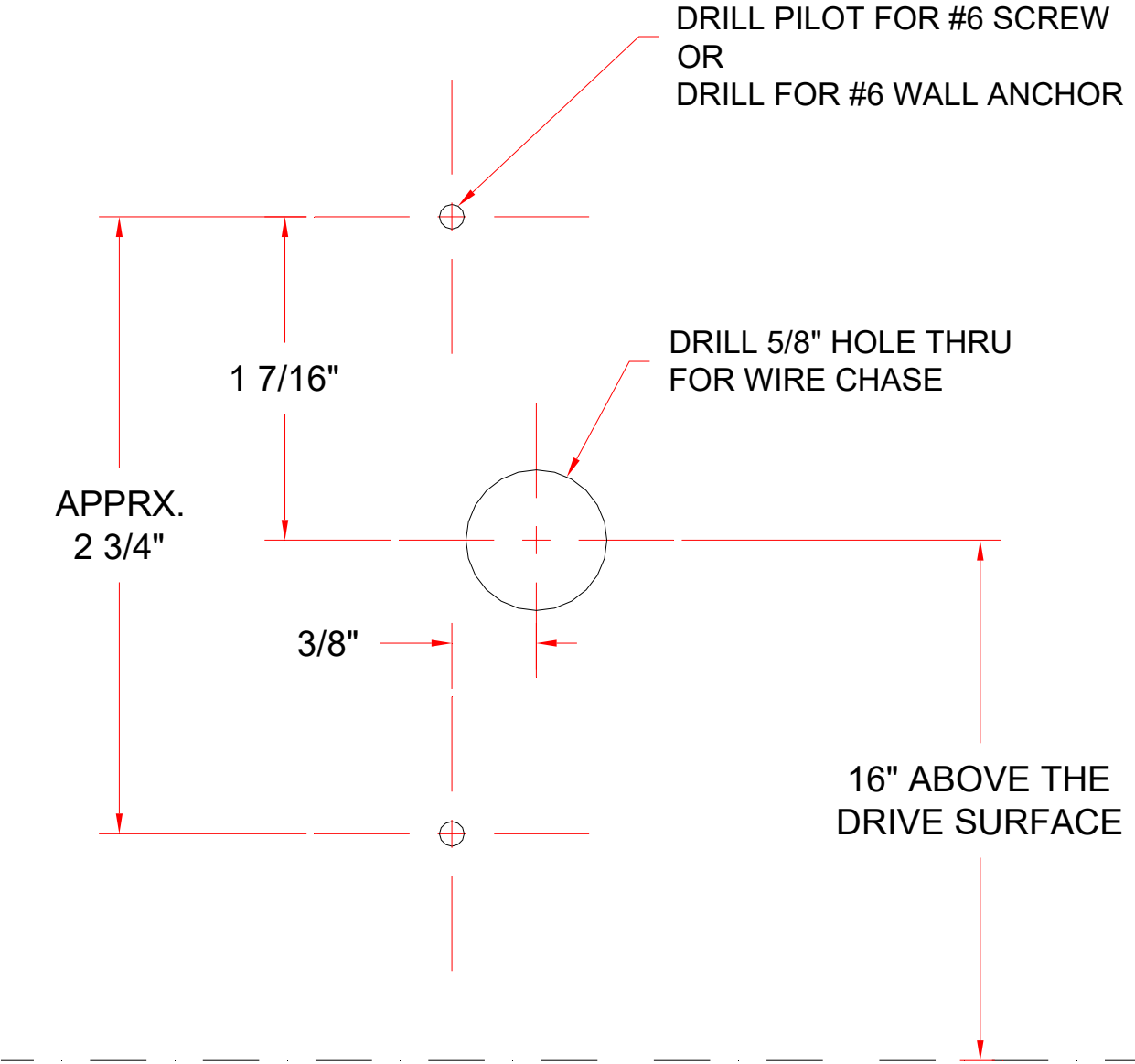


Wall Mount Position and Dimension



OUTSIDE DRILL DIMENSIONS

(NOT TO SCALE)



Sensor and Cover Assembly



Cable Illustration

