

**TIMBER SALE PRESCRIPTION****GENERAL**

Date	Forest, Mineral and Fire Management Unit
10/30/09	Grayling
Timber Sale Number (if applicable)	Sale Name (or prescription name)
720021001	Compartment 176 Mix

LOCAL CONTACT

Name	Telephone
Joan Charlebois	(989) 348-6371 ext: 7443
Email Address	FAX
charleboisj@michigan.gov	(989) 348-8825

 Map of Project Area Attached**LEGAL DESCRIPTION**

T27N R04W Section(s) 4 Description: Sec 4-E1/2, E1/2NW

Compartment(s): 176 (YOE 2010) stands 11, 12, 13, 15, 25 & 35

THIS TIMBER SALE CONTRACT IS BASED ON THE FOLLOWING ACREAGE

Estimated Acres: 155

Source: OI GPS Other**TREATMENT & OBJECTIVE**

STAND #	COVER TYPE	ACRES	BA	TREATMENT	MANAGEMENT OBJECTIVE
11	M6	25	150	Thinning	Northern Hardwood
12	A6	9	100	Final Harvest	Aspen
13	R6	48	190	Thinning	Red Pine
15	R9	16	160	Thinning	Red Pine
25	M9	8	120	Final Harvest	Aspen/Hardwoods
35	M6	49	150	Thinning	Northern Hardwood

PRESCRIPTION

- Stand 11 – Thinning - Mark to cut to a residual BA of 80 sq. ft., releasing crop trees and creating regen gaps.
- Stand 12 – Final Harvest, with retention as described under Paint Line Work section.
- Stand 13 – Thinning - Mark to cut to a residual BA of 110 sq. ft.; final harvest western finger to connect stands 11 & 35.
- Stand 15 – Thinning - Mark to cut to a residual BA of 100 sq. ft.
- Stand 25 – Final Harvest, no retention applied.
- Stand 35 – Thinning - Mark to cut to a residual BA of 80 sq. ft., releasing crop trees and creating regen gaps.

Access: From Old-27, west on CR-612 or Batterson Road and access stands via forest roads in section 4.

DNR PREPARATION WORK TO BE DONE PRIOR TO CONTRACT WORK	ESTIMATED DATE
Private Boundary	11/20/2009

CONTRACT WORK CAN BEGIN Immediately Date: 11/20/2009**CONTRACT WORK MUST BE COMPLETED BY July 31, 2010**

PAINT LINE WORK This is included in the bid This is not included in the bid**Paint line work to be performed: (See attached map for locations)**

TYPE OF LINE	WORK TO BE DONE	NOT APPLICABLE	PAINT COLOR	
Boundary Line	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> Red	<input type="checkbox"/> Other:
Unit Line	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> Yellow	<input type="checkbox"/> Other:
Retention Islands	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> Green	<input type="checkbox"/> Other:
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Blue	<input type="checkbox"/> Other:

Exclusions to mark and why: Delineate a 1/3-acre retention island roughly in the middle of stand 12 in order to meet retention guidelines.**Standards for marking lines against private land**

N/A

AREA CALCULATION This is included in the bid This is not included in the bid

UNIT	METHOD	STANDARD
Sale	<input checked="" type="checkbox"/> GPS <input type="checkbox"/> String Chain <input type="checkbox"/> Other	
Payment Unit	<input checked="" type="checkbox"/> GPS <input type="checkbox"/> String Chain <input type="checkbox"/> Other	
Stand	<input checked="" type="checkbox"/> GPS <input type="checkbox"/> String Chain <input type="checkbox"/> Other	
Retention Island	<input checked="" type="checkbox"/> GPS <input type="checkbox"/> String Chain <input type="checkbox"/> Other	

Special Instructions:

See Appendix A

TIMBER CRUISING SPECIFICATIONS This is included in the bid This is not included in the bid**Required Basal Area Factor:** 10 20 Other:**Cruise Line Directions** Uniform north-south/east-west grid

CRUISING UNITS	NUMBER OF PLOTS PER ACRE	SPACING (CHAINS)
Stands 11, 12, 13, 15, 25 & 35	1	3 x 3.3
TOTAL NUMBER OF CRUISE POINTS	155 estimate	

Cruise Special Instructions: Cruise all species separately. Separate cruise data by stand.

See APPENDIX 8 (will be provided upon request) and APPENDIX B

Unless otherwise specified, the tally sheets used must be those supplied by the Forest, Mineral and Fire Management Unit.

TIMBER MARKING SPECIFICATIONS

This is included in the bid This is not included in the bid

Precise specifications to be delineated at pre-work meeting with DNR staff

Total Merchantable Residual BA (Basal Area):

Stand 11: 80 (Minimum 70 to Maximum 90)
 Stand 13: 110 (Minimum 100 to Maximum 120)
 Stand 15: 100 (Minimum 90 to Maximum 110)
 Stand 35: 80 (Minimum 70 to Maximum 90)

TREATMENT	NUMBER	SIZE
Regeneration Gaps Per Acre	Per Appendix 6	Per Appendix 6
Girdled Trees Per Acre	NA	NA

PRODUCT	MARKING SYMBOL	MINIMUM DBH	TOP DIB
Sawlogs	Single slash on two opposite sides	9.1"	8.0"
Sawbolts	N/A		
Pulpwood	Single slash on two opposite sides	4.6"	4.0

TYPE OF WORK	WORK TO BE DONE	NOT APPLICABLE	PAINT COLOR
Trees marked to leave	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> Green <input type="checkbox"/> Other
Trees marked to cut	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> Orange <input type="checkbox"/> Other

TALLY INTENSITIES	
SPECIES / PRODUCT	RATIO
	1 :

SPECIAL MARKING INSTRUCTIONS: For stands 13 & 15, see Appendix F. For stands 11 & 35, see Appendix 6 (The Complete Marker) and Appendix D.

Unless otherwise specified, the tally sheets used must be those provided by the Forest, Mineral and Fire Management Unit.

RESTRICTIONS

1. Forest, Mineral and Fire Management Division must be able to identify who did what on the timber sale.
2. The contractor may not have more than two markers in one payment unit without prior approval.
3. Each marker should have an assigned area to mark (not strips).

PAINT

1. Call (989) 348 - 6371 Joan Charlebois (ext 7443) or Patrick Cotant (ext 7447) to make arrangements for paint.
2. Paint will be supplied from the Grayling Field Office.
3. Contractor's work schedule must coincide with the DNR work schedule for paint supply.
4. The DNR will not be available on weekends or evenings.

DELIVERABLES

1. A list of names that marked or cruised each payment unit.
2. A summary of paint used (in quarts).
3. Tally summaries for each payment unit (one summary, regardless of the number of markers) and all of the original tally sheets.
4. GPS files for any GPS work.
5. Cruise data entered into POSALE and exported onto a disk or other electronic format. Use the sale name and number from page 1.

Grayling Management Unit **Boundary Marking and Area Calculation**

1. The attached type map delineates the contract marking area.
2. Marking must be done in dry weather and when tree surfaces are not wet.
3. Paint the boundary line in such a way that it can be seen from both the inside of the sale area and when walking along the line from either direction (two sides). Each boundary line tree must be stump-marked at the base of the stump (one side) between the roots extending all the way to the ground.
4. Paint a unit line which will constitute the payment unit boundary, dividing the sale into payment units, as shown on the attached map.
5. Place marks approximately six feet above the base of the tree.
6. The contractor will keep track of total quarts of paint used per sale by color.
7. The contractor will use a GPS unit to determine enclosed acreage to the nearest one-tenth acre, unless an alternative method is approved prior by Unit Management.
8. GPS units used must be compatible with Pathfinder Office (2.01 or later) or be capable of producing an ArcView-compatible shapefile. Supply electronic and paper copies of the corrected and edited (outlier/erroneous points cleaned up) GPS file.
9. Position Mode must be set so that the GPS receiver collects data from a minimum of four satellites. This must be recorded in the position properties window after downloading.
10. The GPS receiver must log PDOP. This log must be recorded in the position properties window after downloading.
11. PDOP mask must be less than or equal to 8.
12. SNR setting must be greater than or equal to 4.
13. Sale boundaries are to be recorded as an area feature, not a line. Isolated stands must each be recorded as separate area features. Retention islands must also be recorded as area features.
14. Payment Unit lines must be recorded as a line feature bisecting the sale.

Grayling Management Unit Timber Cruising Specifications

1. Cruise designated timber using Appendix 8 Product Standards to determine products and heights of products. Separate cruise data by species/product. Appendix 8 will be provided upon request.
2. Cruise at the sampling intensity specified in the Timber Sale Prescription and apply that rate to your actual GPS'd stand acreage.
3. Separate cruise data by stand.
4. Use a 10-factor prism.
5. Mark location of plots on the map, using the plot number.
6. Record BA of residual trees. Separate by species if specified under the Timber Sale Prescription's Cruise Special Instructions. Record any mark-to-girdle trees separately. Do not count mark-to-girdle trees toward the specified residual BA target.
7. Unless otherwise agreed to by the contract administrator and the contractor, plot center will be marked by a stake or stick firmly inserted in the ground (not snow) with a ribbon attached to it at a height of not less than two feet above the ground, and labeled with the PU/stand number and plot number. In addition, ribbon at least 12 inches long must be attached to the tree closest to plot center.
8. All cruise sheets must be labeled with the compartment #, stand #, unit #, prism factor, date, individual tree species, and the cruiser's name. If a portable data recorder is used for cruising, submit a summary sheet that details the rest of the required information.
9. The Grayling Management Unit Office will provide cruise sheets.
10. **A copy of the "POSALE" program will be provided to the successful bidder for cruise data entry. Original cruise sheets and an electronic copy of the cruise data exported from POSALE must be delivered upon the completion of the sale.** Note: At the cruise data entry screen in POSALE, when prompted to enter the stand acres, enter your actual GPS'd acres – NOT the contract's estimated inventory-based acreage. Also, if retention islands were delineated within the sale area, do not include those acres in the entered POSALE stand acres.

Grayling Management Unit
Individual Tree Marking
Northern Hardwoods Crop Tree Release

1. Select crop trees.
2. Crop trees are defined as trees that have the potential of making a grade one sawlog when they are mature. A grade one sawlog is any tree capable of producing 16 feet of clear lumber. A crop tree can be ANY species of tree. It is important to manage for the best tree in place at all times
3. Locate at least 50 crop trees per acre spaced approximately 25 to 30 feet apart. For trees less than 8" DBH, mark enough crown competitors to provide seven feet of open space around the crop tree's crown. For trees greater than 8", mark the two most important crown competitors. See the Complete Marker for further reference.
4. After the crop tree has been chosen and properly released, additional trees may have to be removed to reduce the basal area to the desired target. First remove high-risk (ie: Eutypella canker) and cull trees from the stand, followed by commercial subcanopy trees beneath the crop tree. (Commercial trees will be defined as any trees that contain at least one 100" sawlog or pulp stick.) Lastly, remove any other lesser quality intermediate and co-dominant trees from the stand to reduce basal area to the desired goal.
5. Regeneration gaps have to be created in this stand in order to hasten its development toward an uneven aged stand. Create 3 to 5 thirty-foot diameter regeneration holes per acre to facilitate maple regeneration. In areas where basswood or other less shade-tolerant species are more common, create 1 to 2 sixty-foot diameter regeneration holes per acre. Create these holes by removing pockets of lesser-quality trees, where possible. If only high-quality trees exist on a particular acre, then do not make any regeneration holes within that area. Some regeneration holes will be created by default when large-crowned trees are marked for removal and places are marked out for them to fall. It is essential that all trees greater than 1" DBH be marked for removal within the regeneration gaps. Note: the gap diameter is based on the size of the opening between tree crowns, not tree boles.
6. Across the sale area, at least two den trees per acre will be left. Trees that have a "platform" crotch structure for raptor nest support located beneath the foliage canopy shall be left.
7. The contractor will keep track of total quarts of paint used per-sale by color.
8. The attached type map delineates the contract marking area.
9. Marking must be done in dry weather and when tree surfaces are not wet.
10. Mark the trees on two opposite sides, approximately 6 feet above the ground.
11. Each marked tree must be stump-marked at the base of the stump (one side), between the roots and extending all the way to the ground.
12. Paint must be applied on moss-free areas.

Grayling Management Unit
Red Pine Thinning Sale Preparation
Individual Tree Marking

Appendix F

1. The attached type map delineates the contract marking area.
2. Leave a residual BA as specified in the **Timber Sale Prescription**.
3. Do not selectively mark stems within multiple-stemmed clumps; either mark them all or leave them all.
4. Target for removal high-risk, damaged, declining, poor-form and suppressed red pine trees.
5. Thin from above, focusing on crown spacing and developing potential utility-pole stems.
6. Remove economically mature red pine where BA allows (more detailed instruction to be given at on-site meeting with the contract administrator).
7. The Grayling Management Unit Office will provide paint.
8. The contractor will keep track of total quarts of paint used per sale by color.
9. Marking must be done in dry weather and when tree surfaces are not wet.
10. Mark the trees on two opposite sides. Place marks approximately six feet above the base of the tree.
11. Each marked tree must be stump-marked, at the base of the stump (one side), between the roots and extending all the way to the ground.
12. Paint must be applied on moss-free areas.