

FOREST MANAGEMENT PLAN

BERLIN MUNICIPAL FOREST

IRISH HILL BLOCK

FEBRUARY 1997

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INTRODUCTION

This plan is an update of a forest management plan made for the Town of Berlin in 1991. Field information was gathered in February 1996, using the NED/SIPS inventory system developed and recently distribute for field testing by the U.S. Forest Service.*

Activities since 1991 include a major timber sale in Stands 1, 2 and 3; establishment of a Butternut Study by The University of Vermont in a portion of Stand 2 and two firewood cutting operations in Stands 1, 2 and 3.

The Berlin Town Forest is located on the west side of Town Road 43 and bordered on the south by the Berlin-Northfield Town Line. The parcel slopes moderate to steep toward the east with the western boundary being the height of land between Berlin Pond and VT Route 12.

This plan divides the forest into four (4) management areas. An acreage estimate, stand condition, stand data, suggested management objectives, and suggested management prescriptions are given for each area.

The management objectives and stand prescriptions are given primarily from concern for timber and wildlife resources. The plan can be modified to accomplish other goals or objectives that may be of concern to the citizens of Berlin. Nature trails, recreation paths, water quality, and firewood production are common and secondary goals in other town forests.

*NED/SIPS - is short for the Northeast Decision Model/Stand Inventory Processor and Simulator. NED/SIPS is a stand based program for managing forest inventory data and for performing analysis upon those data. It allows the user to enter and edit field-collected data; to simulate the use of certain standard cutting practices; to project stand growth into the future with any of the four incorporated growth simulators; and to generate a wide variety of reports, including species-by-diameter tables, stand summary reports, cut comparison tables, stand-development summaries, and economic analysis, all using the same data.

AREA #1 - (24 Acres)STAND CONDITIONS:

Area #1 is a pioneer hardwood poletimber stand consisting of a mix of White Birch, Sugar Maple, Aspen, Hophornbeam and Black Cherry. It apparently grew up from pasture as there is little evidence of past cutting in the area. Records show there was some apple tree release and a small amount of firewood removed between 1971 and 1975. The topography is gently sloping with some ledge outcroppings. A group of natural springs feed a small brook that runs through the area. This area received a light thinning during the harvesting operation conducted in 1994.

STAND DATA:

Site Class:	2
Access Distance:	0.4 miles
Total Basal Area/Acre:	82 square feet
Acceptable Growing Stock:	50 square feet
Unacceptable Growing Stock:	32 square feet
Mean Stand Diameter:	8.0 inches
Trees/Acre:	209 trees
Volume/Acre:	1063 board feet sawlogs 16 cords pulp

MANAGEMENT OBJECTIVE:

Grow high quality hardwood sawtimber on an unevenaged system. The diameter limit for high value hardwoods will be 22 inches and the normal cutting cycle will be between 12 and 18 years. The present Q factor is 2.2, the goal Q factor is 1.3.

PRESCRIPTION:

The next scheduled harvest will be around 2009. Follow unevenaged marking guidelines and reduce the residual basal area to 80 square feet. Some additional patch cutting may be desirable to maintain an Aspen component in the stand.

Other activities that could be done to enhance the area:

- * Release apple trees from competing to benefit wildlife.
- * Check roads and trails annually for erosion problems.
- * Plant some mast producing trees and shrubs in openings created by the present harvesting and along roads.

AREA #2 - (122 Acres)STAND CONDITIONS:

Area #2 is the largest and best quality stand on the Town Forest. It is a small sawtimber stand stocked predominantly with Sugar Maple (75%) and lesser amounts of White Ash, Butternut, Beech and Birch. The quality and stocking levels within the stand vary somewhat depending on depth of soil, steepness of slope and past cutting practices. As a result of the harvesting operations in 1994, the entire stand can now be accessed internally.

Because of the quality and quantity of Butternut found in Stand #2, it was selected as a Butternut Canker study site by the University of Vermont in 1994. A Letter of Understanding and a map of the study area can be found in Appendix A.

STAND DATA:

Site Class:	1 and 2
Access Distance:	0.4 miles
Total Basal Area/Acre:	76 square feet
Acceptable Growing Stock:	65 square feet
Unacceptable Growing Stock:	11 square feet
Mean Stand Diameter:	10.2 inches
Trees/Acre:	139 trees
Volume/Acre:	3459 board feet 15 cords pulp

MANAGEMENT OBJECTIVE:

Grow high quality hardwood sawtimber on an unevenaged system. Diameter limit for high quality hardwoods will be 22 inches and the normal cutting cycle will be between 12 and 18 years. Suitable skid roads should be maintained as recreation paths. The present Q-factor is 1.6, the goal Q-factor is 1.3.

PRESCRIPTION:

The next scheduled harvest will be around 2009. Follow unevenaged marking guidelines and reduce the basal area to 80 square feet, using individual tree and group selection.

Other activities that could be done to enhance the area:

- * Continue Butternut Canker Study.
- * Release scattered groups of apple trees to benefit wildlife.
- * Finish fuelwood salvage - 1996.

AREA #3 - (7 Acres)STAND CONDITIONS:

Area #3 is a low quality stand of hardwoods. It is a poletimber stand stocked predominantly with Sugar Maple (66%), White Birch, Aspen, Beech and Red Maple. The larger trees in the stand must have been open grown in that they are short bodied and poorly formed. The smaller diameter trees are better formed and have some potential to produce timber in the future.

STAND DATA:

Site Class:	2
Access Distance:	0.7 miles
Total Basal Area/Acre:	73 square feet
Acceptable Growing Stock:	43 square feet
Unacceptable Growing Stock:	30 square feet
Mean Stand Diameter:	8.6 inches
Trees/Acre:	189 trees
Volume/Acre:	892 board feet 13 cords pulp

MANAGEMENT OBJECTIVE:

Grow high quality hardwood sawtimber on an unevenaged system. Diameter limit for high quality hardwoods will be 22 inches and the normal cutting cycle will be between 12 and 18 years. The present Q-factor is 1.7 and the goal Q-factor is 1.3.

PRESCRIPTION:

Remove the cull and low grade wood during a firewood salvage operation during the summer of 1996. Once adequate regeneration is established, manage as a two aged stand until it is feasible to convert to unevenaged management. Check for regeneration around 2000, if none is established, consider under planting.

Other activities that could be done to enhance the area:

- * If planting necessary, consider either Pine or Oak.

AREA #4 - (15 Acres)STAND CONDITIONS:

Stand #4 is very similar to Stand #2 with the exception it is located on the ridge top and is less accessible. It is a small sawtimber stand in which Sugar Maple makes up over 90% of the stocking with Beech, Ash, Birch and Red Oak representing the balance. No cutting was done in this area during the 1994 harvest.

STAND DATA:

Site Class:	2
Access Distance:	1.2 miles
Total Basal Area:	83 square feet
Acceptable Growing Stock:	40 square feet
Unacceptable Growing Stock:	43 square feet
Mean Stand Diameter:	11.5 inches
Trees/Acre:	126 trees
Volume/Acre:	2273 board feet 16 cords pulp

MANAGEMENT OBJECTIVE:

Grow high quality hardwood sawtimber on an unevenaged system. Diameter limit for high quality hardwoods will be 22 inches and the cutting cycle will be between 24 and 30 years. The present Q-factor is 1.4 and the goal Q-factor is 1.3. Aesthetics are a concern for this ridgeline stand that is visible from a good portion of Washington County.

PRESCRIPTION:

Look at for possible thinning during the next harvesting operation conducted in Stand #2. Use individual tree and group selection to improve the quality and aesthetics of the area.

Other activities that could be done to enhance the area:

- * A scenic vista and ridgeline hiking trail might be future possibilities.

Berlin Town Forest - Irish Hill Block

Management Schedule - 1997 to 2010

<u>Year</u>	<u>Stand</u>	<u>Activity</u>
1997-2002	1,2 and 3	Release and prune scattered groups of apple trees
	1,2,3 and 4	Develop trail system from existing network of skid roads
	4	Paint and blaze all boundaries
		Locate area for possible scenic vista
2000	1 and 3	Check regeneration, if inadequate, plant a combination of pine and oak seedlings
2005-2010	1,2,3 and 4	Recon for possible timber sale
2010	1,2,3 and 4	Repaint and blaze all boundaries
		Update management plan annually
Annually	1,2,3 and 4	Check all trails and roads for signs of erosion and perform needed maintenance work

TOWN OF BERLIN
WASHINGTON COUNTY
VERMONT

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MUNICIPAL OFFICES
(802) 229-9298

BERLIN CORNERS
RFD 4, Box 2375
MONTPELIER, VERMONT 05602

March 7, 1994

Mr. Russ Barrett
State of Vermont
Agency of Natural Resources
324 North Main Street
Barre, Vermont 05641

Dear Russ:

As a follow-up to our phone conversation of March 2, 1994, please be advised that the Town of Berlin has no objection to the Agency of Natural Resources and the University of Vermont undertaking a Butternut Canker Study on lands owned by the Town of Berlin. More specifically, the study will involve approximately a 30 acre portion of the Kelly lot, so-called, and will not interfere with the forest management program that is taking place on the same lot.

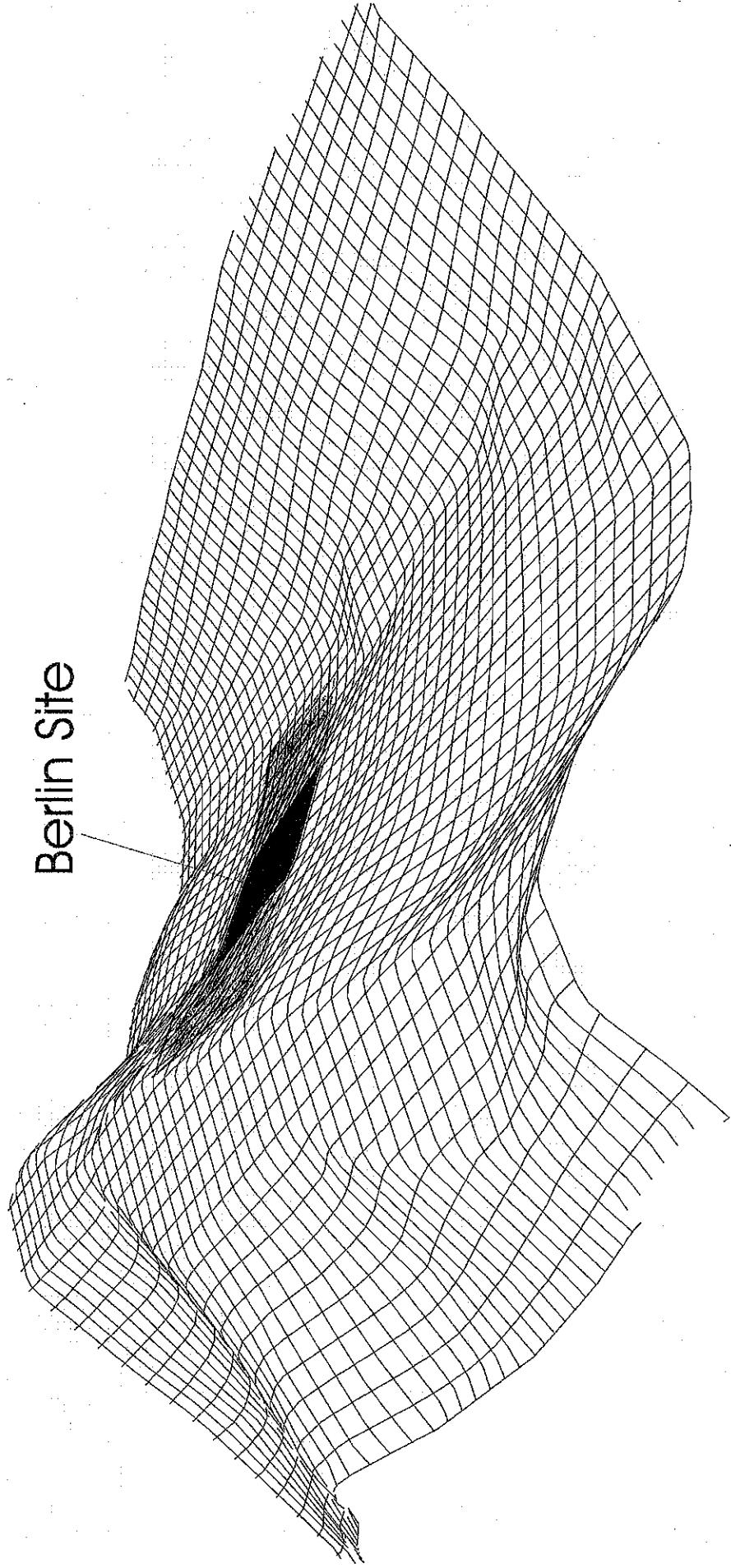
Very truly yours,



BRIAN J. GREARSON, CHAIRMAN
BOARD OF SELECTMEN

BJG:lynn

Berlin Surface Model Showing Butternut Study Area



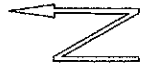
Berlin Site Main Stem Cankering of Butternut Trees

Legend

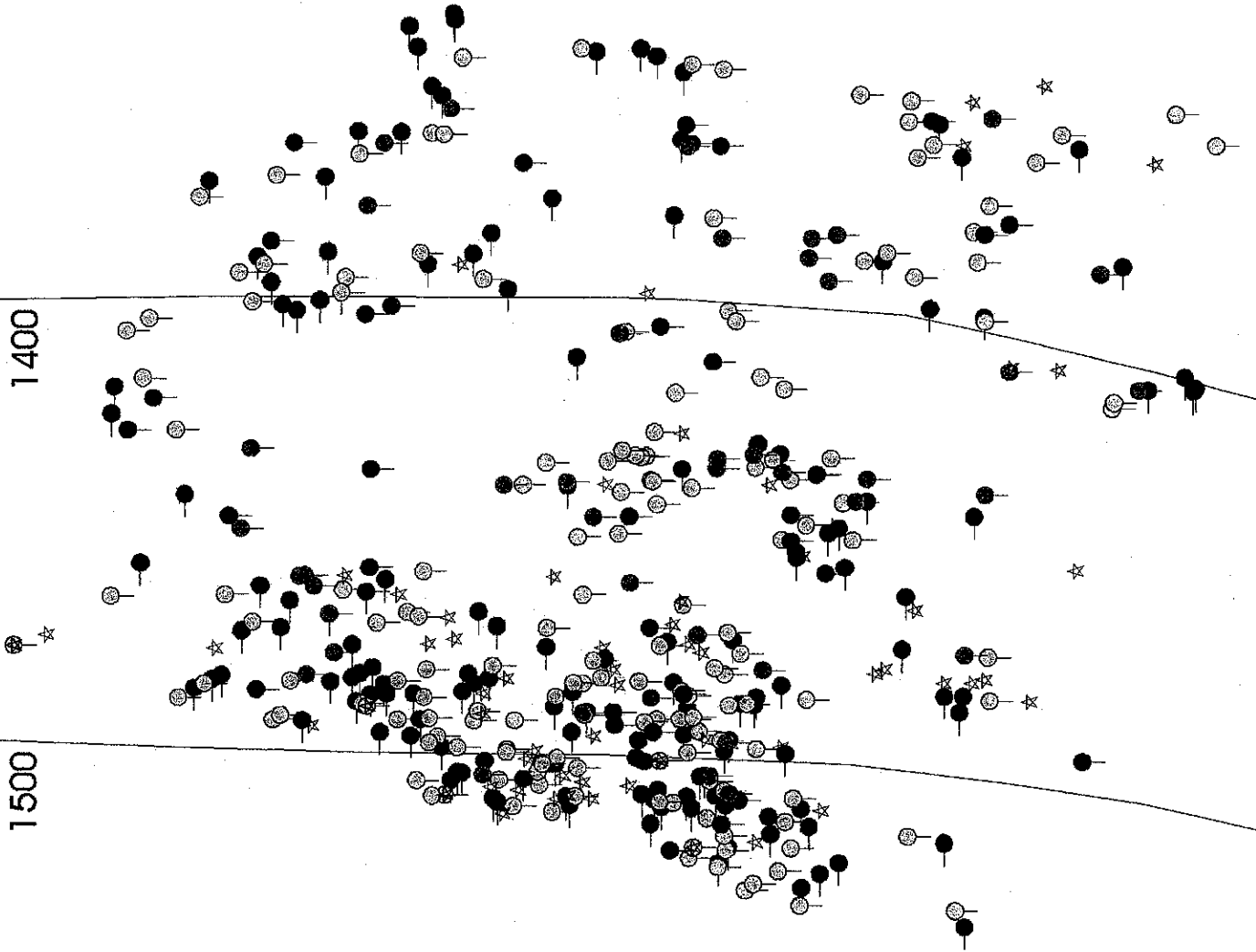
- ☆ Premium Butternut Trees
- ⊙ Light Cankered Living Trees
(0-5 cankers main stem)
- Medium Cankered Living Trees
(6-10 cankers main stem)
- Heavily Cankered Living Trees
(11+ cankers main stem)
- Dead Butternut Trees



Contour Interval: 100 Feet



John Landis 1995
UVM Forest Pathology



Berlin Town Forest -Irish Hill Block**Harvest Record**

1971 - Timber sale marked and administered by Vt. FPR Municipal Forester Bob Hoffman. 81,000 board ft. of timber harvested. Sale was bought by Eaton Lumber Co. and cut by Paul and Everett Hutchins. The Town received \$4,027 in stumpage receipts.

1974 - 1976 - Between 300 and 400 cords of firewood were marked by State Forester Wes Guyette. The firewood was bought and harvested by town residents. The Town received \$644 in fuelwood receipts.

1991 - The Town requested that the Dept. of FP&R make a forest management plan for the Irish Hill lot and to proceed with a timber sale if warranted.

1993 - Department of FP&R, under supervision of County Forester Russ Barrett, marked a sale and improvement cut in areas 1, 2 and 3 as designated in the forest plan. 176,000 board feet of timber and 450 cords of firewood were marked for harvest and put out to competitive bid. A. Johnson Lumber Co. bought the sale and had Merlin Cox of Milton do the cutting. The Town received \$47,255.90 in stumpage receipts. Bids for the marked timber ranged from \$24,593 to \$47,255.

1995-1996 - An additional 150 cords firewood and approximately 8,000 to 10,000 bd. ft. of timber were harvested over the two year period. In 1995 the wood was cut by Brent Slayton of Williamstown and in 1996 the work was done by Paul Mansfield of Northfield. These were trees that had been marked for, but not cut during the 1993 harvest. The town received approximately \$1000 stumpage for what was essentially a clean up operation.

Acceptable Growing Stock (AGS) - A tree that presently has or has the capability of producing a 12' number 2 grade USDA sawlog.

Basal Area - The cross-sectional surface area of a tree stem at 4.5 feet above the ground. Basal area per acre (BA/AC) is the sum of all stems an acre. A measure of stand density and relative stocking expressed in square feet.

Board Foot - The volume of a piece of wood 1 inch thick, 1 foot wide and 1 foot long or its equivalent. Woodlot volumes are commonly expressed in thousand board feet (MBF)

Butternut Canker - A mysterious and deadly fungus found throughout the range of Butternut. A black oozing canker that eventually girdles the tree. There is no known cure for the disease.

Cord - A volume of wood equivalent to 4'x4'x8' (128 cubic feet).

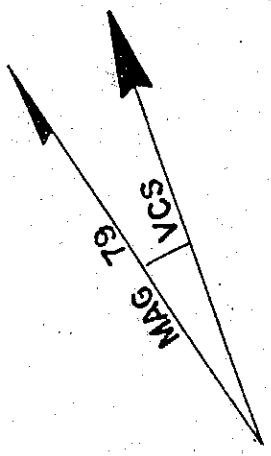
Poles, Poletimber - Trees 4" to 10" diameter at breast height (4.5').

Q-Factor Guideline - Refers to the average quotient or ratio between numbers of trees in successively smaller diameter classes. Q-factors ranging from 1.3 to 1.7 have been recommended as goals in unevenaged management of Northern Hardwood stands. The lower the Q, the higher the number and proportion of large trees in the stand.

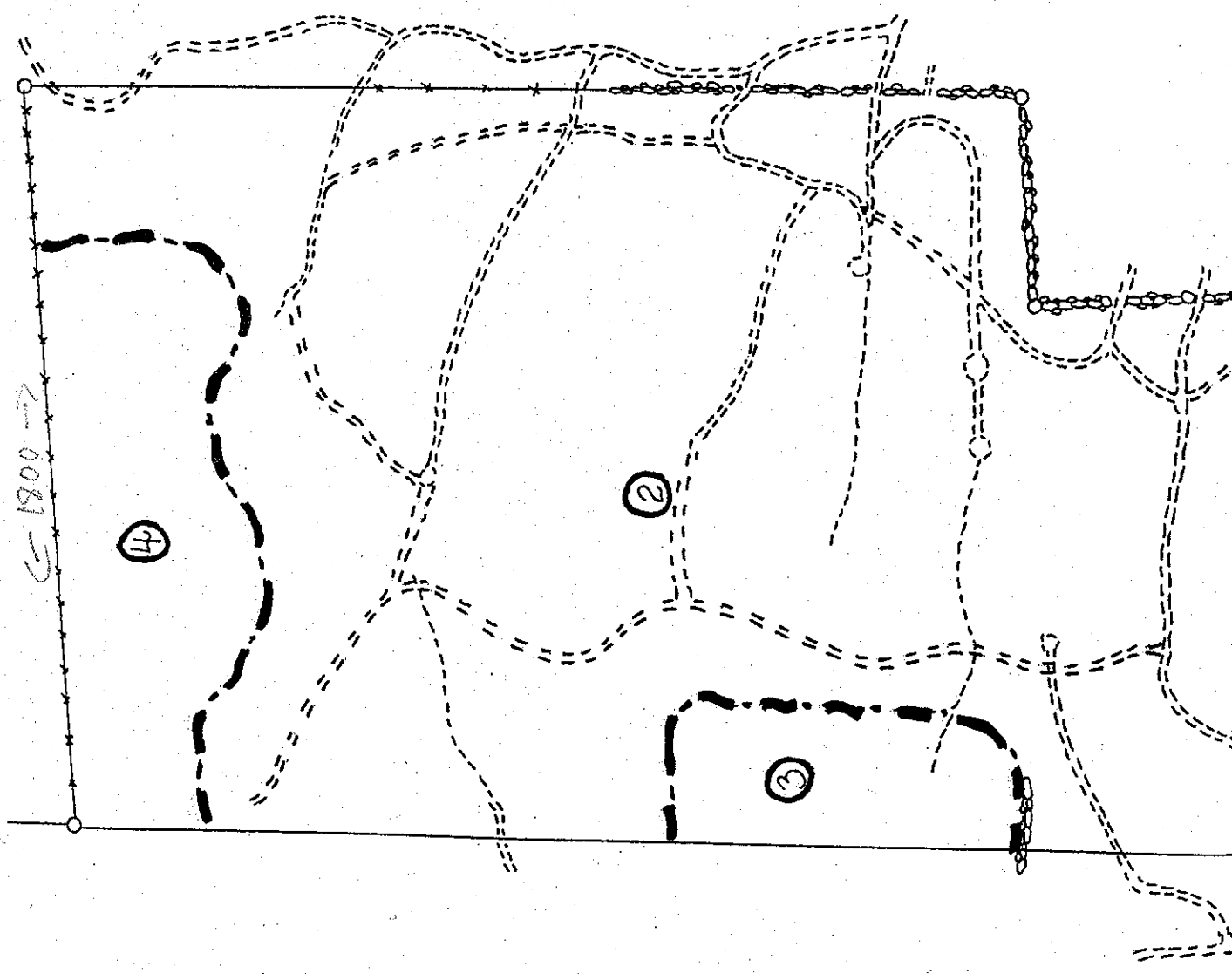
Sawtimber - Trees 11" diameter and larger at breast height.

Site Class - The relative value a woodland site has to produce trees. It is based primarily on soil type, steepness and elevation. The range is from 1 to 4 with 1 being excellent and 4 being non-productive.

Stand - A contiguous group of trees sufficiently uniform in species, size, and condition to be recognized as a unit.



TOWN ROAD ~~~~~
WOODS ROAD = = = =



SPRING



STREAM



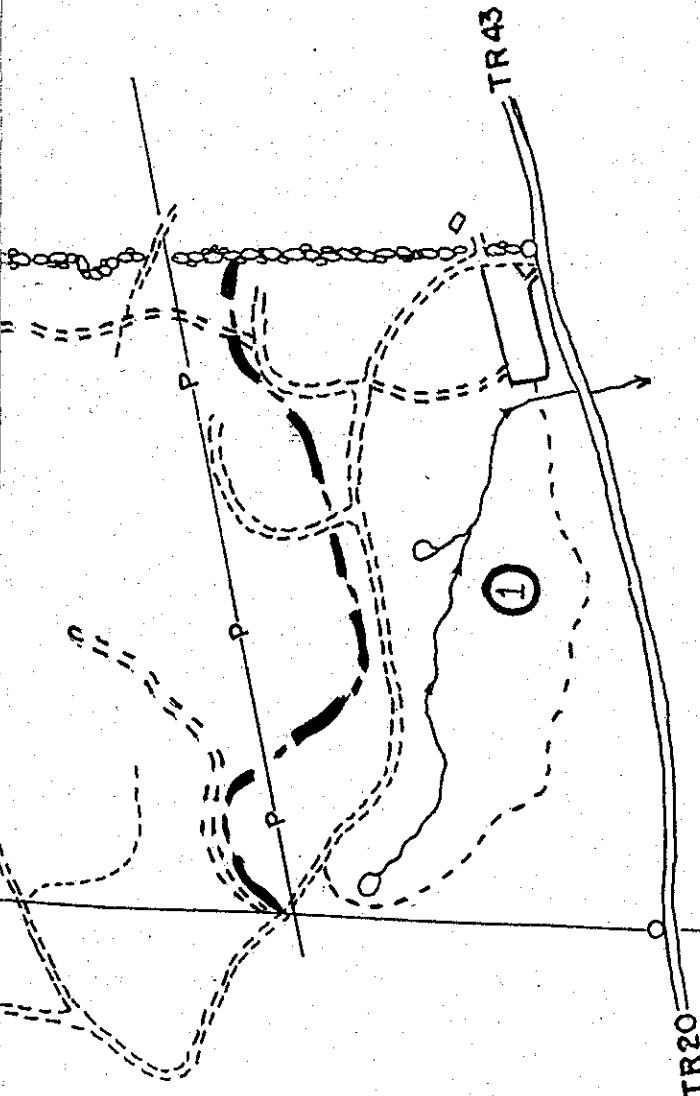
STONE WALL



FENCE

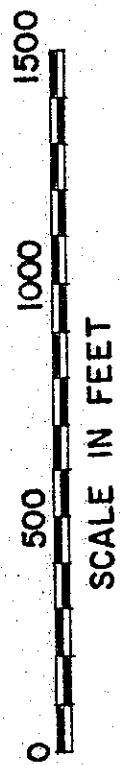


TIMBER TYPE



NORTHFIELD
BERLIN

BERLIN MUNICIPAL FOREST



ORTHO PHOTOS 140184 & 144184 SERIES 5000 1979

RJT + RB 7/96
10-91