1.0 SELECTION AND HANDLING OF PLANT MATERIAL

1. PLANTS WITH UNDERSIZED OR BROKEN ROOT BALLS, EXCESSIVE CURLING AND/OR GIRDLING OF ROOTS, INJURY FROM ROUGH TREATMENT, OR DROUGHT STRESS WILL BE REJECTED.
2. PLEASE NOTE: IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO GUARANTEE THAT THE ROOT BALLS ARE PROPERLY SIZED. PLEASE BE AWARE THAT FOR PROPER SIZING, EXCESS ALIEN SOIL SHALL BE REMOVED PRIOR TO DIGGING. SEE DIAGRAM 1.2.
3. ROOT BALLS SHALL BE KEPT MOIST AT ALL TIMES.
4. PLANTS SHALL BE COVERED DURING TRANSPORT TO PREVENT DESICCATION FROM WIND. IN WARM WEATHER, PLANTS SHALL BE COVERED JUST PRIOR TO TRAVEL AND UNCOVERED IMMEDIATELY UPON REACHING DESTINATION TO AVOID HEAT BUILD UP UNDER THE TARP. PLANT MATERIAL SHALL NOT BE LEFT IN DIRECT SUNLIGHT OR ON HIGH HEAT ABSORPTION MATERIALS, SUCH AS BUT NOT LIMITED TO, ASPHALT AND/ OR METAL TRUCK BEDS TO PREVENT THE WILTING OF MATERIAL.
5. TREES SHALL BE MOVED BY THEIR ROOT BALL NOT THEIR TRUNK. TREES LARGER THAN 6" SHALL BE MOVED WITH PROPER STRAPPING SECURING ROOT BALL TO EQUIPMENT. WEAVE STRAPPING THROUGH THE LACING, NOT AROUND THE TRUNK. TREE TRUNK SHALL BE PROTECTED AT ALL TIME FROM COMPRESSION AND SEARING.
6. IF PLANTS ARE NOT PLANTED IMMEDIATELY ON SITE, PROPER CARE SHALL BE TAKEN:
   a. PLACE IN PARTIAL SHADE WHEN POSSIBLE.
   b. COVER ROOT BALL WITH MOISTENED MULCH OR AGED WOODCHIPS.
   c. SUPPLY PROPER IRRIGATION AS NOT TO ALLOW THE ROOT BALL TO DRY OUT.
   d. UNTIE PLANT MATERIAL AND ALLOW PROPER SPACING OF PLANTS FOR AIR CIRCULATION TO PREVENT DISEASE, WILTING, LEAF LOSS AND GENERAL HEATH OF PLANTS.

1.1 STANDARD ROOT BALL SIZES FOR NURSERY-GROWN SHADE TREES

DECIDUOUS TREES

CALIPER* (IN.)	HEIGHT RANGE	MAX. HEIGHT	MIN. BALL DIA. (IN.)	MIN. BALL DEPTH (IN.)
½"	5'-6'	8'	12"	9"
¾"	6'-8'	10'	14"	10 ½"
1"	8'-10'	11'	16"	12"
1 ¼"	8'-10'	12'	18"	13 ½"
1 ½"	10'-12'	14'	20"	13 ½"
1 ¾"	10'-12'	14'	22"	14 ½"
2"	12'-14'	16'	24"	16"
2 ½"	12'-14'	16'	28"	18 ½"
3"	14'-16'	18'	32"	14 ½"
3 ½"	14'-16'	18'	38"	23"
4"	16'-18'	22'	42"	25"
5"	18'-20'	26'	54"	32 ½"

MULTI-STEM TREES

HEIGHT	MIN. BALL DIA. (IN.)	MIN. BALL DEPTH (IN.)
4'	14"	10 ½"
5'	16"	12"
6'	18"	13 ½"
7'	20"	13 ½"
8'	22"	14 ½"
10'	24"	16"
12'	28"	18 ½"
14'	32"	21 ½"
16'	38"	25 ½"
18'	42"	28"
20'	48"	32"

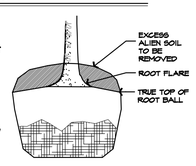
CONIFEROUS TREES

HEIGHT	MIN. BALL DIA. (IN.)	MIN. BALL DEPTH (IN.)
4'	16"	12"
5'	20"	13 ½"
6'	22"	14 ½"
7'	24"	16"
8'	27"	18 ½"
10'	34"	21 ½"
12'	38"	25 ½"
14'	42"	28"
16'	46"	32"
18'	50"	33 ½ "

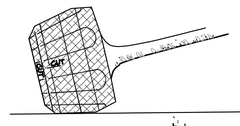
1. SEE AMERICAN STANDARD FOR NURSERY STOCK, ANSI Z60.1, FOR COMPLETE LIST OF NURSERY STANDARDS FOR OTHER TYPES AND SIZES OF TREES AND SHRUBS.
2. UP TO AND INCLUDING THE 4-IN. CALIPER SIZE, THE CALIPER MEASUREMENT INDICATES THE DIAMETER OF THE TRUNK 6 IN. ABOVE GROUND LEVEL. FOR LARGER SIZES, THE CALIPER MEASUREMENT IS TAKEN 12 IN. ABOVE GROUND LEVEL.

1.2 TREE ROOT FLARE DIAGRAM

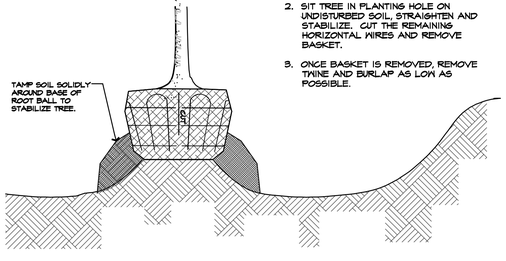
1. PRIOR TO DIGGING TREE AT NURSERY LOCATE THE ROOT FLARE. THIS WILL ALLOW FOR PROPER ROOT BALL SIZING BEFORE DIGGING.
2. PRIOR TO PLANTING, VERIFY THE TOP ELEVATION OF THE TRUE ROOT BALL BY REMOVING BURLAP. IF ALIEN SOIL IS PRESENT REMOVE UNTIL THE ROOT FLARE IS EXPOSED.
3. AT THIS TIME ANY GIRDLING OR CIRCLING ROOTS SHOULD BE REMOVED. EXCESSIVE GIRDLING OR CIRCLING ROOTS WILL CAUSE THE TREE TO BE REJECTED.
4. ONCE SOIL IS REMOVED RETIE DRUM LACING. IF BASKET IS PRESENT, RETIE TO BASKET.
5. IF TO MUCH SOIL IS REMOVE IN THE FIELD THE ROOT BALL IS EFFECTIVELY UNDERSIZED AND WILL BE REJECTED.



1.3 REMOVAL OF WIRE BASKETS (if present)



1. LAY TREE ON SIDE TO ACCESS BOTTOM OF TREE. CUT OFF THE BOTTOM OF THE BASKET AND REMOVE. CUT THE LOWEST HORIZONTAL WIRE OF BASKET ONLY. THIS MAY NOT BE ACCESSIBLE AFTER TREE IS IN THE PLANTING HOLE.
2. SIT TREE IN PLANTING HOLE ON UNDISTURBED SOIL, STRAIGHTEN AND STABILIZE. CUT THE REMAINING HORIZONTAL WIRES AND REMOVE BASKET.
3. ONCE BASKET IS REMOVED, REMOVE TWINE AND BURLAP AS LOW AS POSSIBLE.



1.4 GENERAL RANGE OF SOIL MODIFICATIONS AND VOLUMES FOR VARIOUS SOIL CONDITIONS

POST CONSTRUCTION SOIL CONDITION	MIN. WIDTH PREPARED SOIL FOR TREES (X)	TYPE OF PREPARATION
GOOD SOIL (NOT PREVIOUSLY GRADED OR COMPACTED, TOPSOIL LAYER INTACT)	6 FT. OR TWICE THE WIDTH OF THE ROOT BALL, WHICHEVER IS GREATER	LOOSEN THE EXISTING SOILS TO THE WIDTHS AND DEPTHS SHOWN ON PLANTING DETAILS.
COMPACTED SOIL (NOT PREVIOUSLY GRADED, TOPSOIL LAYER DISTURBED BUT NOT ELIMINATED)	15 FT.	LOOSEN THE EXISTING SOILS TO THE WIDTHS AND DEPTHS SHOWN ON PLANTING DETAILS, ADD COMPOSTED ORGANIC MATTER TO BRING THE CONTENT UP TO 5% DRY WEIGHT.
GRADED SUBSOILS AND CLEAN FILLS WITH CLAY CONTENT BETWEEN 5 AND 35 %	20 FT.	MINIMUM TREATMENT: LOOSEN EXISTING SOILS TO WIDTHS AND DEPTHS SHOWN, ADD COMPOSTED ORGANIC MATTER TO BRING ORGANIC CONTENT UP TO 5 % DRY WEIGHT, OPTIMUM TREATMENT: REMOVE TOP 6 TO 10 IN. OR THE EXISTING MATERIAL. LOOSEN EXISTING SOILS TO THE WIDTHS AND DEPTHS SHOWN IN THE PLANTING DETAILS, ADD 8 -10 IN. OF LOAM TOPSOIL.
POOR QUALITY FILLS, HEAVY CLAY SOILS, SOILS CONTAMINATED WITH RUBBLE OR TOXIC MATERIAL	20 FT.	REMOVE EXISTING SOILS TO THE WIDTHS AND DEPTHS SHOWN, REPLACE WITH LOAM AND TOPSOIL.

1.4 SOIL MODIFICATIONS cont.

1. THE QUALITY OF SOIL AVAILABLE FOR PLANTING VARIES WIDELY FROM SITE TO SITE, ESPECIALLY AFTER CONSTRUCTION ACTIVITY HAS OCCURRED. THE NATURE OF CONSTRUCTION RESULTS IN COMPACTION, FILLING, CONTAMINATION, AND GRADING OF THE ORIGINAL SOIL ON A SITE, RAPIDLY MAKING IT USELESS FOR PLANTING. PREVIOUS HUMAN ACTIVITY AT A SITE CAN ALSO AFFECT THE ABILITY OF THE SOIL TO SUPPORT PLANTS.
2. WHENEVER POSSIBLE THE SOIL IMPROVEMENT AREA SHOULD BE CONNECTED FROM TREE TO TREE.
3. ALWAYS TEST SOIL FOR PH, NUTRIENT LEVELS, AND TEXTURAL CLASS AND ADJUST THESE AS REQUIRED. SUBMIT TEST RESULTS TO THE LANDSCAPE ARCHITECT PRIOR TO PLANTING ALONG WITH SOIL IMPROVEMENT SUGGESTIONS. SOIL TESTS CAN BE ACQUIRED FROM YOUR LOCAL COUNTY AGRICULTURAL EXTENSION OR AT RUTGERS COOPERATIVE EXTENSION 732-932-9245.
4. LOOSEN SOIL WITH A BACK HOE OR OTHER LARGE COARSE-TILINS EQUIPMENT WHEN POSSIBLE, THIS SHOULD NOT BE PERFORMED WHEN SOIL IS FROZEN OR EXCESSIVELY WET. TILING THAT PRODUCES LARGE, COARSE CHUNKS OF SOIL IS PREFERABLE TO TILING THAT RESULTS IN FINE GRAINS UNIFORM IN TEXTURE. AFTER AREA IS LOOSEN IT SHALL NOT BE DRIVEN OVER BY ANY VEHICLE.
5. APPLY PRE-EMERGENT WEED CONTROL TO ALL PLANT BEDS PRIOR TO MULCHING. ENSURE COMPATIBILITY BETWEEN PRODUCT AND PLANT MATERIAL.
6. PLANT BED/TREE PIT DRAINAGE: LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER SURFACE AND SUBSURFACE PLANT BED DRAINAGE PRIOR TO INSTALLATION OF PLANTS. IF POOR DRAINAGE CONDITIONS EXIST, CORRECTIVE ACTION SHALL BE TAKEN PRIOR TO PLANTING.
7. ALL PLANTING SOIL SHALL BE AMENDED WITH THE FOLLOWING:
   a. MYCOR® TREE SAVER- IS A DRY GRANULAR MYCORRHIZAL FUNGI INOCULANT THAT IS MIXED IN THE BACKFILL WHEN PLANTING TREES AND SHRUBS. IT CONTAINS SPORES OF BOTH ECTOMYCORRHIZAL AND VA MYCORRHIZAL FUNGI (VAM), BENEFICIAL RHIZOSPHERE BACTERIA, TERRA-SORB SUPERABSORBENT HYDROGEL TO REDUCE WATER LEACHING, AND SELECTED ORGANIC MICROBIAL NUTRIENTS.
   DIRECTIONS FOR USE:
   USE 3-OZ PER EACH FOOT DIAMETER OF THE ROOT BALL, OR 3-OZ PER INCH CALIPER. MIX INTO THE BACKFILL WHEN TRANSPLANTING TREES AND SHRUBS. MIX PRODUCT IN A RING-SHAPED VOLUME OF SOIL AROUND THE UPPER PORTION OF THE ROOT BALL, EXTENDING FROM THE SOIL SURFACE TO A DEPTH OF ABOUT 8-INCHES (20-CM), AND EXTENDING OUT FROM THE ROOT BALL ABOUT 8-INCHES (20-CM) INTO THE BACKFILL. APPLY WATER TO SOIL SATURATION.
   COMPATIBILITY:
   SPECIES. MYCOR® TREE SAVER® IS EFFECTIVE FOR ALL TREE AND SHRUB SPECIES EXCEPT RHODODENDRONS, AZALEAS, AND MOUNTAIN LAUREL, WHICH REQUIRE ERICOID MYCORRHIZAE. USE OF TREE SAVER® WITH THESE SPECIES WILL NOT HARM THEM.
   SOIL PH. THE FUNGI IN THIS PRODUCT WERE CHOSEN BASED ON THEIR ABILITY TO SURVIVE AND COLONIZE PLANT ROOTS IN A PH RANGE OF 5 TO 9.
   FUNGICIDES. THE USE OF CERTAIN FUNGICIDES CAN HAVE A DETRIMENTAL EFFECT ON YOUR INOCULATION PROGRAM. SOIL APPLICATION OF ANY FUNGICIDE IS NOT RECOMMENDED FOR TWO WEEKS AFTER APPLICATION.
   OTHER PESTICIDES. HERBICIDES AND INSECTICIDES DO NOT NORMALLY INTERFERE WITH MYCORRHIZAL FUNGAL DEVELOPMENT, BUT MAY INHIBIT THE GROWTH OF SOME TREE AND SHRUB SPECIES IF NOT USED PROPERLY.
   b. HEALTHY START MACRO TABS 12-8-8
   FERTILIZER TABLETS ARE PLACED IN THE UPPER 4 INCHES OF BACKFILL SOIL WHEN PLANTING TREES AND SHRUBS. TABLETS ARE FORMULATED FOR LONG-TERM RELEASE BY SLOW BIODEGRADATION, AND LAST UP TO 2 YEARS AFTER PLANTING. TABLETS CONTAIN 12-8-8 NPK FERTILIZER, AS WELL AS A MINIMUM OF SEVEN PERCENT (7%) HUMIC ACID BY WEIGHT, MICROBIAL NUTRIENTS DERIVED FROM SEA KELP, PROTEIN BYPRODUCTS, AND YUCCA SCHIDIGERA, AND A COMPLEMENT OF BENEFICIAL RHIZOSPHERE BACTERIA. THE STANDARD 21 GRAM TABLET IS SPECIFIED HERE.
   DIRECTIONS FOR USE:
   FOR PLANTING BALLED & BURLAPPED (B&B) TREES AND SHRUBS, MEASURE THE THICKNESS OF THE TRUNK, AND USE ABOUT 1 TABLET (21-G) PER HALF-INCH. PLACE THE TABLETS DIRECTLY NEXT TO THE ROOT BALL, EVENLY DISTRIBUTED AROUND ITS PERIMETER, AT A DEPTH OF ABOUT 4 INCHES.

PROOF OF COMPLIANCE WITH SPECIFICATIONS:
THE CONTRACTOR WILL DEMONSTRATE COMPLIANCE BY SHOWING INVOICES TO PROVE PURCHASE OF PRODUCT IN SUFFICIENT QUANTITY TO COVER THE PROJECT AT THE RATES RECOMMENDED BY THE MANUFACTURER. INCLUDE PROJECT NAME, DATE OF PURCHASE OF PRODUCT, AND NAME OF CONTACT.

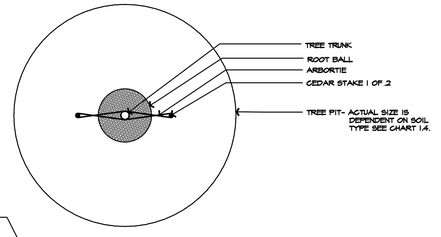
Plant Health Care, Inc., 440 William Pitt Way, Pittsburgh, PA 15238, Tel: (800) 421-9051, Fax: (412) 826-5445, www.planthealthcare.com

1.5 BARE ROOT TREE PLANTINGS

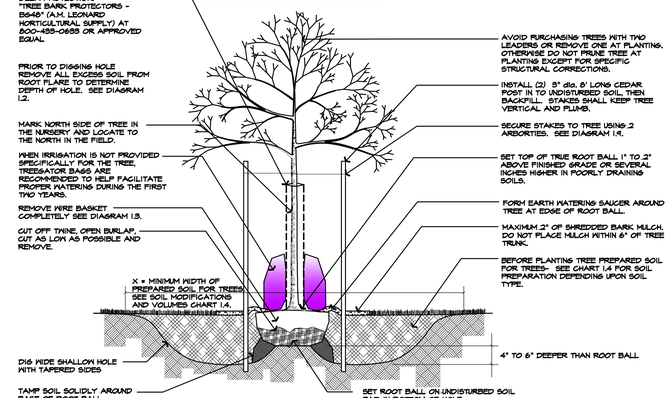
1. SUBMERGE ROOTS IN ROOT DIP GEL- BARE ROOT PLANTING AID WITH MYCORRHIZA or approved equal
   DIRECTIONS:
   EMPTY THE CONTENTS OF THIS PACKAGE IN FOUR GALLONS OF WATER. LET MIX STAND FOR TEN MINUTES, STIRRING OCCASIONALLY. THE PRODUCT WILL FORM A SLURRY OR THICK MIXTURE, SO THE ACTIVE INGREDIENTS WILL ADHERE TO THE ROOTS.
   DIP EACH PLANT FOR ABOUT 5 SECONDS. PLANT IMMEDIATELY.
   THERE IS NO HARM IN LEAVING THE PLANT IN THE MIX, BUT NO ADVANTAGE. FOUR GALLONS OF MIX WILL TREAT 100-500 PLANTS. THE NUMBER OF PLANTS DEPENDS ON ROOT MASS AND HOW MUCH OF THE MIXTURE THE ROOTS OF YOUR PLANTS ABSORB. THE ENDO AND ECTOMYCORRHIZA WILL BE USEFUL ON ALMOST ALL PLANTS. THE MAJOR EXCEPTIONS ARE RHODODENDRONS AND AZALEAS BUT THE ROOTS28 BIOSTIMULANT AND THE WATER HOLDING GEL WILL STILL BE BENEFICIAL.
2. CUT OFF ALL BROKEN ROOTS.
3. MAKE FRESH CUTS AT ENDS OF ROOTS.
4. DIG PLANT HOLES AT LEAST 3 X THE WIDTH AND DEPTH OF THE ROOT MASS.
5. PLANT ROOT FLARE AT GRADE OR GRAFT JUST ABOVE GRADE.
6. BACK FILL ALL HOLES WITH PLANTING MIX APPROVED BY LANDSCAPE ARCHITECT.

1.6 DECIDUOUS TREE PLANTING DETAIL

1. FOR CONTAINER GROWN TREES USE FINGERS OR SMALL HAND TOOLS TO PULL THE ROOTS OUT OF THE OUTER LAYER OF POTTING SOIL, THEN CUT OR PULL APART ANY ROOT CIRCLING THE PERIMETER OF THE CONTAINER.
2. INCORPORATE COMMERCIALLY PREPARED MYCORRHIZAE SPORES AND FERTILIZER TABLETS IN THE SOIL IMMEDIATELY AROUND THE ROOT BALL AT RATE SPECIFIED BY THE MANUFACTURER.
3. PRIOR TO INSTALLATION CONFIRM THE SOILS HILL DRAIN PROPERLY. IF NECESSARY PROVIDE PROPER DRAINAGE.
4. THOROUGHLY SOAK THE ROOT BALL AND THE ADJACENT PREPARED SOIL SEVERAL TIMES DURING THE FIRST MONTH AFTER PLANTING AND REGULARLY THROUGHOUT THE FOLLOWING TWO GROWING SEASONS. WHEN IRRIGATION IS NOT PROVIDED SPECIFICALLY FOR THE TREE, IT IS RECOMMENDED THAT GATOR BAGS ARE USED TO HELP FACILITATE THE PROPER AMOUNT AND RATE OF WATER ARE ACHIEVED. GATOR BAGS SHALL BE INSTALLED AT THE BEGINNING OF EACH GROWING SEASON AND REMOVED EACH FALL. THIS WILL ALLOW FOR THE AREA BENEATH THE GATOR BAG TO DRY OUT REDUCING THE GROWTH OF FUNGUS AND REMOVE POSSIBLE HIDING SPOTS FOR RODENTS. THE GATOR BAGS WILL BE REMOVED AT THE END OF THE SECOND GROWING SEASON UNLESS OTHERWISE ADVISED.

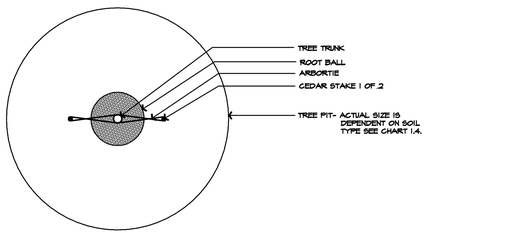


PLAN VIEW-NOT TO SCALE

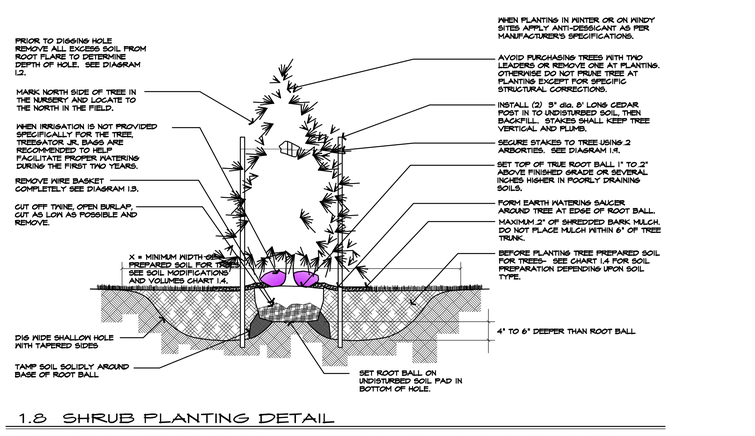


1.7 CONIFEROUS TREE PLANTING DETAIL

1. FOR CONTAINER GROWN TREES USE FINGERS OR SMALL HAND TOOLS TO PULL THE ROOTS OUT OF THE OUTER LAYER OF POTTING SOIL, THEN CUT OR PULL APART ANY ROOT CIRCLING THE PERIMETER OF THE CONTAINER.
2. INCORPORATE COMMERCIALLY PREPARED MYCORRHIZAE SPORES AND FERTILIZER TABLETS IN THE SOIL IMMEDIATELY AROUND THE ROOT BALL AT RATE SPECIFIED BY THE MANUFACTURER.
3. PRIOR TO INSTALLATION CONFIRM THE SOILS WILL DRAIN PROPERLY. IF NECESSARY PROVIDE PROPER DRAINAGE.
4. THOROUGHLY SOAK THE ROOT BALL AND THE ADJACENT PREPARED SOIL SEVERAL TIMES DURING THE FIRST MONTH AFTER PLANTING AND REGULARLY THROUGHOUT THE FOLLOWING TWO SUMMERS. WHEN IRRIGATION IS NOT PROVIDED SPECIFICALLY FOR THE TREE, IT IS RECOMMENDED THAT GATOR BAGS ARE USED TO HELP FACILITATE THE PROPER AMOUNT AND RATE OF WATER ARE ACHIEVED. GATOR BAGS SHALL BE INSTALLED AT THE BEGINNING OF EACH GROWING SEASON AND REMOVED EACH FALL. THIS WILL ALLOW FOR THE AREA BENEATH THE GATOR BAG TO DRY OUT REDUCING THE GROWTH OF FUNGUS AND REMOVE POSSIBLE HIDING SPOTS FOR RODENTS.

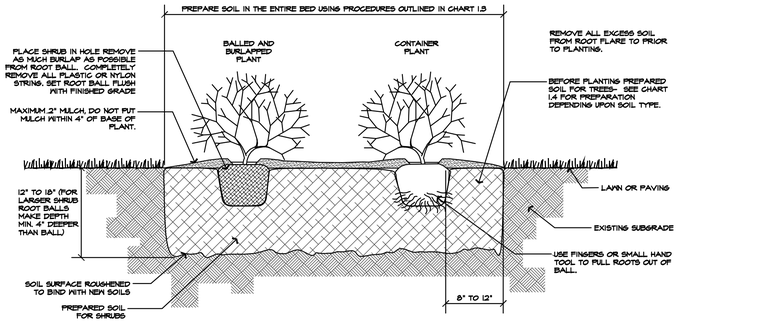


PLAN VIEW-NOT TO SCALE



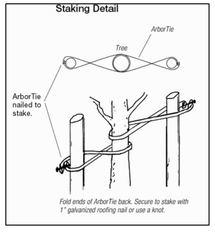
1.8 SHRUB PLANTING DETAIL

1. FOR CONTAINER GROWN TREES USE FINGERS OR SMALL HAND TOOLS TO PULL THE ROOTS OUT OF THE OUTER LAYER OF POTTING SOIL, THEN CUT OR PULL APART ANY ROOT CIRCLING THE PERIMETER OF THE CONTAINER.
2. INCORPORATE COMMERCIALLY PREPARED MYCORRHIZAE SPORES AND FERTILIZER TABLETS IN THE SOIL IMMEDIATELY AROUND THE ROOT BALL AT RATE SPECIFIED BY THE MANUFACTURER.
3. PRIOR TO INSTALLATION CONFIRM THE SOILS WILL DRAIN PROPERLY. IF NECESSARY PROVIDE PROPER DRAINAGE.
4. THOROUGHLY SOAK THE ROOT BALL AND THE ADJACENT PREPARED SOIL SEVERAL TIMES DURING THE FIRST MONTH AFTER PLANTING AND REGULARLY THROUGHOUT THE FOLLOWING TWO SUMMERS.



1.9 ARBORTIE DETAIL

1. LOOP TIE AROUND TREE AND NAIL TO CEDAR STAKE
2. REMOVE ALL STAKING AND TIES AT END OF FIRST GROWING SEASON.
3. CONSULT LANDSCAPE ARCHITECT FOR STAKING OF TREES LARGER THAN 6".
4. SOURCES INCLUDE:
   • GEMPLERS 1-800-332-6744 or GEMPLERS.COM
   • CSP OUTDOORS 1-800-542-6940 or CSPOUTDOORS.COM



1.10 PLANT MATERIAL GUARANTEE

1. LANDSCAPE CONTRACTOR SHALL SUPPLY A TWO YEAR PLANT MATERIAL GUARANTEE.
2. CONTRACTOR SHALL NOT BE RESPONSIBLE FOR THE PLANTINGS IF OWNER FAILS TO PROVIDE PROPER CARE AND WATERING DURING GUARANTEE PERIOD.
3. CONTRACTOR SHALL INSTRUCT OWNER AS TO PROPER CARE OF MATERIAL.