

COMMUNITY FORESTRY TREE PLANTING SPECIFICATIONS NDFS

200. TREE PLANTING SPECIFICATIONS

(7/2000)

A. NOMENCLATURE:

All plant materials used shall be true to name and size in conformity with the following standards:

1. Standardized Plant Names: 1942 Edition; American Joint Committee on Horticultural Nomenclature.
2. American Standard for Nursery Stock: 1986 Edition; American Association of Nurserymen.
3. Tree and Shrub Transplanting Manual: 1991 Edition; International Society of Arboriculture.
4. Principles and Practice of Planting Trees and Shrubs 1997 ISA – G. W. Watson, E. B. Himelick

201. MATERIALS

A. TREES

1. Quality: Trees shall be nursery grown, typical of their species or variety. All plants shall have normal well-developed branches, with full foliage when in leaf, and vigorous root systems. They shall be sound, healthy, vigorous, and free of defects, disfiguring knots, sunscald injury, plant diseases, insect eggs, borers, and any other forms of infestations. Trees must be self-supporting, with straight trunks and with leaders intact. All wounds present at the time of digging must exhibit callusing, with the bark at the edge of any such wound tight and intact. No abrasions or unhealed cuts are allowed on trunks of trees. All trees furnished shall be hardy and adaptable to the temperature extremes of North Dakota. The name of the retail and production nursery that the trees were obtained from will be supplied to the Project Supervisor before planting will be allowed. Such list will contain the name and address of nursery, type of tree, number of trees and caliper of trees, and location or origin of tree if different than location of nursery. Plants not meeting these standards are subject to rejection.

Community Projects using conservation tree stock should refer to the USDA-NRCS-North Dakota Technical Guide Notice ND-39. This publication has standards and specifications for farmstead and windbreak plantings. **Conservation tree stock is intended for non-ornamental use only.**

- a. Balled and Burlapped Trees (B&B)
B & B trees shall have a solid ball of earth of minimum or greater specified size (see table 1) held in place securely by burlap and secured with nails and heavy twine or rope. The twine used to tie the burlap should not be plastic. No trees with loose, broken or manufactured balls will be accepted
 - b. Bare-Root Trees (BR)
BR trees shall have a well-branched root system characteristic of the species. All damaged, injured, or broken roots shall be cut with a sharp, clean pruning shears, leaving no damaged, frayed or splintered cut surfaces.
 - c. Container Grown Trees (CG)
All CG trees shall be healthy, vigorous, well rooted and established in the container in which they are sold.
 - d. Tree Spade (TS)
Trees may be moved and planted with an approved mechanical tree spade. The tree spade shall move trees limited to the maximum size allowed for a similar B&B root ball diameter according to the American Standard for Nursery Stock, or the manufacturer's maximum size recommendation for the tree spade being used, **whichever is smaller.** (See table 1) Trees shall be planted at the designated locations in the manner shown in the plans and in accordance with applicable sections of the specifications. Trees should be centered in the tree spade and moved with solid ball of earth. Roots exposed shall be cut cleanly during transplanting operations.
2. Stock Size: The determining measurements for trees shall be the caliper and/or height. Caliper shall be taken six (6) inches (15.24 cm) above the ground for sizes up to four (4) inches (10.16 cm) and at twelve (12) inches (30.48 cm) above the ground for larger sizes. *Height dimensions, if specified, refer to the main body of the tree, from the root collar and above.* Stock furnished shall be a fair average between the minimum and maximum sizes specified. Large trees that have been cut back to the specified sizes will not be accepted.

202. PLANT PREPARATION

A. INSPECTIONS:

All inspection of trees is made at the discretion of the Project Supervisor. Approvals or disapprovals based on these inspections will be made in writing.

1. Certificates of Inspection: shall accompany the invoice for each shipment of trees as may be required by law for transportation. These Certificates of Inspection by the State of origin will be supplied to the Project Supervisor before planting will be allowed.
2. Plant Material Inspection: Trees and shrubs are subject to inspection by the Project Supervisor at their place of growth and upon delivery for conformity to required specification. Such approval shall not impair the right of inspection and rejection during progress of the planting work.
3. Inspection Request: When specified by the Project Supervisor, the Contractor shall request, in writing, inspection of the plant material, and inform the Project Supervisor of the location of the trees and shrubs he proposes to supply. This request shall be received at least three (3) calendar days prior to proposed digging dates.

B. HANDLING AND TRANSPORTING OPERATIONS:

All plants shall be packed, transported, and handled with utmost care to insure adequate protection against injury. Any inspection certificates required by law shall accompany each shipment invoice or order of stock, and, on arrival, the certificates shall be filed with the Project Supervisor.

1. Plant Labels: Each tree delivered to the planting site shall bear a plant label stating its correct size and botanical name. Trees that are not labeled will not be permitted to be planted.

203. PLANT INSTALLATION

A. PLANTING SEASONS:

Planting operations should be conducted under favorable weather conditions, preferably during the planting seasons herein defined:

Spring - April 15 to June 15
Fall - September 15 to November 1

B. PLANTING LOCATIONS:

The Project Supervisor will supply a landscape plan showing locations for individual trees. In some cases, the location may be inferred from reference to some tangible field object or from some intangible line, which can be constructed in the field.

1. Utility Verification: The Contractor shall utilize the one call system (1-800-795-0555) to determine and verify the location of all underground utility lines in the area of the work. The Contractor shall be responsible for all damage resulting from neglect or failure to comply with this requirement. Trees shall not be planted closer than ten (10) feet (3.04 m) from water service connections or five (5) feet (1.52 m) from gas lines, unless so directed by the Project Supervisor. The Contractor shall be responsible for moving trees after planting if they interfere with existing utilities.
2. Staking: The Project Supervisor shall stake the tree locations according to the Landscape Plan provided before planting proceeds.
3. Location Approval: The Project Supervisor shall give verbal approval of any changes from the approved planting plan. Approval of the staked location does not preclude rejection because of a change in the final tree location, after excavation of the planting hole.

C. PLANT HOLE EXCAVATION:

1. Minimum Planting Hole Size: Trees shall be planted in holes three to five times wider than the diameter of the root ball or spread of roots. The roots will have room to spread out and establish well if digging and backfilling have loosened the soil. The depth of the holes shall be as is necessary to accommodate the roots so that when the tree is placed therein it will not be necessary to raise or lower it to bring it to the proper finished grade. Soil shall be tamped in the bottom of the hole if it has been disturbed. Roots of bare rooted plants shall not be matted together, but arranged in their natural position with soil worked in among them.
2. Equipment: Augers should not be used for excavating the plant pits, unless used to break up the soil surface. The final planting hole must comply with section 203-C-1.

D. SETTING PLANTS:

All planting work shall be performed by personnel familiar with planting procedures and under supervision of a qualified foreman who will be on the job site at all times.

1. Preparing B & B Plants: Remove all ropes, string, or wire from root ball just prior to backfilling. Remove Burlap from top 1/3 of ball, if treated with a preservative remove as much as possible.
2. Preparing BR Plants: The hole shall be filled with backfill soils to the required level of installation of the plant. The plant shall be held in place and its roots spread out naturally.
3. Preparing CG Plants: All containers; metal, wooden basket, paper-mache, fabric, or plastic--must be removed prior to planting. This must be done in a manner as not to break the soil ball. The roots shall be examined to determine the extent of circling roots and appropriate actions will be taken to eliminate the problem.
4. Preparing TS Plants: Trees should be watered thoroughly before moving to hydrate the plant and to avoid soil sifting out during transplant. The sides of the planting hole should be roughed up with a shovel, rake, etc., to break up compaction caused by the spade. Trees should be placed at or slightly higher than the original grade to allow area settling. After planting, work loose soil into the area between the hole and the tree plug, and water thoroughly. *If these areas settle after watering refill with soil and water again.*
5. Positioning: Remove all twine or rope from the branches of the trees before positioning to determine the true shape of the tree, and adjust accordingly. Check final alignment of the tree in the pit just prior to backfilling. Set each plant with the same relationship to finish grade as it *bore* to the ground from which it was dug. Allow for normal settlement of the backfill material.
6. Backfilling: Existing topsoil is to be used as backfill if it is suitable, as determined by the Project Supervisor. Soil amendments are not to be used in planting pits, but soil improvements can be made throughout the planting area. (Adding organic matter and incorporating it evenly throughout the planting area.) Planting pits shall be backfilled carefully to fill all voids and to avoid root injury. When pits have been backfilled approximately 2/3 full, water thoroughly before placing and lightly tamping the remainder of the soil to the top of the pit. A saucer to retain water is not to be made with the backfill material. Any plants found planted too deep shall be raised at the Contractors expense.
7. Watering: Each plant pit should be watered immediately after finishing backfilling. Initial watering should continue until bubbles cease to rise in the watering basin. After water has soaked away, top dressing shall be added to planting pits to eliminate all holes, sunken areas, etc. caused by the soil settlement.
8. Mulching: Once the Project Supervisor has approved planting a layer of shredded wood chips, approximately four (4) inches (10 cm) thick, shall be placed on finished grade. Keep mulch at least four (4) inches (10 cm) from the trunk of the tree. Weed barrier, although not mandated, is strongly encouraged; to help reduce maintenance and decrease competition from undesired plants.

E. INITIAL PLANTING MAINTENANCE:

Immediately following the completion of work covered in the proceeding section, the following operations of maintenance to the new planting shall be performed.

1. Staking is not typically recommended; however, when necessary, follow current recommendations of Project Supervisor. Staking must be done very carefully with a broad, soft strapping material such as woven belt fabric. Drive two stakes into the ground just outside the perimeter of the planting hole. For each stake, attach one end of the strapping material to the tree at the lowest practical level to maintain it upright and fasten the other end to the stake. It is important that the tree is allowed to move at least 4" - 6" (10 – 15.25 cm) after being staked. The stakes, in most situations, should not be left in place for more than one (1) year.
2. Pruning shall be limited to the removal of injured or dead twigs and branches. All pruning cuts should be clean and smooth, with the bark intact and uninjured at the edges. Do not head back leader or lateral branches.
3. Cleanup: The entire area around the planting site shall be restored to its original condition. Sidewalks, streets, and other paved areas shall be cleaned of any dirt, mud or debris. This cleanup will take place on a daily basis as the work proceeds. The Contractor shall be held responsible for any damage to public or private property as a result of the planting operations.

204. MAINTENANCE, INSPECTION, GUARANTEES AND REPLACEMENTS

A. EXTENDED MAINTENANCE:

1. The Contractor shall review and approve a maintenance schedule provided by the Project Supervisor. The Project Supervisor will assume the responsibility of maintenance, (including watering, fertilizing, spraying, weeding, cultivating, repairing and tightening support stakes, etc), upon completion of planting. The Contractor shall periodically inspect the project during the guarantee period and immediately notify the Project Supervisor of any irregularities or deficiencies, which will affect his guarantee.
2. The Contractor shall also be responsible for resetting of any plants to an upright position or to proper grade, and for the removal and replacement of any dead plant material.

B. GUARANTEE:

All trees shall be guaranteed to remain alive and healthy for a minimum of twelve, (12) full months.

C. INSPECTIONS:

Inspection of the planting work, to determine its completion for beginning the guarantee period, will be made by the Project Supervisor or his/her representative upon notice requesting such inspection by the Contractor at least two (2) days prior to the anticipated date of inspection. All trees must be alive, healthy and planted properly in order to be considered complete. Each phase of this project will be inspected separately if the project is installed in phases.

D. FINAL INSPECTIONS:

1. Inspection of the trees to determine final acceptance will be made at the conclusion of the guarantee period by the Project Supervisor or his/her representative. No plants will be accepted unless they are alive and healthy. The Contractor shall replace any plants, which are dead or, in the opinion of the Project Supervisor, are in an unhealthy or unsightly condition, and/or have lost their natural shape due to dead branches. The cost of such replacement(s) shall be borne by the Contractor and shall be included in his bid price for this section of the work.
2. Final Acceptance is granted in writing by the Project Supervisor and such document shall note the complete fulfillment of this specification and release of the Contractor, upon receipt of the Final Acceptance document, shall be eligible for complete payment under the terms of this contract unless complete payment has already been made.

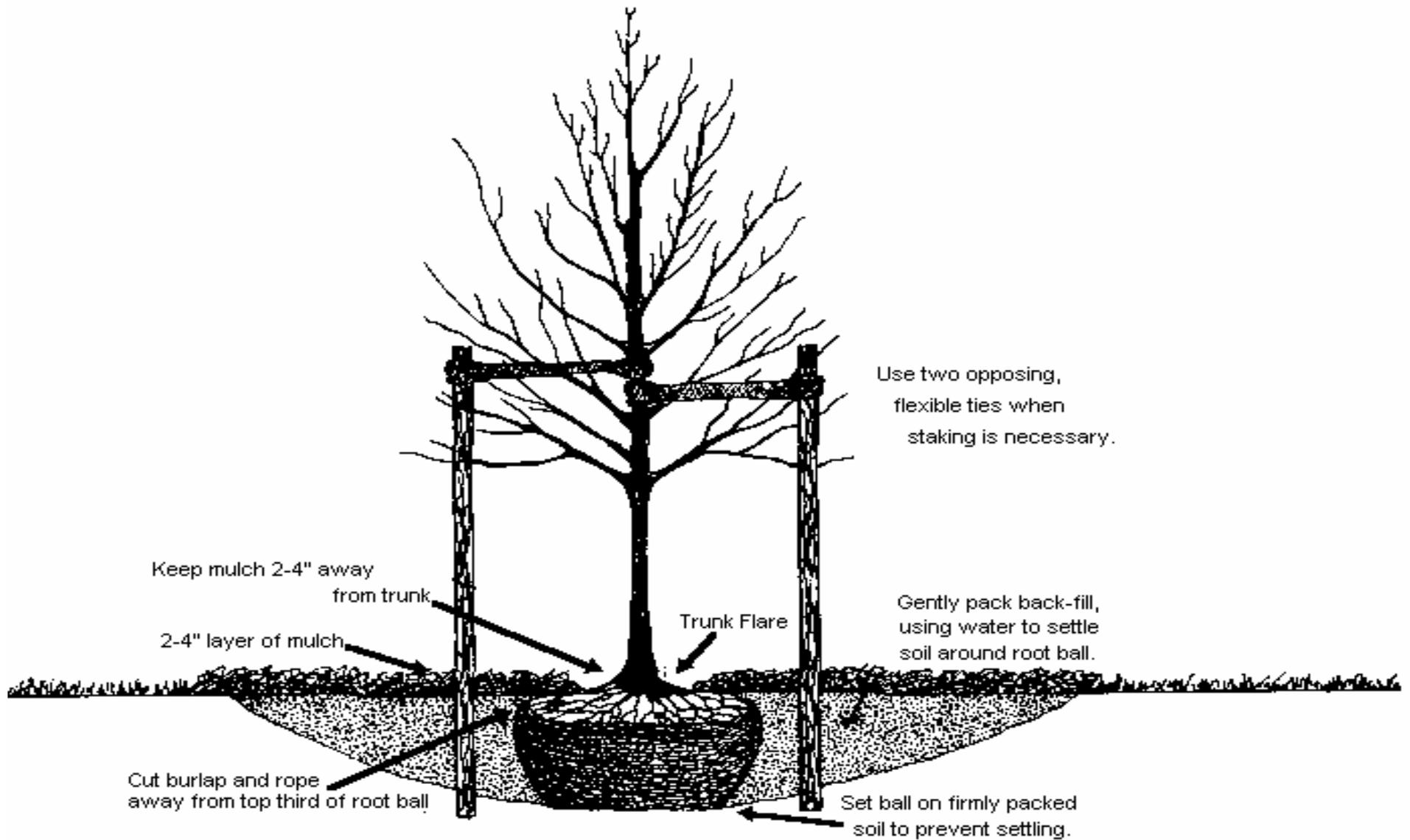
Table 1. Recommended minimum size of soil ball for deciduous and evergreen trees and shrubs.

Large deciduous shade trees		Deciduous shrubs and small tree species		Coniferous trees	
Diameter of tree (#1)	Minimum diameter of ball	Height of plant	Minimum diameter of ball	Height of plant	Minimum diameter of ball
0.5 - 1.0 in. 1.3 – 2.5 cm	16 in. 40.6 cm	1.5 – 2 ft .46 - .61 m	10 in. 25.4 cm	1.5 – 2 ft. .46 - .61m	12 in. 30.5 cm
1.0 - 1.5 in. 2.5 – 3.8 cm	18 in. 45.72 cm	2 – 3 ft. .61 - .91 m	12 in. 30.5 cm	2 – 3 ft. .61 - .91 m	14 in. 35.6 cm
1.5 - 2.0 in. 3.8 – 5.1 cm	22 in. 55.9 cm	3 – 4 ft. .91 – 1.22 m	14 in. 35.6 cm	3 – 4 ft. .91 – 1.22m	16 in. 40.6 cm
2.0 - 2.5 in. 5.1 – 6.4 cm	24 in. 61 cm	4 – 5 ft. 1.22 – 1.52 m	16 in. 40.6 cm	4 – 5 ft. 1.22 – 1.52 m	18 in. 45.7 cm
2.5 - 3.0 in. 6.4 – 7.62 cm.	28 in. 71.1 cm	5 – 6 ft. 1.52 – 1.83 m	20 in. 50.8 cm	5 – 6 ft. 1.5 – 1.8 m	20 in. 50.8 cm
3.0 - 3.5 in. 7.6 – 8.9 cm	32 in. 81.3 cm	6 – 7 ft. 1.83 – 2.13 m	24 in. 61 cm	6 – 7 ft. 1.83 – 2.13 m	24 in. 61 cm
3.5 - 4.0 in. 8.9 – 10.2 cm	38 in. 96.5 cm	7 – 8 ft. 2.13 – 2.44 m	28 in. 71.1 cm	7 – 8 ft. 2.13 – 2.44 m	28 in. 71.1 cm
4.0 - 4.5 in. 10.2 – 11.4 cm	42 in. 106.7 cm	8 – 9 ft. 2.44 – 2.74 m	32 in. 81.3 cm	8 – 9 ft. 2.44-2.74 m	32 in. 81.3
4.5 - 5.0 in. 10.16 – 12.7 cm	48 in. 121.9 cm	9 – 10 ft. 2.74 – 3.05 m	36 in. 91.44 cm	9 – 10 ft. 2.74 – 3.05 m	36 in. 91.44 cm
5.0 - 5.5 in. 12.7 – 14 cm	54 in. 137.2 cm	10 – 12 ft. 3.05 – 3.66 cm	40 in. 101.6 cm		
5.5 in. > (#2) 14 cm > (#2)		12 – 14 ft. 3.66 – 4.27 m	44 in. 111.8 cm		
		14 – 16 ft. 4.27 – 4.88 m	48		
		16 - 18	54		

1. Diameter of trunk taken 6 inches (15 cm) above ground level up to and including 4 inch (10 cm) diameter trees and 12 inches (30 cm) above ground level for larger sizes.
2. Trees over 5.5 inches (14 cm) in trunk diameter measured 12 inches (30 cm) above ground level should have 10 inch (25 cm) diameter soil ball per inch of trunk diameter, that is, a 7 inch (18 cm) diameter tree should have a 70 inch (1.8 m) soil ball.

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