Professional Residential Installation

Purpose: To ensure that all DNSC Offices are consistent in performance of Standard Professional Residential Installation. The number of receivers and TV's installed will be dependent on the customer's promotion. The work order will clearly indicate the work to be completed as part of the installation.

1.0 Scope of Work

1.1 A Standard Professional Installation includes the professional mounting of the required dish(es) with an exterior cable run and the penetration of 1 wall with necessary wiring to the receivers and TV's.

1.2 Standard Professional Installations include – at no additional cost to the customer

    1.2.1 120 Feet of cabling

    1.2.2 Single Wall Penetration

    1.2.3 Wall Plate, Bushings, and Fittings as needed

    1.2.4 Wall fish to interior wall and/or promotion driven receivers via access from attic and/or crawl space. The number of wall fish will be based on number of receivers included in the promotion.

    1.2.5 Attic Crawl

    1.2.6 Pole Mount with up to 50 feet of trenching

    1.2.7 All other mount options including:

        1.2.7.1 Eave Mount

        1.2.7.2 Chimney Mount

        1.2.7.3 Tripod Mount

2.0 DNSC Implementation

2.1 Pre-Installation Walk Through must be completed by the Technician with the customer.

    2.1.1 Explain and verify with the customer the scope of the installation as recorded on the work order.

    2.1.2 Ask the customer to move furniture, equipment and breakables from the work area to allow the technician to safely access the back of the TV.

    2.1.3 Determine customer's viewing needs – Receivers and TV Hook Ups

        2.1.3.1 Service combinations of DBS, off-air antenna's and cable service.

        2.1.3.2 Confirm all customer owned hardware to be integrated into the DISH system is in working order.

        2.1.3.3 Identify nearest location of working phone jack.

    2.1.4 Locate the DISH to ensure proper grounding and minimum cable run.

    2.1.5 Plan exterior cable run.

    2.1.6 Plan interior cable run. If required and requested by the customer include wall fish and attic crawl.

    2.1.7 Finalize the entire plan, verify the work order is accurate, and ensure adequate time to complete the job, confirm availability of equipment required for completion of the job.

    2.1.8 Present the final plan to the customer. Contact the CSC if any work order changes are required to complete the work order and to meet the customer's viewing needs.

    2.1.9 Confirm with the customer the number of receivers to be installed. If the customer decides to add additional receivers, follow current Work Order Modification procedures. The customer is required to pay for the installation of additional receivers purchased at the current labor cost per hour rate.

2.2 Find the direction to the satellite and a clear line of sight.

    2.2.1 Find the Azimuth, Elevation, and Skew Angles.

2.2.1.1 Connect the receiver to the desired television. Use the receiver back panel **TV Set Out** connection.

2.2.1.2 Make sure the remote control batteries are new and the remote control is in SAT mode. Check that the UHF antenna (if applicable) is attached to the receiver.

2.2.1.3 Turn on the television and the receiver. The Point DISH and Signal Strength menu should be displayed. If it is not displayed, press the MENU button, select SYSTEM SETUP, and select INSTALLAION.

2.2.1.4 Enter the zip code for the home location.

2.2.1.5 If installing a DISH 500, select the DISH 500 option and write down the Azimuth, Elevation and Skew.

2.2.1.6 If there is a DISH 500 check box instead of a DISH 400 option do the following:

2.2.1.6.1 Use the arrow buttons to the 119 West option in the Satellite field and select. Move the highlight field to the DISH 500 check box and select. Write down the Azimuth, Elevation and Skew.

2.2.2 Find a clear line of sight

2.2.2.1 Take a compass to the proposed location for the satellite DISH. Make sure the compass is at least a foot away from other metal objects.

2.2.2.2 Hold the compass level so the needle can swing freely. Turn the compass until the marked end of the compass needle is aligned on the N. This is magnetic North. (The compass face is divided into 360 degrees. North is 0, East is 90, South is 180, and West is 270).

2.2.2.3 On the compass, find the required azimuth angle determined above. While keeping the marked end of the compass needle on the N, turn to face this number. This is the direction of the satellite. Find a landmark, or lay a stick or board on the ground in that direction.

2.2.2.4 Use the elevation angle to find out how high the satellites are in the sky from your location. (Vertical is 90, horizontal is 0, and halfway in between is 45). Stand close to where you plan to mount the satellite DISH and face in the direction that you marked for the satellites. Use your arm to estimate the elevation angle in the sky. **You are now pointing to the general location of the satellites.**

2.2.2.5 Determine if anything blocks the line of sight. Leave a margin of at least 10 degrees to the East and to the West. This margin allows for the separation between the two satellites.

2.2.2.6 If the DISH is mounted on a structure that has eaves or overhang, make sure that there is clear line of sight between the DISH and the satellites.

2.2.3 Verify that the mounting location provides room for the DISH and room to adjust the azimuth and elevation settings. NOTE: Be sure that the DISH is accessible to the customer, if possible, to remove snow, ice, and other debris.

2.3 Assemble the DISH antenna. Mount on the exterior of the home.

2.3.1 Mounting Options

2.3.1.1 Brick – Brick means solid brick, not brick facing. The surface must be flat and even. The mortar between bricks needs to be in "good condition". Mortar must be intact, and support and stabilize the brick. If bricks are loose and unstable, look for a more secure location. All of the fasteners **must be set into the brick, not in the mortar between the bricks.**

2.3.1.2 Wood – The DISH may be mounted on a wooden deck, wooden beam, or other wooden surface. The surface must be flat, even, and level. Make sure that the wood has a solid foundation and is secure. It should be strong enough that it cannot be moved or even "jiggled".

    2.3.1.2.1 Do not mount the DISH on a railing.

    2.3.1.2.2 Do not mount the DISH to a tree.

2.3.1.3 Concrete – The DISH may be mounted on a solid concrete wall. The surface must be flat and even. The concrete must be in good condition. Loose or weakened concrete may shift, changing the DISH angle, and affecting reception.

2.3.1.4 Eave

    2.3.1.4.1 The eave is the point where the rafters overhang either the side or end wall. It is preferred that the DISH be mounted on the end rafter where the eave overhangs the wall. The fascia may be used only if it provides a more desirable line of sight than the eave, and the center fasteners of the foot mount attach directly into the rafter tail.

        2.3.1.4.1.1 Use eave mounts if appropriate.

        2.3.1.4.1.2 Set the foot plate on the desired mounting surface and using the footplate as the template mark the surface with the mounting holes.

        2.3.1.4.1.3 Remove Plate and predrill with 3/16" diameter drill bit.

        2.3.1.4.1.4 Replace the footplate and secure to the mounting surface with a minimum of 4- 1 ½" X 5/16" lag bolts.

2.3.1.5 Concrete Facing

    2.3.1.5.1 The DISH may not be mounted on concrete facing.

2.3.1.6 Pole Mounts – Prior to the installation of a pole mount, utilities must be identified and marked to prevent damage to buried services on the customer's property.

General Guidelines – (For detailed guidelines refer to the Additional Information section of this document).

    2.3.1.6.1 DNSC is required to call the states "Locator Service" to schedule the marking. Lead time for marking utilities is at least two days from the time of the call.

    2.3.1.6.2 For installation, the pole must be at least 6 ft. in length and 1 and 5/8 in. in diameter. The pole must be buried at a minimum 3 feet.

    2.3.1.6.3 To ensure proper setup, make the hole a minimum of 3 feet deep and 12 inches in diameter. For stability, fill the hole with concrete and install a horizontal anti-turn bolt or piece of metal. Use a piece of PVC conduit as a sweep to feed the cable through and to protect from animals and mechanical damage.

    2.3.1.6.4 Flooded "Burial" cable is required for all pole mounts. This cable is to be used from the LNB to the ground block on the house.

    2.3.1.6.5 Up to 50 ft. of trenching is included with the standard pole mount. Trenching must be between 4 and 6 inches in depth. Inform customer of additional charges for lengths exceeding 50 feet.

    2.3.1.6.6 Make sure pole is level.

2.3.1.7 Roof Mounts – **Mounting on a roof is a LAST resort and must be approved by the FSM or General Manager. NEVER MOUNT ON A TILE OR SHAKE SHINGLED ROOF!!!**

2.3.2 Align the top part of the mast/mount. If the top of the mast is off vertical by only a few degrees, it will be difficult or impossible to find the satellites.

2.3.2.1 Mounting foot. If the mounting foot is attached to a vertical surface, make sure that the foot is vertical. One of the foot's center bolt holes is curved slot instead of a round hole. This curved slot allows for adjustment of the position of the foot before the bolts are tightened. Use a washer with the bolt placed through the slot. Place the bolts in the hole opposite the curved slot and through the four corner holes to secure the mounting properly.

2.3.2.2 Take at least two readings with a bubble level on sides of the mast that are 90 degrees apart from one another. When the top part of the mast is vertical, tighten the bolts. Apply silicone to all six holes. **The top part of the mast must be vertical.**

2.3.2.3 Assemble the satellite DISH.

2.3.2.3.1 Set the skew by rotating the DISH-mounting bracket to align the skew point with the required angle on the skew scale. Tighten both skew bolts securely.

2.3.2.3.2 Set the elevation by tilting the DISH-mounting bracket to align the red edge with the required angle on the elevation scale. Tighten both elevation bolts.

2.3.2.4 Align the square bolt holes in the DISH with the bolt holes on the mounting bracket. Insert each flathead bolt into one of the holes, and secure it by threading a lock nut onto the bolt on the backside. When all four bolts are inserted, tighten the bolts securely.

2.3.2.5 Thread the coaxial cables through the support arm, being careful not to kink or pinch the cables. Adjust the cables so that each one extends about seven inches out the end of the support arm.

2.3.2.6 Thread the cables through the Y bracket.

2.3.2.7 Attach the Y bracket to the end of the support arm. Slide the Y bracket onto the support arm until the end of the arm rests against the ridge inside the bracket. Fit the hex nut into the recess in the Y bracket.

2.3.2.8 Attach each cable to the appropriate LNBF.

2.3.2.9 Attach each LNBF to the Y bracket. Slide each LNBF onto the Y bracket until the end of the bracket rests against the ridge inside the LNBF.

2.3.2.10 Slide the DISH assembly down onto the mast. Make sure that the pivot bolt rests on the top of the mast.

2.3.2.11 Connect only the 119 coaxial cable from the appropriate LNBF to a signal meter. Move the DISH side to side toward the satellite according to the azimuth numbers determined earlier. When satisfied that the best possible signal has been obtained, tighten all mounting bolts on the DISH into place.

2.3.2.12 Connect the multi-DISH switch if necessary. Multi-DISH switch should be installed between ground block and receiver.

2.4 Cable routing through frame structure with a single wall penetration and wall plate.

2.4.1 Plan the cable run.

2.4.1.1 Have as little wire showing as possible.

2.4.1.2 Maintain minimum radius of bend (4") on a cable.

2.4.1.3 Secure all cable to structure with appropriate screw clips.

2.4.1.4 Determine the shortest route possible.

2.4.1.4.1 Standard length of cable run will include 120 ft. of RG-6 coaxial cable.

2.4.1.4.2 Put a drip loop in each cable at a point before it enters the building.

2.4.1.5 Always measure before you drill.

2.4.1.6 Account for the seasonal changes, spring foliage, snow or ice.

2.4.1.7 Avoid obstructions.

2.4.1.8 Never run cable around doorways & windows.

2.4.1.9 Avoid electrical lines and water pipes.

2.4.1.10 Drill penetrations from the inside out (take special care when drilling through brick and stucco).

2.4.1.11 Locate the receiver inside the building, against or near an outside wall.

2.4.1.11.1 If the receiver is located in an interior room, route the cable through the outside wall, and into an attic, basement, or crawl space in order to reach the receiver. Use fish line and pull rod to properly wall fish cabling to interior wall.

2.4.1.12 Fit wire penetration with proper feed-through bushing. Seal any holes drilled in the building with silicone or other weatherproof sealant.

2.4.2 Attic Crawls

2.4.2.1 **All Safety Guidelines are mandatory in all attic crawls.**

2.4.2.1.1 Hard Hat

2.4.2.1.2 Safety Glasses

2.4.2.1.3 Dust Mask

2.4.2.1.4 Do Not stay in the attic longer than 10 – 15 minutes during hot weather. Be sure you drink plenty of water before starting an attic crawl. On an 80 degree day, the attic can easily reach 130 degrees. Heat stroke can occur rapidly if you are dehydrated.

2.4.2.2 Be aware of all surroundings when entering the attic including wooden structure that will be used to support your weight.

2.4.2.3 If planks or plywood are in the attic for walk ways, be sure they are nailed to the ceiling rafters. If they are not, use extreme caution to avoid falls and ceiling damage.

2.4.2.4 When walking through the attic, be sure to walk only on the top of the wooden ceiling joists, NOT on the drywall.

2.4.2.5 Insulation is usually laid in between thee joists and sometimes covers the tops of the boards. This makes it very difficult to determine where to step since stepping between the joists would cause the sheetrock on the ceiling to break away. This can be VERY HAZARDOUS.

2.4.2.6 Be cautious when in the attic as loose planks or sheeting can often be found in the attic for the purpose of maintenance. Utilize these supports only after you have confirmed the planks are sturdy enough to support your weight.

2.4.2.7 When routing cable through the attic, do not leave the cable in the center or floor of the attic as it could create a trip hazard.

2.4.2.8 Technician shall secure the cable with wire ties, or cable clips to the roof rafters or other support structures.

2.4.2.9 After routing cable to the desired location for the cable drop use extreme caution exiting the attic.

2.5 Grounding of system components. DNSC installations must comply with the National Electrical Code (NEC).

2.5.1 The satellite DISH and the coaxial cable should be grounded in accordance with the latest revision of the National Electrical Code (NEC) and local electrical codes. Grounding will provide some protection against damage caused by lightening strikes and other electrical discharges. Lightening strikes several miles away can generate enough electricity in the air to damage the system.

2.5.2 **WARNING!** The importance of proper grounding cannot be overemphasized. Grounding will minimize the potential for damage to the system and maximize safety. How the system is grounded affects the performance of the system.

2.5.3 The *National Electrical Code* (NEC) and some local electrical codes permit the use of types of grounding other than those discussed in this document. Follow the *National Electrical Code* (NEC) and all local electrical codes. Contact a licensed electrician or the local electric utility company if you have any questions. Locate and avoid underground sewer, gas, water, and telephone lines before digging. Local utility companies can tell you where these are located.

2.5.4 Grounding Guidelines
NEC 250.52 (A) (1) A metal underground water pipe in direct contact with the earth for 3.0 m (10 ft) or more (including any metal well casing effectively bonded to the pipe) and electrically continuous (or made electrically continuous by bonding around insulating joints or insulating pipe) to the points of connection of the grounding electrode conductor and the bonding conductors. Interior metal water piping located more than 1.52 m (5 ft) from the point of entrance to the building shall not be used as a part of the grounding electrode system or as a conductor to interconnect electrodes that are part of the grounding electrode system.

    2.5.4.1 Ensure that the grounding system provides a solid, permanent earth grounding in accordance with the *National Electrical Code* (NEC) and local electrical codes. Contact a licensed electrician or the local electric utility company if you have any questions.

    2.5.4.2 If a grounding electrode separate from the poser service grounding electrode system is installed, connect the separate electrode to the grounding system in accordance with the *National Electrical Code* (NEC0 and local electrical codes.

    2.5.4.3 **Educate the customer on the protection surge protectors provide.** It is strongly advised to recommend the sale of a surge protector to all customers. If the customer declines the purchase of a surge protector(s), be sure the appropriate box on the Service Agreement is initialed.

        2.5.4.3.1 I have been presented and understand the benefits of Surge Protection and choose to waive this option.
        Initials: _____

2.5.5 Installing the ground block

    2.5.5.1 The location of the ground block must be a sturdy and stable. The ground block must be tightly fastened to the surface. As stated in Article 820-40 of the *National Electrical code* (NEC), **locate the ground block as close as possible to the power entry ground.**

    2.5.5.2 New Style Ground Blocks – The "New Style" Ground Blocks can be identified by the large frame, and rounded terminals. With the new style ground block the messenger wire (17ga. copper clad steel min.) may be attached to the ground block. A #10 solid copper wire must be run to the power-service grounding electrode. An option is to install a 5/8" diameter copper clad iron or steel rod, not less than 8 foot long. The rod must be **bonded**

with the power service-grounding electrode with a #6 copper grounding wire.

2.5.5.3   Planning where to ground the system - When looking for a place to ground the system, be aware of the local ordinance for proper grounding. There are several ways to ground a system including using an existing Power Service Grounding Electrode system, or cold water pipes.

       2.5.5.3.1   Cold Water Pipes – A system may be grounded using cold water pipes IF the water system has a bonded jumper around the water meter. The cold water plumbing must be in a complete metal system from the grounding point to the water main line. When attaching a grounding strap around piping, clean pipes to bare metal.

       2.5.5.3.2   **Never use a hot water pipe for grounding a system.**

       2.5.5.3.3   **A grounding block(s) must be used at every install.** The grounding block should be placed as close to the grounding site as possible.

2.5.6   Routing coaxial cables to the ground block

    2.5.6.1   Mount the ground block or multi-DISH switch so that the connections are horizontal. Horizontal connections help prevent moisture leakage into the block or switch.

    2.5.6.2   Route the coaxial cable from the LNBF to the connection on one side of the ground block. Use the shortest path possible.

    2.5.6.3   Put a drip loop in each cable. The drip loop allows moisture to drip from the cable before it runs into the ground block.

    2.5.6.4   For each coaxial cable that is attached to the ground block, connect a second coaxial cable onto the connection on the other side of the ground block. This second coaxial cable is the cable that will be routed into the building to the receiver.

    2.5.6.5   Route the ground wire to the power entry ground of the building in accordance with the *National Electrical Code* (NEC) and all local electrical codes. **Warning! A ground wire must always be a single piece of wire. Never splice two wires together for a ground.**

    2.5.6.6   Use cable clips to attach the cable to the side of the building. The cable clips help prevent damage to the building.

2.5.7   Route the coaxial cable to the receiver

    2.5.7.1   Route the coaxial cable from the ground block or multi-DISH switch to the satellite receiver. Use the shortest path possible.

    2.5.7.2   Put a drip loop in each cable at a point before it enters the building.

    2.5.7.3   Locate the receiver inside the building, against or near an outside wall. NOTE: If the receiver is located in an interior room, route the cable through the outside wall, and into an attic, basement, crawl, space and wall fish in order to reach the receiver.

    2.5.7.4   Fit wire penetration with proper feed-through bushing. Seal any holes drilled in the building with silicone or other weatherproof sealant.

2.5.8   Hook-up of receiver to one TV and VCR in the same location and hook-up to phone line.

    2.5.8.1   TV Hook Up - There are several ways to install the DISH receiver to a TV. Each way affects picture quality, sound quality, and the use of the Basic System. For the best quality of wiring setups, **refer to the User Guide that came with the system**. Be

sure to leave 4 to 6 ft. of extra cable for future movement of the television.

2.5.8.2 Telephone Line Hook Up – The Technician is required to connect each receiver to a phone line. Follow current Service Agreement instructions for maximum feet to the outlet, restrictions on crossing doorways, and other phone line installation guidelines.

2.5.8.2.1 Attach a telephone line with a standard RJ-11 connector to each receiver's back panel Telephone Jack, and then connect the line to an active telephone connection.

2.5.8.2.2 Depending on the receiver installed, the receiver may have to be set up for the type of telephone system (touch-tone or rotary/pulse), a specified a telephone number prefix, if such a prefix is required to place an outside call.

2.5.8.2.3 On the **Installation and Setup menu**, select the **Telephone System** option to display the **Telephone System Setup** menu.

2.5.8.2.4 On the **Phone Type** list, move the highlight to the **touch-tone** or the **Rotary/Pulse** option. Press the **Select** button to select the highlighted option.

2.5.8.2.5 Move the highlight to the **Save** option. Press the **Select** button to save the settings.

2.6 Additional Receiver Hook-Ups

 2.6.1 Work Order Management business rules located on the DNSC Web, and distributed to external offices, provide instructions fro managing modifications to work orders.

 2.6.2 Hook up additional receivers. Cabling, hardware, wall fish, and labor required for the additional receiver(s) installation are part of the standard Additional Receiver Hook-Up fee.

2.7 System peaking – After the satellite DISH is aimed, the system is grounded and wired, and the receivers hooked-up to the TV's check the switch setup and ensure the system is peaked.

 2.7.1 Press the **Menu** button to open the **Main Menu**.

 2.7.2 Select the **System Setup** option

 2.7.3 Select the **Installation option**.

 2.7.4 Select the **Multi-DISH Install** option.

 2.7.5 Select the **Check Switch** option.

 2.7.6 The receiver displays an **Attention** message.

 2.7.7 Select the **Check** option.

 2.7.8 The receiver displays an **Attention** message asking you to wait until the switch setup check is done.

 2.7.9 The receiver displays the **Installation Summary** menu. If the **Status** field displays an error, check the connections and select the **Detect Again** option.

 2.7.10 When the receiver displays a message indicating the correct switch type. Select the **Continue** option.

 2.7.11 Now the receiver displays two signal strength bars on the **DISH 500 Installation** menu.

 2.7.12 If required, fine-tune the aim of the DISH to receive the maximum signal strength from both satellites. **Remember not to adjust the skew angle. Be sure to tighten all bolts after adjustments.**

2.8 Testing of equipment for proper operation - Program as many of the customer's devices into the universal remote as required. Test all equipment hooked up for proper installation (TV, VCR, DVD, Stereo, Etc.).

2.9 Activate the customer account.

2.10 Customer orientation – Put the DISH Network remote in the customer's hand. Instruct them on the use of the system through the following exercises.

2.10.1 Demonstrate the use of the system (refer as necessary to the model specific product installation and/or owners manual), TV, VCR and other A/V components using the universal remote.

2.10.2 Demonstrate the local antenna system (If applicable) and channels.

2.10.3 Complete the Customer Experience Checklist

2.10.4 Fill out all applicable paperwork for completion of install. Collect all required paperwork.

3.0 Additional Information

Pole Mounts

PreInstallation

3.1 Confirm that the pole mount is the best option for the customer. If the customer is not the property owner, confirm that permission for the pole mount is provided by the landlord.

3.2 Before digging the hole, the utility company line locator company must be notified, and lines located in the area. The work order must be Rescheduled for installation after the lines are marked.

3.3 Determine where the frost line is in your area. The frost line is important when installing the mounting pole.

3.4 Up to 50 ft of trenching is included with the standard pole mount installation. Advise the customer that there may be a charge for the trenching if in excess of 50 feet.

Installation

3.5 After utility lines are located, return for the Rescheduled work order.

3.6 Dig a hole that is about 9 inches wide and 3 feet deep.

3.7 Supply a galvanized or aluminim pole 6 ft by 1-5/8". Wooden poles are not accepable. Prepare the base of the pole to keep it from twisting in the concrete. Use on of the following methods. After completing any of the following methods, it may also be helpful to place a brick or flat rock on the bottom of the hole to support the pole before pouring in the cement.

3.7.1 Place a bolt throught the base of the pole.

3.7.2 Drill two machine bolts into the bottom of the pole.

3.7.3 Cut an anble out of the base of the pole

3.7.4 Pound the base of the pole into an oval shape to prevent it from twisting in the concrete.

3.8 Drill two 3/16-inch holes in the pole approximately 3 inches up from the ground level to allow water to drain out of the pole.

3.9 Place the pole into the hole, wrap a piece of string around the pole, and stake the string at opposite sides of the pole.

3.10 Level the pole by eye and tighten the strings.

3.11 Place mixed cement (approximately 2-80 pound bags of Quickrete) into the hole and level the DISH pole. Take readings on all four sides of the pole with the level to ensure the pole is level.

3.12 Pat the surface of the concrete with the backside of the shovel until all rocks have been pushed down, the concrete tapers down from the pole, and the surface of the concrete is smooth.

3.12.1 It is important for all rocks to be pushed down so that crevices do not exist in the dry concrete.

3.12.2 Tapering the mixture down from the pole will help hold the pole in place while drying as well as after the concrete has cured.

Leveling and Sealing

3.13 Take at least 2 level readings on sides of the pole (at right angles) and check the readings periodically while the cement is drying. "Tweaking" to maintain level may be required during the process. **It is too late to tweak once the concrete has set!**

3.13.1 The pole must be vertical If not vertical, the elevation number that the receiver provides for the location will be inaccurate, and it will be difficult or impossible to find the satellites.

3.14 Work on other aspects of the installation for at least 60 minutes to allow the cement to dry before mounting the DISH to the pole. Remember to recheck the level of the pole while the cement is drying.

3.15 Immediately wash hands after working with cement.

Trenching and Cable Routing

3.16 When ready to route the cable from the DISH, trench the coaxial cale, using cable ties to neatly attach the coaxial cable to the pole. Secure firmly, but not too tightly, with the cable ties.

3.17 In the slot where the cable enters the ground, route cable through a piece of PVC conduit to provide protection from lawn mowers, weed eaters, squirrels, etc.

3.18 Dig the trench for the cable. The cable can be buried just under the sod, so the trench can be dug by hand. A trenching machine is not required.

3.19 Direct burial (flooded) cable (part number TBD) must be used in all application requiring the cable to be buried when not in conduit.

Frost Line Requirements – (Frost Line is the depth to which the soil freezes in your area).

3.20 Check with your local building code department to determine the exact depth you need to dig ppost holes.

3.21 It is recommended that you extend at least 8 inches deeper than the frost line in your area. You definitely must dig the hole below the FROST LINE.If the hole is not to frost line or below, when the ground freezes the pole will raise unevenly and be out of plumb.

Metal Poles

3.22 It is also possible to mount a DISH on a metal pole that is attached to an existing building. If a metal pole is used, the satellite DISH can be raised to gain a line-of-sight view of the satellite.

3.23 All safety requirements must be met, including grounding the mast/pole and the lead-in cable.

Wooden Poles

3.24 Wooden Poles do not meet DNSC standards and may not be used.

Cement-less Pole Mounts

3.25 Mounting location must have grass growing on it. Just dirt is not acceptable.

3.26 Mounting location must not be sand.

3.27 Mounting location must not be prone to flooding or have flowing water.

3.28 Position the C.P.M.

3.29 Twist using the CPM-IT until the base plate is flush with the ground - then to another ¼ turn.

3.30 Mount and Tune the DISH. Be sure to install cable guard.

4.0 Additional Information

    4.1 Service Codes:

        4.1.1 Custom Labor

        4.1.2 Custom Mounting

    4.2 Cementless Pole Mounts – Oracle Part Number 1107493

        4.2.1 Optional Supplier: Satellite Innovations

    4.3 Link to Utilities Notificaion/Call Before You Dig

        http://www.gopherstateonecall.org/diggingoutsideofminnesota.html

Gopher State One
Call.url (3 K...

No matter where you live you will need to follow the **minimum** guidelines indicated in the following diagram.

1 5/8" OD

24 in. Minimum

6 ft. Minimum

PVC Conduit Sweep

Concrete

6 in. Rod

Or

Flattened Or Oval End

3 ft. Minimum

7 in. Minimum Diameter