

Paper Survey

Use the site survey form to begin the evaluation of RF in a bingo operation. Diagraming the hall is an important step to lay out the necessary testing areas. Figure 5 provides a sample hall on which to base your diagram. If the hall has more than one room, each room will need to be diagramed individually. Create an architectural diagram of the hall using the graph paper located in the site survey form.

Note: RF site surveys must be performed or approved by a Field Supervisor.

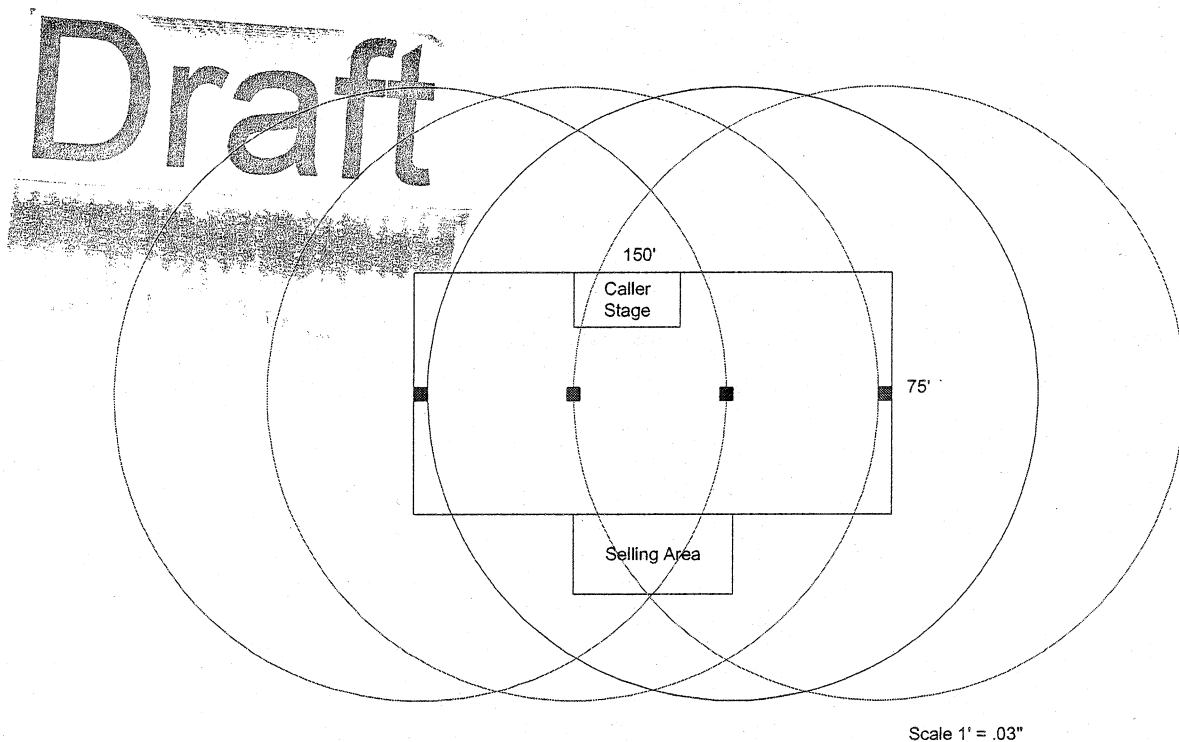


Figure 5. Sample Hall Diagram

Diagramming a Hall

- Print the site survey form.
- Measure the room(s) in the hall.
- Locate where the master computer is placed. The Base Station Controller (BSC) needs to be located within a 25 ft. cable length of it.
- Once the location of the BSC is determined, the optimum placement of the transmitters and routing of the CAT5 cables from the BSC to each transmitter needs to be determined. Each transmitter can cover a circular area with a radius of about 100 feet (200' diameter). Use the site survey form to assist in the placement.
- Using the site survey form to create a diagram, cut out four circles representing the 100' radius of the transmitters. Adhere to the rule that each location on the floor must be able to see at least two transmitters. The sample hall in Figure 5 displays the radiation patterns of each respective transmitter. (The scale of the drawing has been reduced for this document.)
- The transmitters are represented by the small squares down the center line of the hall. Ceiling mounting is highly recommended because it keeps the signal from being blocked by player's bodies and the height gives the best overall coverage for each transmitter.

Interference Signals

When walking through the hall with all equipment (computers, etc.) turned on and no active transmitters, only the bottom red LED on the SSM should be illuminated when the power switch is pressed. Noise or other insignificant signals may cause the second red LED to flash randomly. If a constant yellow or green illumination is present, the source of the interfering signal must be determined and considered.

Examples of Possible Interferences:

- | | | |
|--------------------------|-----------------------|------------------|
| -Wireless Gaming Devices | -Wireless microphones | -Cordless Phones |
| -Cell Phones | -Walkie Talkies | -Radios |

Location and Isolation of Interferences:

When walking through the hall and interference is picked up, attempt to locate the item(s) either visually or by asking persons in the area. If the signal is too strong and cannot be moved in frequency or eliminated, it may disqualify the hall from using as an RF system.

Coverage

- Position the standalone battery-powered transmitters in locations determined by the paper survey.
- The SSM is then used to determine the adequacy of coverage of the transmitter placement.
 - With the system active at least one green LED should illuminate in all locations within the circle defined by the paper survey. Remember with one transmitter only you may see the "dead spots" from location to location as you move through the area. This is normal. The SSM's receiver is calibrated to respond like those in the TED® and TED²C™.
 - One green LED illuminated is sufficient signal for essentially error free data transmission. When the entire system is installed it's expected for the top green LEDs to blink during normal system operation. Each transmitter is turned on sequentially by the BSC. No two transmitters are ever on at the same time. Consequently, the signal strength indicated by the green LEDs will vary causing the top LEDs to blink on and off at the scan rate of the system. This phenomenon is caused by the SSM picking up transmitters close by (large signal) and those farther away (small signal).
- If the signal strength, as indicated by the SSM, is adequate throughout the hall, the hall can be considered a good candidate for the RF system.

MASTER.INI Settings

File	Location
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MASTER.INI	\\TXT
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You will need to add the following to the [GENERAL] section of the MASTER.INI:

[GENERAL]

RFENABLED=0.....0=Off or 1, 2, 3 or 4 for appropriate com port
RFACKDELARY=100.....(may need to increase for 4 xmtrs)
RFONESHOT=0.....Always use 0

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Technician Questions

Q: How long will the battery on the SSM lasts?

A: Quite a long time since it is activated only when the button is pushed and the button is momentary.

Q: Any special way that the SSM should be held while performing tests?

A: With antenna straight up is best.

Q: Where should the BPT be placed? Is on top of a bingo table close enough when the real unit will go in the same location just 20 feet higher? Does it need to be exactly where the other transmitter will go?

A: Without people in the room, just on a table or maybe a 6' step ladder. People make the biggest difference in signal propagation.

Q: How long should the tech stop in each location to ensure that they are getting a good signal? How many locations should they check for signal at?

A: They should go to the extremes of the hall (corners) and then down the center stopping for 5 to 10 seconds at each location about 20' feet apart. With a single BPT when they stop they should move the SSM around for the best signal. With one BPT there will be dead spots during this test.

Q: Can we assume that the hall will be empty when the test is done? Do we care?

A: Only if the BPT is on the ground level and if there are a few bodies around it probably won't be a big deal.

Q: How do you know when the battery is dead on the BPT?

A: There are two LEDs on the BPT, a Green and Red. The Green LED indicates power and is always on when there is power applied. The Red one blinks at a 1 second rate when transmitting (transmission is constant even though the LED blinks). When the Red LED stops blinking the Green one is dim it is time to change the battery. A typical 9V alkaline battery has a capacity of about 590 mAH so the BPT should easily last at least 12-15 hours if left on continuously.

Q: In the "Interference" information, what are some examples of devices that may interfere (cordless phones, walkie talkies, etc.)? Possibly other wireless gaming devices?

A: You hit on two of the biggies. Wireless microphones are another potential source. At the BETA hall we experimented with both a cordless phone and the Wireless mic and neither caused any problems. There is currently no data on other wireless gaming devices like the Fortunet system. Some Commercial Power companies use 928 MHz for their SCADA (System Control And Data Acquisition) systems and communicate with their substations with it. This is a very remote possibility for interference.

Q: In the "Coverage" information, is there any special way that they need to mount the BPT when doing the test? Height, location, antenna direction, etc.

A: At the BETA hall, the XMTRs were mounted upside down attached to the ceiling framework. Learning from that experience each XMTR enclosure now has a small slot cut in the bottom to accommodate a tie wrap mount technique.

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Conducting a Site Survey

Prior to conducting the site survey, the technician should read and be familiar with the information contained in the GameTech RF Installation and Support manual. The site survey must be completed prior to considering a hall for RF and must include the following information:

- Information on how the site survey was performed.
- Results of site survey.
- Transmitter locations.
- Site survey notes.

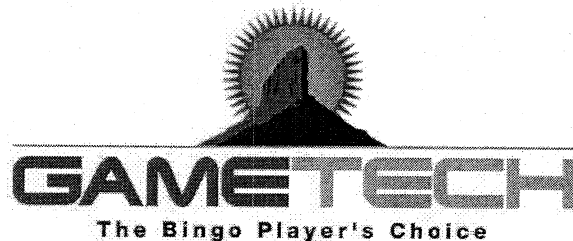
For assistance call Customer Support at 1-800-959-1727.

Note: RF site surveys must be performed or approved by a Field Supervisor.

Site Survey Form

The following worksheet is provided for technician use. Please ensure the information is completed in detail. Several diagrams are provided to diagram the hall to scale. For transmitter radius, use the provided circles or a protractor to ensure the proper coverage.

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Getting Started

To provide guidance for conducting an RF site survey, use the following as a guideline.

1. **Contact field supervisor** to obtain **testing tools** as follows:
 - Signal Strength Meter (SSM)
 - Standalone Battery Powered Transmitter
2. **Print the site survey form.**
3. **Walk the hall** using the **SSM** to check for interference with all equipment turned on (computers etc.) and no active transmitters. If hall passes this step, continue to next step.

Attention: As a general rule, each RF TED[®] and/or TED^{2C}[™] needs to be able to “see” at least two transmitters to avoid dead spots.

4. Using the site survey form, **measure** and **diagram** the **hall**.
5. **Mount BPT** (Battery Powered Transmitter) based on hall diagram.
6. If results are positive, hall can be installed with RF (must be approved by Field Supervisor).

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GameTech International Radio Frequency (RF) Site Survey

[Redacted]

Hall Name: _____
Address: _____
City, State, Zip: _____
Phone: _____ Hall Manger: _____
GTI Salesperson: _____ Survey By / Date: _____

[Redacted]

(Fill in or circle the appropriate response.)

Does the master have an open working com port? Yes No

What are the number of TED[®] units? _____ TED²C[™] units? _____

How many RF units are being added? _____ TED _____ TED²C[™]

Do jurisdictional guidelines allow the installation of RF into this hall? Yes No Supv. Initials _____

Do jurisdictional guidelines allow the use of Autodaub in this hall? Yes No Supv. Initials _____

What is the mode of operation? (see manual for reference)

___ Fully Automatic ___ Manual Daub 1 ___ Manual Daub 2 ___ Manual Daub 3 ___ Game Change Only

How many rooms does this bingo operation have? _____

If there are multiple rooms, will the transmitters be able to be placed within "site" of two transmitters in another room? Yes No

Will additional transmitters be needed to accommodate room size or multiple rooms? If yes, explain:

Can the Base Station Controller be easily and professionally placed within 25 ft. or less from the master and within 6 ft. of a power outlet? Yes No

(Note: The BSC should remain within easy access. If transmission problems occur, a reset may be required by cycling it's power.)

Can the Transmitters (minimum of four) easily and professionally be placed at a maximum of 1000 ft. from the Base Station Controller? Yes No

Can the hall be covered with four (4) transmitters and, have all areas covered by two (2) transmitters at all times? Yes No

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Graph paper has been provided on the following pages. To complete the diagram(s), draw the hall to the chosen scale, cut the appropriate circles and place on the drawing where needed (one circle per transmitter). See the sample diagram below based on a 50' scale for reference.

(One transmitter = 100' radius (200' Diameter))

Note: A protractor can be used in lieu of cutting circles. To use a protractor, place the point at the proposed transmitter location and using the scale desired, draw a circle 100' from each side of the transmitter (100' radius, 200' diameter).

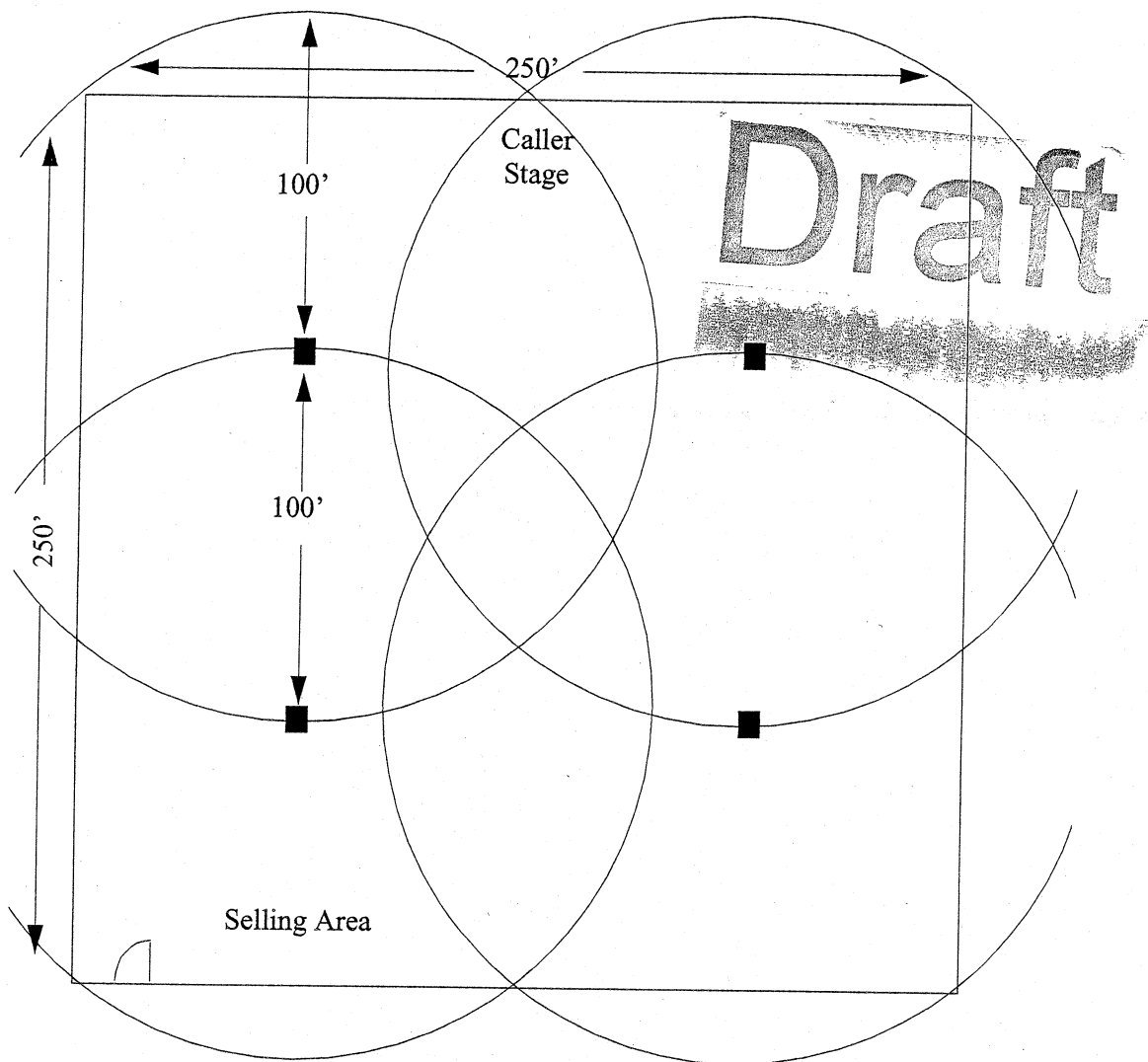


Figure 1. Sample Hall Diagram

Scale of Drawing (choose one): $1''=50'$ (each square=5') $1''=100'$ (each square=10')

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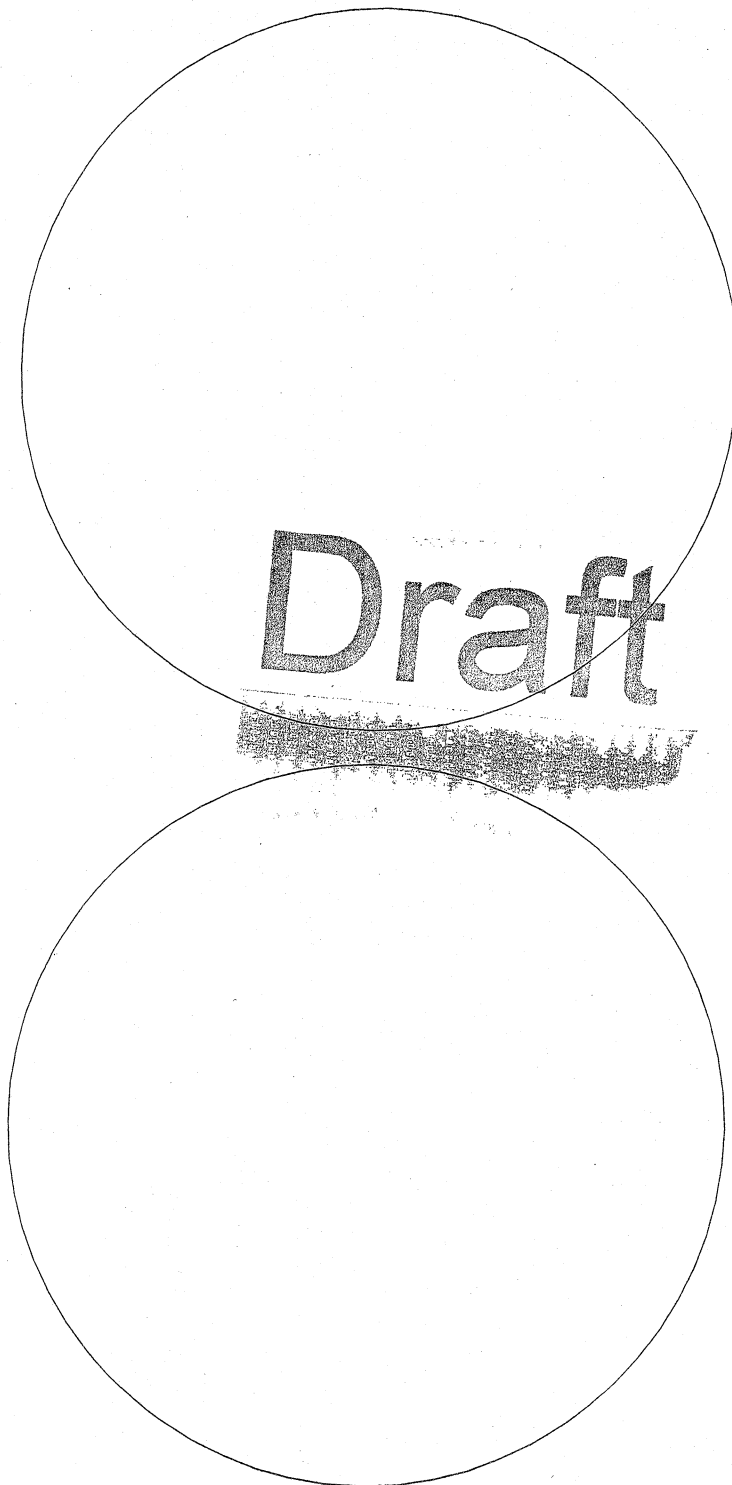


Figure 2. 1" = 50' Scale

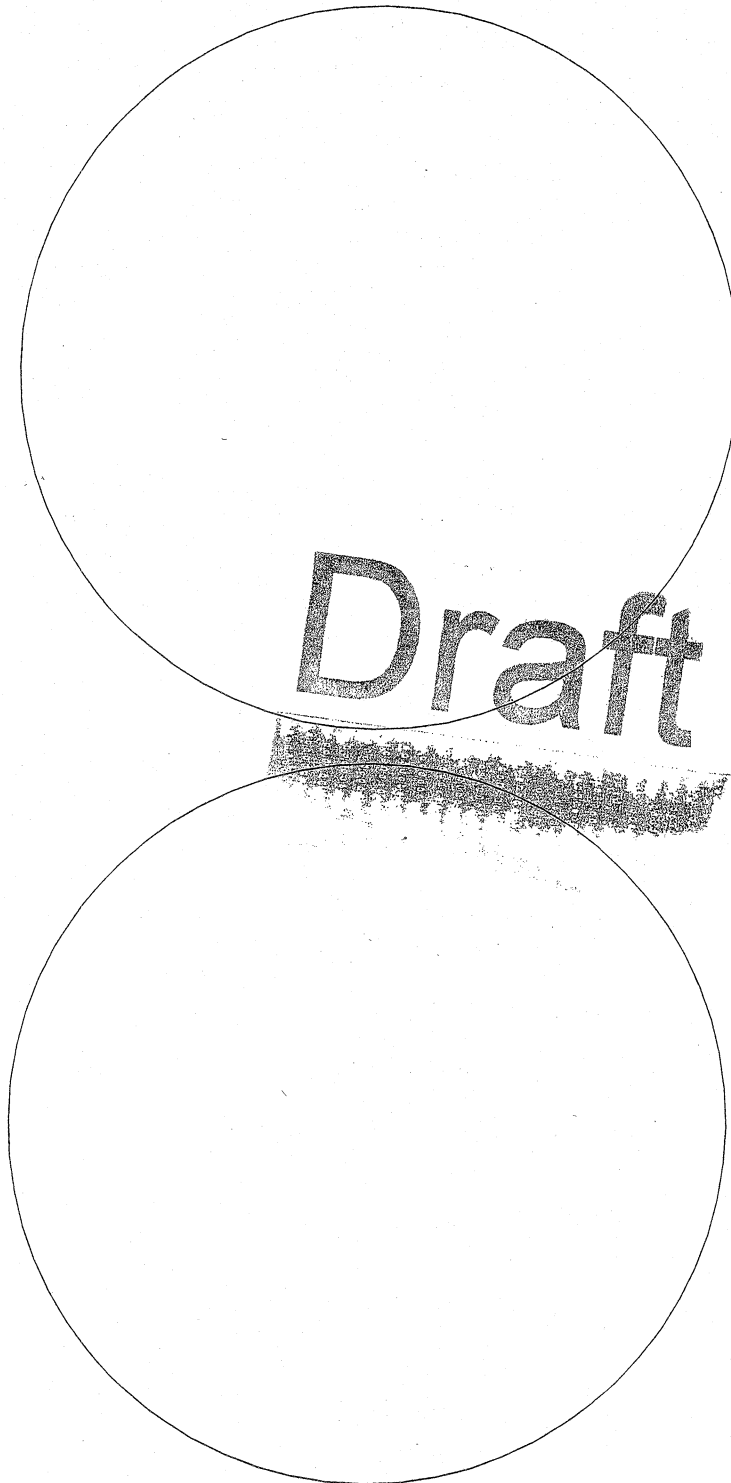


Figure 3. 1" = 50' Scale

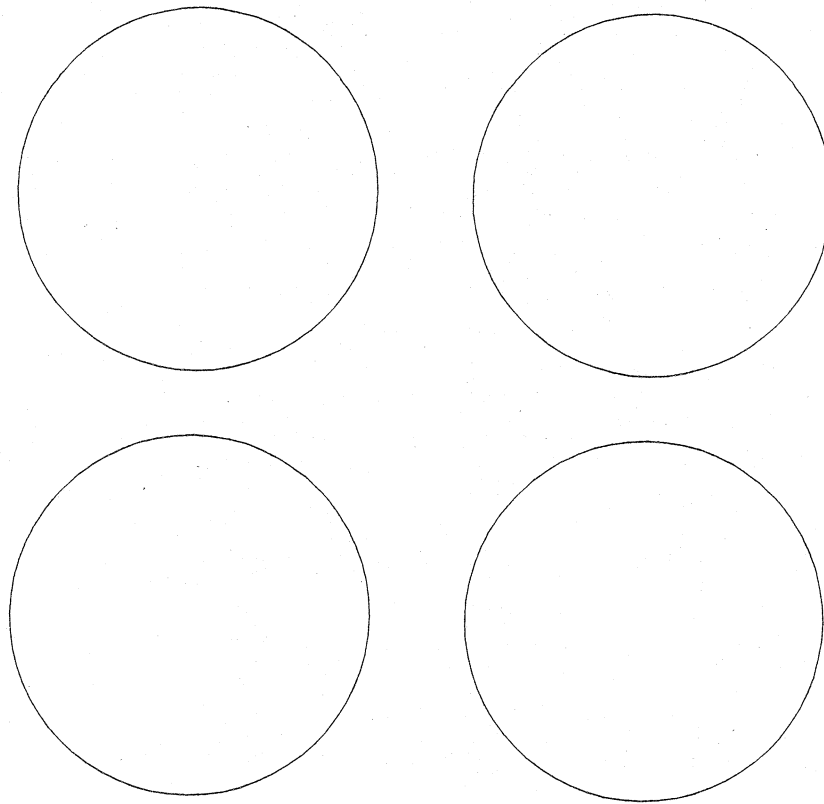


Figure 4. 1" = 100' Scale

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Provide a brief description of how the site survey was performed.

Survey Results: _____ Pass _____ Fail

Reason(s) for Pass/Fail Results:

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Additional Comments:

Technician Signature: _____

Date: _____

RF Pass/Fail Results Approved By Supervisor: _____

Date: _____

RF Installation Date: _____

Note: RF site surveys must be performed or approved by a Field Supervisor.

Send Us Your Comments

If you have any comments about the usability or accuracy of this manual, please send them to us. Your comments help us to better understand your needs and improve this user guide.

Send your comments to:

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Thank you.

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