



RBtec

MBS 404

**PASSIVE MAGNETIC
CONCEALED SENSOR CABLE**

ON TOP OF THE WALL



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PRODUCT INFORMATION

General

MBS-404 is a concealed and passive perimeter intrusion detection sensor system that is designed to detect and locate intruders moving over an unseen boundary and perimeter line.

The MBS-404 system is based on the 'Magnetic Anomaly Detection (MAD)' principle. The system is designed to detect the local change in magnetic flux caused by movement of ferromagnetic materials and ignore local changes in magnetic flux caused by other sources.

The movement of ferromagnetic materials (iron or steel) is one source that causes local changes to the magnetic flux of the earth.

In principle, the MBS-404 is a moving iron or steel detector. Its high probability of detection is based on the proven assumption that intruders carry weapons, military equipment, cameras, wire-cutters, keys, cellular telephones, or other such tools of their trade.

These and many other items contain ferromagnetic material and when passed across the system, a measurable current is induced to the system's sensors.

Being that the sensor cables are concealed, the detection field is therefore invisible and does not change the aesthetics of the site. Possible intruders are unaware of the presence or exact location of the MBS-404 detection field which contributes to the avoidance of any attempt to tamper with, or defeat the system.

MBS-404 serves either as a stand-alone system, or could be integrated with other RBtec's sensors.

MBS-404 cables concealed on top of a wall.



MBS-404 Sensor line

PRINCIPLE OF OPERATION

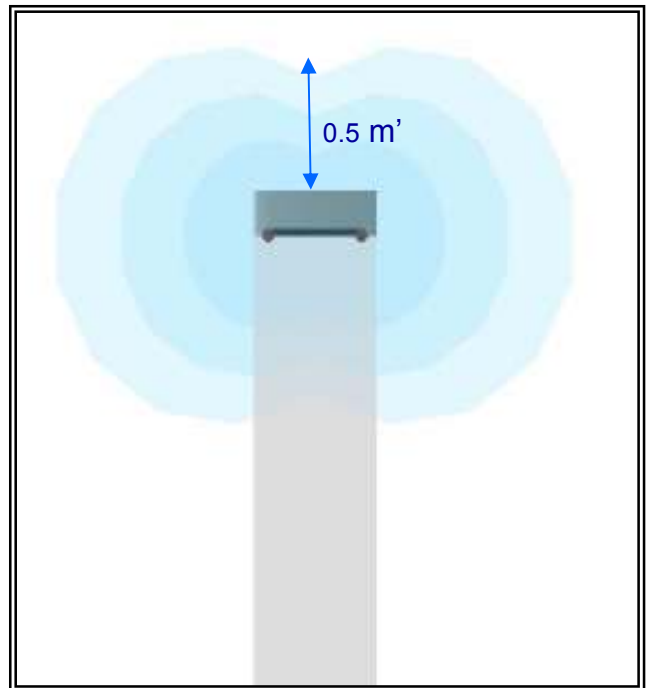
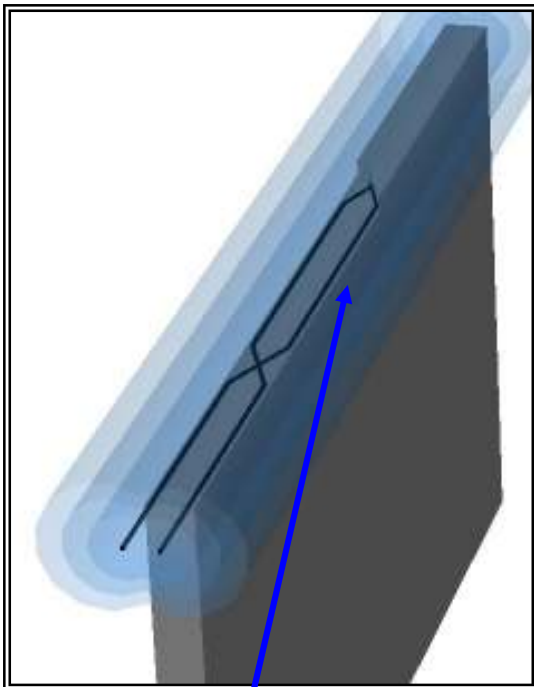
As to Faraday's Law, a local change in the magnetic flux of earth will cause current to flow in a closed loop of electric conductor and build magnetic field around the sensor cable.

The protected perimeter is divided into zones, each of which can be as short as 10 m (33 ft) or as long as 500 m (1,650 ft). Each zone is connected to an LPU (local processing unit), and corresponding alarm circuitry.

The sensor cable is concealed while the LPU's and control cables are stabilized to the wall.

Should the protected perimeter be crossed, an audio-visual alarm is instantly set off at the control center.

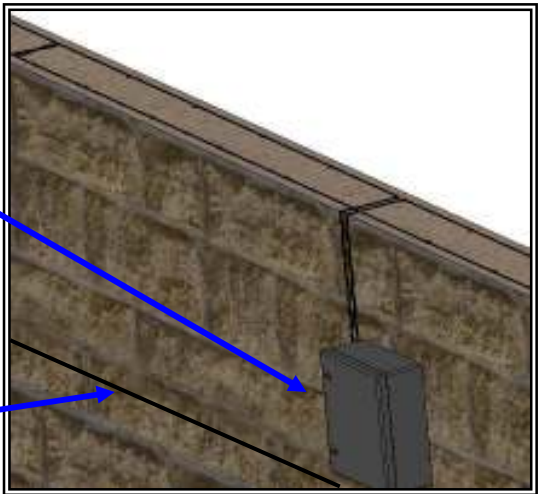
MBS-404 System Structure:



MBS-404 Sensor line

LPU

Control cable



MBS-404 SENSOR CABLE

An elongated loop of sensor cable consisting of a continuous length of cable is buried underground.

Movement of ferromagnetic materials above or beneath the sensor changes the currents flow of earth flux and detected by the sensor cable.

The sensor detects the low level intrusion signals for amplification and processing by an Amplifier.

Sensor cable length	Up to 200m (656ft)
Sensor width between	0.12m (4.0 ft)
Zone length	140m
Sensor resistance	$\leq 9\Omega$



LPU – LOCAL PROCESSING UNIT

A self-contained, waterproof and corrosion resistant unit especially designed to amplify, filter and process low level signals. Amplifier input signal is derived from respective sensor and its output is connected to:

- Separator – in those cases where grounding isolation of Amplifiers is essential.
- Control cable – otherwise, (normally in small systems)

Operating voltage:	12-35 V DC
Current consumption:	6-10mA
Output signal:	8-14Vp-p, 150-200c/s. (Signal is constant and drops to zero while intrusion/test occurs)
Leakage:	$\geq 100M\Omega$ measured between leads connected to the sensor and (-)
Sensitivity:	Normally 10nV, 20nV, 30nV, 40nV
Band pass:	At least 0.7-3.5 c/s

A special amplifier (Inhibitor) connected to an inhibition sensor enables the system to ignore atmospheric and geomagnetic phenomena and man-made electrical and magnetic interferences (power lines, RF transmission, etc.), thus preventing false alarms due to these sources.



RB4C Sensor Spec

General Construction

Instrumentation cable designed for the process and control applications constructed according to NEC Article 725 Class 1 for use in Division 2 hazardous areas. The cable has a 300V and 90C rating.

1. Conductor
 - 1.1 Material: Bare cooper
 - 1.2 Construction: Stranded, 7 strand concentric as per ASTM B-8, Class B.
 - 1.3 Size: 16AWG, 7x0.49 mm
2. Cable Lay-Up:
 - 2.1 Total number of pairs: 1
 - 2.2 Lay Length: 50 mm nom.
 - 2.3 Color: White x Black
3. Overall Shield
23u polyester-aluminum foil, providing 100% coverage, laid in close contact with a tin-plated, 20 AWG stranded (7x0.32mm) drain-wire.
4. Outer Jacket
 - 4.1 Material: FR PVC as per BS 6746, Type 9.
 - 4.2 Color: Black
 - 4.3 Thickness: 0.50 mm nom
 - 4.4 Overall Diameter: 5.7mm nom.
5. Electrical Properties
 - 5.1 DC Resistance: 13.9 Ohm/Km max. 20C
6. General Properties:
 - 6.1 Total weight: 51.0 Kg/Km nom.
 - 6.2 Band Radius: 40 mm minimum.

SPU - SIGNAL PROCESSING UNIT (OPTIONAL)

The smart processing unit (SPU) receives and analyzes signals from the system's field sensors, and then transfers the processed data to the central control interface unit (INT5500). This weather proof double layer, high impact plastic enclosure contains transponder card (SPU-503/SPU-2004), and a lightning protection card (LP-05).

One transponder card (SPU-503/SPU-2004) can cover up to 8 zones and is installed at a convenient location along the fence.

Up to 16 smart processing units (SPU -503/SPU-2004) may be connected to one control interface unit enabling coverage of up to 128 zones by a single controlled interface (INT-5500).

The transponder SPU-503/SPU-2004 is a microprocessor based analyzer that receives signals from the system's sensor for pre-alarm recognition and analysis. This state is continuously compared against pre-set parameters and current conditions. Any change in present conditions such as pressure exerted on the fence, vibration, mechanical abuse resulting from an intrusion attempt will trigger a comparison process in the transponder card. When an alarm condition is encountered, the SPU-503/SPU-2004 will transfer the data to the control interface unit.

The SPU-503/SPU-2004 communicates directly with a control interface unit (INT 5500) via RS-485 communication protocol, continuously monitoring sensor state and communication cable continuity.

For optimal results, each transponder receives and processes signal from up to 8 alarm zones.

The transponder's microprocessor may be reprogrammed during system's operation so that the status (armed/disarmed) and system's sensitivity can be adjusted for any zone with changing operational conditions, e.g. changing weather conditions, disabling certain sections of the fence, etc.

Specifications:

Includes:	SPU-503/SPU-2004 Transponder card
Input voltage:	8.5 - 32 VDC
Current consumption:	10 - 35mA at 15VDC
Transponder card internal voltage:	5 VDC
Normal "No Alarm" zone input:	2.5 VDC
Open circuit "Alarm" input voltage:	4.5-5 VDC
Short circuit "Alarm" input voltage:	0 - 1.5 VDC
Communications:	Batches of square waves on RS485 channel.
Processing:	Alarm Yes/No decision. 8 zone signal processing.
Communications:	RS-485
Size:	100 x 250 x 190 mm (4" x 10" x 7.5")
Weight:	1 Kg. (2 Lbs.)

CONTROL ROOM COMPONENTS

Monitoring and control of the **INTRUDALERT system** is based on RBtec's **VIDALERT** control software or by the **IA6500 Control Interface Unit**.

The control station located in the control room or a guard booth provides the operator the option to control, monitor, save and display all the security events within his area, manually or automatically.

IA -6500 Control Interface Unit

The IA-6500 interface unit is designed to receive signals from the field transponder and the smart processing unit SPU-2004 and retransmit the processed data into the system's central computer.

The IA-6500 contains the Central Control Card, a Back-Up Control Card, a Lightning Protection Card and a Power Supply.

Additional IA-6500 Control Interface Units may easily be added for larger perimeters using additional hardware to interface between several IA-6500 Control Interface Units and the Central Computer.

For larger perimeters, additional IA-6500 interface units can be added.

The IA-6500 interface unit has fully automatic backup capability in case of the PC or other hardware failure. In the event of PC hardware or software failure, the IA-6500 automatically takes command continuing the system's operation without interruption.

Fully automated, the IA-6500 includes two internal control units, a full backup software program, an active LCD display panel and a rechargeable backup battery, all mounted on a standard 19" rack for easy access and installation.

A 15VDC power supply is installed in the unit serving both the IA-6500 and the smart processing unit SPU-2004 in the field.

Although inactive during normal system operation, the IA-6500 is always connected to the system in an 'ON-GUARD' mode. When PC failure occurs, the IA-6500 automatically takes control and continuous system operation is maintained through its on-board control panel.



Control Display Features

Key	Function
Menu/Enter	Move between menu options and confirm selections.
ESC	Go to previous screen, cancel selections and move out of program to alarm screen.
UP	Change values up
DOWN	Change values down
ACK	Acknowledge alarms and silent annunciator
DEL	Delete alarm after acknowledge

VIDALERT software configuration

The **VIDALERT** system software is designed to operate under the Microsoft Windows operating system and uses the full power of Windows graphic capabilities.

The **VIDALERT** software program controls the complete **VIDALERT** system, enabling control and management via a single keyboard and monitor.



The PC monitor displays the present status of the entire perimeter in real time. The main screen displays a color graphic map of the secured site, clearly showing the perimeter zones in different colors. When an alarm is triggered the relevant zone will start blinking in red and an audible alarm will sound. From the main screen, the operator may use different keys to move through the system's functions such as:

- Changing of zone sensitivities.
- Changing of 'Arm/Disarm' status.

- Changing of the system 'Time/Date'.
- Password enrollment for access authorization to system controls.
- Data bank access.
- Immediate help on current screen, quick help panel.

VIDALERT Software Program

VIDALERT unique sensing and intrusion detection capabilities are enhanced by a PC based, active color graphic site map display, a series of screen display keyboard controlled function keys and a variety of communication and response capabilities to form a complete perimeter protection system.

Alarms are presented on the active color graphic site map as a flashing zone and announced by pre-recorded synthesized computer voice or a beeping sound. In addition, it can activate electronically integrated systems such as CCTV and auxiliary response equipment such as sirens, floodlights and automatic gates and barriers for the identification and capture of intruders.

From the perimeter map, the user has a complete overview of the entire protected site status including system 'Arm/Disarm' status.

A standard PC computer may be used with the system.

Data displayed on the screen (but not limited to):

- Graphic site maps.
- Event screens.
- Status change screens.
- Sensitivity change screens.
- Historical data screens.
- Hard copy and printout control.
- Built-in help screens.
- Voice announcement controls.
- Special customers' tailored screens.



Alarms & Commands

The Central Control is normally maintained in "monitoring" status. When an alarm is received, the system monitor indicates "alarm" status and the affected zones of the perimeter are immediately shown.

Alarms are visually displayed and audibly announced by a 'voice recording' or beep, enhancing security personnel reaction. All alarm commands and events are recorded and stored for analysis and hard copy report printing.

The Control Interface Unit monitors and controls all alarm zones, as well as additional devices such as lighting, CCTV, horns, sirens and other physical response auxiliary devices. These devices are controlled and activated through the Smart Processor Units (SPU-2004).

Eight relay outputs per transponder are available for linking the Control Interface Unit with remote devices.

Alarm Communications, Analysis And Response

VIDALERT's unique sensing and intrusion detection capabilities are enhanced by a PC based, customizable '**Active Color, Graphic Site Map Display**', a series of screens display keyboard controlled functions and a variety of communication and response capabilities, to structure an all inclusive perimeter defense system.

Alarms are presented on the Active Color Graphic Site Map, as a "flashing" zone and announced by pre-recorded, synthesized computer voice or a beeping sound.

Signals can then be transmitted to mobile units or to remote stations through RF radio, cable, or telephone /cellular communications.

In addition, activation of electronically integrated systems and response equipment such as; CCTV, sirens, floodlights, automatic gates and barriers can be initiated in order to locate, identify and capture would-be intruders.

Main Screen - Site Map

From the perimeter map the user has a complete overview of the entire perimeter zone status, including the Alarm Status (whether there is an alarm or not) and Zone Arm Status.

Security Software

VIDALERT's Custom-Site Graphics, human interface engineering was developed with the end user in mind.

Customized software provides an Active Color Graphic Site Map Display of the actual site with overlaid perimeter zones on the system's monitor. 'Zoom-In' view Info Screens, for critical areas located close to an alerted zone; enhance the use of the Graphic Site display.

Keyboard operated, screen displayed function keys, including "Help", enable complete and user friendly system controls by security personnel at the control center.

The software program includes flashing instructions, clear and simple icons and one step movements from window to window (keyboard/mouse).

Although assignment of function keys are customized to meet the specific requirements of each specific installation, RBtec's more than 20 years of extensive field experience has developed a standard set of pre-programmed function key assignments to provide an optimal configuration applicable to most installations.

Central Computer & Monitor

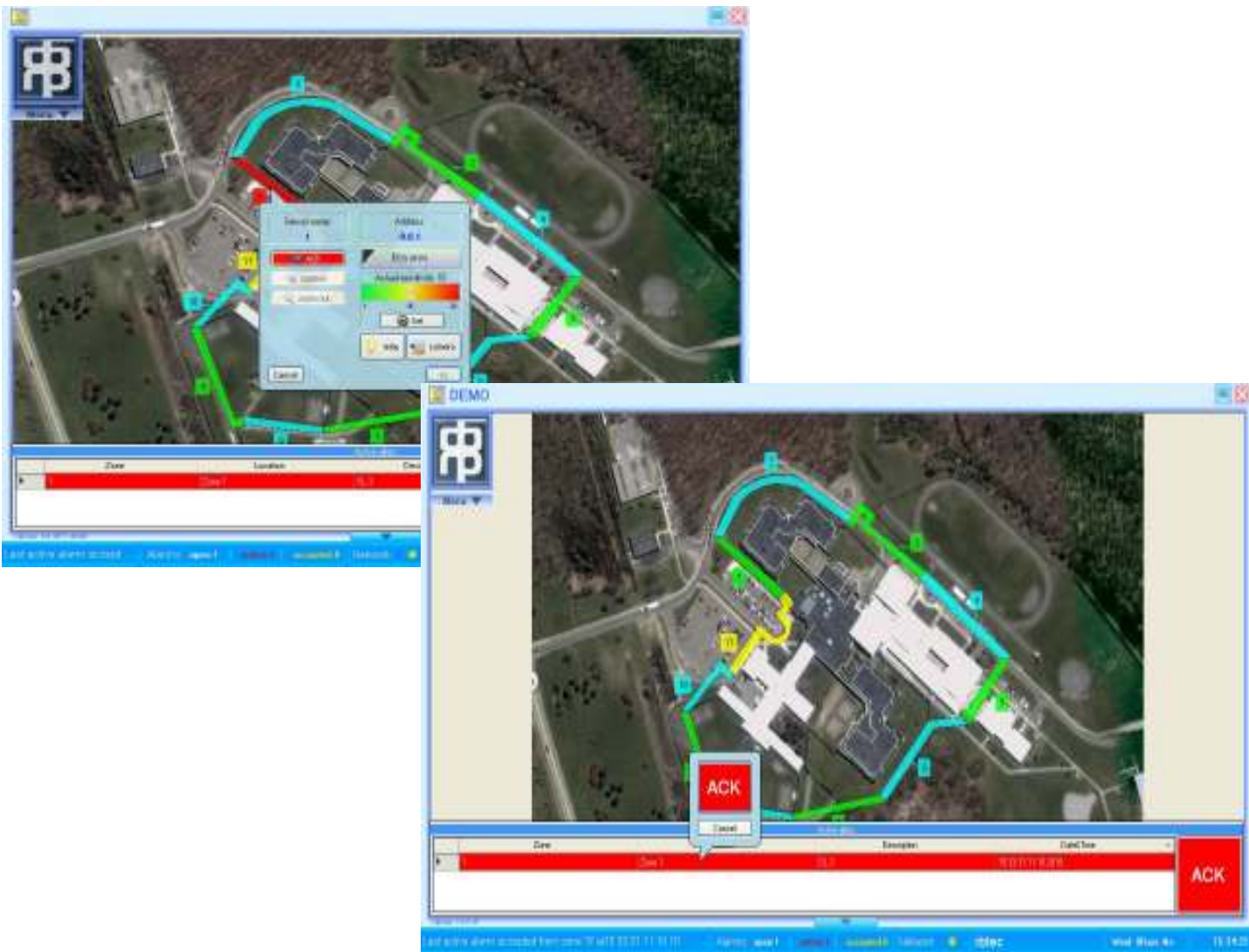
The system is running on server client configuration.

The server is manage, monitor receives stores and displays alarm messages from the IA-6500 to enable complete visual & audio perimeter monitoring and response by security personnel. The clients are operating stations

Equipped with customized Active Color Graphics Site Map Display capabilities through fully customized software, the computer's monitor displays actual site graphic maps, including perimeter layout, zone locations, buildings, floor layout, rooms, and other site facilities as needed, depending on site resolution required by the customer.

All alarm signals received from **VIDALERT** Sensors (or other sensors interfaced with the system) are processed, displayed on the Active Graphic Site Map Display Monitor and audibly announced through a synthesized computer voice.

Data displayed on the screen includes (but is not limited to): graphic site maps, events, status change, sensitivity change, historical data base, hard copy printout controls, built-in help and voice announcement controls.



CONFIDENTIAL SITE QUESTIONNAIRE

PURPOSE

The purpose of this confidential site questionnaire is to enable our initial evaluation of specific site compatibility for the installation of our INTRUDALERT system. It is very important that all data is completed at the highest degree of accuracy, so that a realistic proposal which will meet your operational requirements can be prepared.

Estimated quotation will be based on knowledge acquired from site questionnaire/client. RBtec reserves the right to amend future quotations based on actual information.

Our questionnaire covers details concerning several major areas of concern when INTRUDALERT is installed:

- A. A General Security Profile**
- B. Physical Dimensions.**
- C. Current perimeter protection fence details.**
- D. Topographic & natural environment conditions.**
- E. Current equipment installation**
- F. Electrical environment.**
- G. Operational access & off site activities.**
- H. Roads, Trains, Bridges etc.**
- I. General comments.**

All information provided herein will be kept in strictest confidence.

A. A General Security Profile

1. Facility general description (Type, purpose, etc.)

2. Threat scenario: (Please check appropriate item)

Vandalism. Theft Espionage Personal Terrorism
 Other _____

3. Expected Intruder sophistication: Casual Experienced Professional

4. Response type: Lights/Sirens Guard on Duty Private Police
 Employee on premises Company radio car Public Police
 Special tactics Other

5. Facility secured time periods: 24 Hours 16 Hours 8 hours Day
 Night Comments: _____

B. Physical Dimensions.

Protected area: Total perimeter length _____ Ft / m'

C. Current perimeter protection wall description.

Perimeter fencing:

- | | |
|---|--|
| <input type="checkbox"/> Diamond Chainlink fence | <input type="checkbox"/> Plastic coated |
| <input type="checkbox"/> Welded mesh fence | <input type="checkbox"/> Stainless steel |
| <input type="checkbox"/> Barbed wire | <input type="checkbox"/> Galvanized |
| <input type="checkbox"/> Razor tape concertina | <input type="checkbox"/> No fence exist |
| <input type="checkbox"/> Other: (Please detail) _____ | |

Perimeter Wall:




- Bricks Metal Panels Concrete No wall exist Other _____
- Top of the wall: _____

Wall physical characteristics:

- | | |
|----------------------------|--------------------|
| Fence height: _____ | Wall height: _____ |
| Type of fence poles: _____ | Wall width: _____ |

Note: Please use additional drawings or pictures for additional wall details.
(Heights, pole types, distances between poles, etc.)

Wall upper sections:

- Overhang** -  Straight  Single  Double None

Wall condition:

- New Old
- Damaged Vegetation None

Additional comments: _____

Note: Wall width should be at least 20 cm, and level.

Gates:

- Number of gates: _____
- Gate width: #1 _____ #2 _____ #3 _____ #4 _____
- Types: Wing (gate no.) Sliding (gate no.)
- Other (gate no.) _____

D. Topographic & natural environment conditions.

- Terrain: Hilly Flat Steep slopes Rivers/Streams
- Obstructions Landscaping Other _____

Surface: Ground structure: Soft Rocky Sand Gravel
 Other _____

Ground cover - Asphalt: Existing To be laid: Thickness required: _____

Ground cover - Cement: Existing To be laid: Thickness required: _____

Combination -Existing or required: _____

(Please note on layout grid).

Climate & normal local weather conditions:

High winds Blowing debris Hail Sea spray\Salt air

Frequent electrical storms (Lightning) Desert heat Extreme cold

Wide temperature variations Other _____.

External nuisance elements: Flying birds Flying debris Vandals

Domestic animals Gophers, other small animals, rats, mice etc.

E. Equipment installation

√	Item	Present	Future	Distance from sensor line
	Sprinklers			
	Water			
	Gas			
	Compressor(s)			
	Vibration equipment			
	Other			

F. Electrical environment

RF Interference: Unknown None Known:

(Please describe so that filters for RFI rejection can be pre-installed)

G. Operation access & Off site activities.

Normal conditions when system is armed: Quiet Some activity

Heavy traffic Aircraft Nearby running power equipment

Other _____

Access required when system is armed: YES NO

Specify zones: _____

Activities outside the property:

NORTH SIDE:	
SOUTH SIDE:	
EAST SIDE:	
WEST SIDE:	

H. Roads, Bridges, Trains, etc.

	From nearest freeway	From nearest road	From nearest railway tracks
Distance:			

Railway track type:

Main	Spur	Other

I. General comments.

Are photos of the site available: ___YES ___NO

Additional comments:

J. Contact Information/Misc Site Info.

Company Name: _____

Name: _____

Address: _____

Phone: _____

Fax: _____

Email: _____

Site Location (Name/address): _____

Date: _____

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