

MINNESOTA TECHNICAL GUIDE SECTION III
CONSERVATION MANAGEMENT SYSTEM (CMS) GUIDESHEET

Landuse Type Forestland Resource Setting No. _____ MLRA 57, 88, 90 FIELD OFFICE _____

Resource Setting: Owner objectives – Economic return of timber products from land, minimize sedimentation from harvest activities, and improve wildlife habitat.
Soils-Silt loams and loams on 3 to 8% slopes.
Vegetation – Mixed conifer & deciduous trees with shrub/grass/forb understory
Resource concerns-Sedimentation from harvest and road building into streams/lakes, loss of habitat as stands mature.

REFERENCE FROM CPPE AND RESOURCE CONSIDERATIONS

Resource:	Soil				Water			
	Erosion Streambank	Erosion Roadbank	Deposition Offsite Damages		Restricted Capacity Deposition Offsite	Surface Contamination Turbidity	Surface Contamination Temperature	Aquatic Habitat Suitability
	A-1-e	A-1-h	A-3-b		B-1-h	B-2-i	B-2-m	B-2-o
RMS # 1 Practice # And Name:								
560-Access Road	MOD+	SIG+	SIG+		MOD+	MOD+	NA	SIG+
342-Critical Area Plant	MOD+	SIG+	SIG+		SIG+	SIG+	SLI+	SIG+
654-Wood Imp. Harvest	SIG+	SIG+	SLI-		SLI-	MOD-	SLI-	SLI-
666-Woodland Improvement	SLI-	NEG	SLI-		NEG	SLI-	NEG	NEG
645 Upland Wildlife Management	SLI+	SLI+	SLI+		MOD+	MOD+	SIG+	SIG+

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Resource concerns-Sedimentation from harvest and road building into streams/lakes, loss of habitat as stands mature.

REFERENCE FROM CPPE AND RESOURCE CONSIDERATIONS

Resource:	Plants				Animals			
	Suitability	Product.	Health and Vigor		Food (Wildlife)	Cover and Shelter (Wildlife)		
	D-1-b	D-2-a	D-2-b		E-1-a	E-1-b		
RMS # 1 Practice # And Name:								
560-Access Road	NA	SLI+	SLI+		MOD+	MOD+		
342-Critical Area Plant	SIG+	SIG+	SIG+		MOD+	MOD+		
654-Wood Imp. Harvest	SIG+	SIG+	SIG+		SIG+	MOD+		
666-Woodland Improvement	SIG+	SIG+	SIG+		SLI+	MOD+		
645 Wild Up Management	SIG+	SIG+	SIG+		SIG+	SIG+		

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Landuse Type Forestland Resource Setting No. _____ MLRA 92 FIELD OFFICE _____

Resource Setting: Owner objectives – long term production of timber products, improve wildlife habitat, pine production Soils-coarse textured sandy soils on 6 to 12% slopes. Vegetation – Existing vegetation consists of mixed hardwood and conifer species. Resource concerns – Impacts of forest management activities on water quality and the stability of slopes/soils of the WS.							
REFERENCE FROM CPPE AND RESOURCE CONSIDERATIONS							
Resource:	Soils		Water				
	Streambank Erosion	Roadbank Erosion	Restricted Capacity Offsite	Surface Contamination Turbidity	Surface Contamination. Temperature	Aquatic Habitat Suitability	
	A-1-e	A-1-h	B-1-h	B-2-i	B-2-m	B-2-o	
RMS # 1 Practice # And Name:							
654-Woodland Imp. Harvest	MOD+	MOD+	SLI+	MOD+	MOD+	MOD+	
394-Firebreak	SLI+	NEG	SLI+	SLI-	NA	SLI+	
580-Streambnk Protection	SIG+	NA	MOD+	MOD+	NEG	SIG+	
393-Filterstrip	MOD+	SLI+	SLI-	MOD+	NEG	SIG+	
612-Tree Planting	MOD+	MOD+	SLI+	SLI+	MOD+	SLI+	
560-Access Road	SLI+	SIG+	SLI+	MOD+	NA	SIG+	
595c-Pest Management	NA	NA	NEG	NEG	NEG	SIG+	
645-Wildlife Upland Mgmt.	SLI+	SLI+	SLI+	SLI+	SLI+	SLI+	

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REFERENCE FROM CPPE AND RESOURCE CONSIDERATIONS								
Resource:	Plants			Animals				
	Product.	Establish Growth Harvest	Pest Mgmt.	Food (wildlife)	Cover and Shelter (Wildlife)			
	D-2-a	D-3-a	D-3-c	E-1-a	E-1-b			
RMS # 2 Practice # And Name:								
654-Woodland Imp.	SIG+	SIG+	SIG+	MOD+	MOD+			
394-Firebreak	SLI-	SIG+	SLI+	MOD+	MOD+			
580-Streambnk Protection	NEG	NEG	NEG	MOD+	MOD+			
393-Filterstrip	SLI+	NA	SLI-	SLI+	MOD+			
612-Tree Planting	SIG+	SIG+	MOD+	MOD+	MOD+			
560-Access Road	NA	SIG+	NA	SLI+	SLI+			
595c-Pest Management	MOD+	SIG+	SIG+	SLI-	MOD-			
645-Wildlife Upland Mgmt.	SLI+	SLI+	SLI+	SIG+	SIG+			

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Landuse Type Forestland Resource Setting No. _____ MLRA 92 FIELD OFFICE _____

Resource Setting: Owner objectives – long term production of timber products, manage for conifer species, improve wildlife habitat.
Soils-Silty clay on 12 to 25% slopes.
Vegetation-Present vegetation consists of hardwood species, such as aspen and birch.
Resource concerns- impacts that harvest activity has on storm run off creating streambank stability problems.

REFERENCE FROM CPPE AND RESOURCE CONSIDERATIONS

Resource:	Soil				Water			
	Classic Gully Erosion	Streambank Erosion	Roadbank Erosion	Restr. Capacity Onsite	Restr. Capacity Offsite	Surface Contamination Turbidity	Surface Contamination Temperature	Aquatic Habitat Suitability
	A-1-e	A-1-g	A-1-h	B-1-g	B-1-h	B-2-i	B-2-m	B-2-o
RMS # 1 Practice # And Name:								
580-Streambank Protection	SIG+	SIG+	NA	SLI+	MOD+	MOD+	NEG	SIG+
612-Tree Planting	MOD+	SIG+	MOD+	MOD+	SLI+	SLI+	MOD+	SLI+
595c-Pest Management	NA	NA	NA	NEG	NEG	NEG	NEG	SIG+
490-Site Preparation	NEG	MOD+	NEG	MOD+	SLI+	NEG	SLI-	NEG
645 Wild Up Management	SLI+	SLI+	SLI+	SLI+	SLI+	SLI+	SLI+	SLI+
394-Firebreak	SLI+	NEG	NEG	SLI+	SLI+	SLI-	NA	SLI+
654-Woodland Imp Harvest	MOD+	SIG+	MOD+	SLI+	SLI+	MOD+	MOD+	MOD+
342-Critical Area Planting	MOD+	MOD+	SIG+	SIG+	SIG+	SIG+	SLI+	MOD+

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 Vegetation – Present vegetation consist of hardwood species, such as aspen and birch.
 Resource concerns-Impacts that harvest activity has on storm run off creating streambank stability problems.

REFERENCE FROM CPPE AND RESOURCE CONSIDERATIONS

Resource:	Plants			Animals				
	Suitability	Product.	Establish Growth Harvest	Pest Management	Food (Wildlife)	Cover and Shelter (Wildlife)		
	D-1-b	D-2-a	D-3-c	D-3-c	E-1-a	E-1-b		
RMS # 1 Practice # And Name:								
580-Streambank Protection	SIG+	NEG	NEG	NEG	MOD+	MOD+		
612-Tree Planting	SIG+	SIG+	SIG+	MOD+	MOD+	MOD+		
595c-Pest Management	NA	MOD+	SIG+	SIG+	SLI-	SLI-		
490-Site Preparation	MOD+	SIG+	SIG+	MOD+	MOD-	MOD-		
645 Wild Up Management	SLI+	SLI+	SLI+	SLI+	SIG+	SIG+		
394-Firebreak	NEG	SLI-	SIG+	SLI+	MOD+	MOD+		
654-Woodland Imp Harvest	SIG+	SIG+	SIG+	SIG+	MOD+	MOD+		
342-Critical Area Planting	SIG+	SIG+	SIG+	NA	MOD+	MOD+		

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Landuse Type Woodland Resource Setting No. 1 MLRA 103 FIELD OFFICE _____

Resource Setting: A stand of cottonwood, ash, basswood, prickly ash with a component of red oak located on the slope of the valley between the upland fields and the valley drainageways. Soils are well-drained loams and clayey soils on the side slopes with very wet swale drainageways that are poorly drained. Slopes range from 18 – 25% on the side slopes to 2% in the swales. The elm component is dying out and the stand currently has poor species component where the lower value hardwoods are predominate. Lack of management is evident with dominant trees of poor vigor and form. Small gullies are forming at the edges of the upper fields and extend into the woodland. The landowner’s objectives are to increase the higher value hardwoods and implement a management system that will provide a consistent income.

REFERENCE FROM CPPE AND RESOURCE CONSIDERATIONS

Resource:	Soil			Water	Plants			
	Gullies	Stream Banks	Road Banks	Excess Runoff	Suitability	Productive	Health Vigor	Growth & Harvest
	A-1-d	A-1-e	A-1-h	B-1-b	D-1-b	D-2-a	D-2-b	D-3-a
RMS # 1 Practice # And Name:								
362 – Diversion	SLI+	NEG	SLI+	SIG+	NEG	NEG	NEG	NEG
612-Tree Planting	SLI+	SLI+	SLI+	SLI+	SIG+	SIG+	NEG	SIG+
654i-Improved Harvest	SLI+	NEG	SLI+	MOD+	SIG+	SIG+	SIG+	SIG+
666-Woodland Improve	NEG	NEG	NEG	MOD+	SLI+	SLI+	SIG+	SIG+
645-Upland Wildlife Management	MOD+	SLI+	SLI+	SLI+	SLI+	SLI+	SLI+	SLI+

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REFERENCE FROM CPPE AND RESOURCE CONSIDERATIONS

Resource:	Animal						
	Food	Cover Shelter	Population and Balance				
	E-1-a	E-1-b	E-2-b				
RMS # 1 Practice # And Name:							
362 – Diversion	SLI+	SLI+	SLI+				
612-Tree Planting	MOD+	MOD+	MOD+				
654i-Improved Harvest	MOD+	MOD+	MOD+				
666-Woodland Improve	MOD+	MOD+	MOD+				
645-Upland Wildlife Management	SIG+	SIG+	SIG+				

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Landuse Type Woodland Resource Setting No. 1 MLRA 104 FIELD OFFICE _____

Resource Setting: A stand of northern hardwoods also referred to as the big woods with the primary species present of sugar maple, red and white oak, white ash and basswood. The woods are not currently being grazed but there is evidence that there was past grazing. Cattle lanes are still visible and tree damage is still evident. Small gullies are forming at the field edges but dissipate quickly. Past improper logging operations have removed some of the overstory and left the poorly formed, less valuable species. Skid trails are evident but have reestablished cover thorough volunteer vegetation primarily forbes. The soils range from moderately well drained to somewhat poorly drained silt loams over loamy glacial tills. Land slopes range from 2-16%. This land is suitable for cropland and has the potential to be converted if a moderate economic return is not achieved. The landowners objectives are to increase the sugar maple, basswood component, establish a harvest cycle that will generate a consistent economic return while increasing and improving the selected crop species.

REFERENCE FROM CPPE AND RESOURCE CONSIDERATIONS

Resource:	Soil	Water	Plants			Animals		
	Gullies	Excess Runoff	Suitability	Production Harvest	Growth	Food	Cover Shelter	Pop & Balance
	A-1-d	B-1-b	D-1-b	D-2-a	D-3-a	E-1-a	E-1-b	E-2-b
RMS # 1 Practice # And Name:								
362-Diversion	SLI+	SIG+	NEG	NEG	NEG	SLI+	SLI+	SLI+
410-Grade Stabilization	SIG+	NA	NEG	NEG	NEG	NEG	NEG	SLI+
612-Tree Planting	SLI+	SLI+	SIG+	SIG+	SIG+	MOD+	MOD+	SIG+
654i-Woodland Harvest	SLI+	SLI-	SIG+	SIG+	SIG+	MOD+	MOD+	MOD+
666-Woodland Improvement	NEG	NEG	SIG+	SIG+	SIG+	MOD+	MOD+	MOD+
645-Upland Wildlife Mgmt	MOD+	SLI+	SLI+	SLI+	SLI+	SIG+	SIG+	SIG+

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Landuse Type Woodland Resource Setting No. 1 MLRA 105 FIELD OFFICE _____

Resource Setting: A stand of poorly mixed low value bottomland/cove hardwoods comprising black walnut, basswood, red and white oak, and boxelder with severe plant competition. There is moderate livestock damage to trees, that also limits natural reproduction. There is poor species composition, although favored species are present, natural regeneration is primarily limited to boxelder. These stands are located on valley slopes and stream terraces, Soils are predominantly silt loam soils on bottomland and terraces with land slopes of 2-6% and are moderately well drained. Area may occasionally flood with rapid water movement. There are deeply entrenched gullies running through the topography with soil loss of 0.2 tons per linear foot. Access from an abandoned field road with moderate to severe washing of the road surface. The landowner's objectives are to increase the number and quality of the high value hardwoods, and stabilize the access road.

REFERENCE FROM CPPE AND RESOURCE CONSIDERATIONS

Resource:	Soil				Water	Plants		
	Gullies	Stream Banks	Road Banks	Compaction	Excess Runoff	Suitability	Production	
	A-1-d	A-1-e	A-1-h	A-2-b	B-1-b	D-1-b	D-2-a	
RMS # 1 Practice # And Name:								
382-Fencing	FAC	FAC	FAC	FAC	FAC	FAC	FAC	
342-Critical Area Seeding	SIG+	SLI+	SIG+	SIG+	SLI+	SIG+	SIG+	
472-Livestock Exclusion	SIG+	SIG+	SIG+	SIG+	SLI+	MOD+	MOD+	
612-Tree Planting	SIG+	SIG+	SIG+	SIG+	SLI+	SIG+	SIG+	
666-Woodland Improvement	NEG	NEG	SLI+	SLI+	SLI+	SIG+	SIG+	
560-Access Roads	SLI+	SLI+	SIG+	SLI+	SLI+	NA	NA	
645-Upland Wildlife Mgmt.	MOD+	MOD+	SLI+	SLI+	SLI+	SLI+	SLI+	

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REFERENCE FROM CPPE AND RESOURCE CONSIDERATIONS

Resource:	Plants			Animal				
	Health & Vigor	Est. Growth	Pest Mgmt.	Food	Cover or Shelter			
	D-2-b	D-3-a	D-3-c	E-1-a	E-1-b			
RMS # 1 Practice # And Name:								
382-Fencing	FAC	FAC	FAC	FAC	FAC			
342-Critical Area Seeding	SIG+	SIG+	MOD+	MOD+	SLI+			
372-Livestock Exclusion	SIG+	SIG+	SIG+	MOD+	MOD+			
612-Tree Planting	NA	SIG+	SIG+	MOD+	MOD+			
666-Woodland Improvement	SIG+	SIG+	SIG+	SLI+	SLI+			
560-Access Roads	NA	SIG+	NA	SLI+	SLI+			
645-Upland Wildlife Mgmt.	SLI+	SLI+	SLI+	SIG+	SIG+			

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Conservation Management System Options Worksheet

RESOURCE: Woodland MLRA 105 Setting #1								
Considerations		Plants				Animals		
CMS Options	Resource Problems	Health & Vigor	Establish Growth	Pest Mgmt.	Food	Cover or Shelter		
		D-2-b	D-3-a	D-3-c	E-1-a	E-1-b		
382-Fencing		FAC	FAC	FAC	FAC	FAC		
342-Critical Area Seeding		SIG+	SIG+	MOD+	MOD+	SLI+		
372-Livestock Exclusion		SIG+	SIG+	SIG+	MOD+	MOD+		
612-Tree Planting		NA	SIG+	SIG+	MOD+	MOD+		
666-Woodland Improvement		SIG+	SIG+	SIG+	SLI+	SLI+		
560-Access Roads		NA	SIG+	NA	SLI+	SLI+		
645-Upland Wildlife Mgmt.		SLI+	SLI+	SLI+	SIG+	SIG+		

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Conservation Management System Options Worksheet

RESOURCE: Woodland MLRA 105 Setting #1								
Considerations	Plants			Animals				
Resource Problems	Health & Vigor	Establish Growth	Pest Mgmt.	Food	Cover or Shelter			
Practices	D-2-b	D-3-a	D-3-c	E-1-a	E-1-b			
382-Fencing	FAC	FAC	FAC	FAC	FAC			
342-Critical Area Seeding	SIG+	SIG+	MOD+	MOD+	SLI+			
372-Livestock Exclusion	SIG+	SIG+	SIG+	MOD+	MOD+			
612-Tree Planting	NA	SIG+	SIG+	MOD+	MOD+			
666-Woodland Improvement	SIG+	SIG+	SIG+	SLI+	SLI+			
560-Access Roads	NA	SIG+	NA	SLI+	SLI+			
393-Filter Strip	NEG	NA	NEG	SLI+	SLI+			
654-Woodland Imp. Harvest	SIG+	SLI+	SIG+	SLI+	SLI+			
660-Woodland Pruning	SIG+	SIG+	SLI+	NEG	NEG			
580-Streambank Protect	NEG	NEG	NEG	SLI-	SLI+			
685c-Pest Management	SLI+	SIG+	SIG+	SLI-	SLI-			
645-Upland Wildlife Mgmt.	SLI+	SLI+	SLI+	SIG+	SIG+			

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Landuse Type Woodland Resource Setting No. 2 MLRA 105 FIELD OFFICE _____

Resource Setting: A stand of upland hardwoods that include red and white oaks, basswood, elm, birch and boxelder. The stand is moderately grazed and associated soil compaction and grazing have restricted understory competition. Three health and vigor is fair to poor with the oak component showing decline. The woodland is located between cropland fields on the upland and extends down the hillside to valley floor. Small to moderate gullies are forming at the woods edge near the upland fields. Gullies are associated with water movement from the upland fields and overflow from diversions and ponds. Soils are primarily 18-40 inches of silty materials over bedrock or colluvium with land slopes of 18-55%, and are well drained. Access for management is poor to nonexistent. Landowner's objectives are to increase the red and white oak component, increase the quality and quantity of saw logs and veneer, and control the gullies encroaching into the cropland fields.

REFERENCE FROM CPPE AND RESOURCE CONSIDERATIONS

Resource:	Soil			Water	Plants			
	Gullies	Access Roads	Compaction	Turbidity	Suitability	Productive	Health Vigor	Establish Growth
	A-1-d	A-1-h	A-2-b	B-2-i	D-1-b	D-2-a	D-2-d	D-3-a
RMS # 1 Practice # And Name:								
410-Grade Stabilization	SIG+	SIG+	NEG	SIG+	NEG	NA	NA	SLI+
382-Fencing	FAC	FAC	FAC	FAC	FAC	FAC	FAC	FAC
372-Livestock Exclusion	SLI+	SLI+	SLI+	SLI+	SIG+	SIG+	SIG+	SIG+
560-Access Road	SLI+	SIG+	SLI+	NEG	SIG+	SIG+	SIG+	SIG+
612-Tree Planting	SLI+	SLI+	SIG+	SLI+	SIG+	SIG+	SIG+	SIG+
654-Woodland Harvest	SLI+	SLI+	SLI+	SLI+	SIG+	SIG+	SIG+	SIG+
666-Woodland Improvement	SLI+	SIG+	SLI+	NEG	SIG+	SIG+	SIG+	SIG+
645-Upland Wildlife Mgmt.	MOD+	NEG	SLI+	SLI+	SLI+	SLI+	SLI	SLI+

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Resource Setting: A stand of upland hardwoods that include red and white oaks, basswood, elm, birch and boxelder. The stand is moderately grazed and associated soil compaction and grazing have restricted understory competition. Three health and vigor is fair to poor with the oak component showing decline. The woodland is located between cropland fields on the upland and extends down the hillside to valley floor. Small to moderate gullies are forming at the woods edge near the upland fields. Gullies are associated with water movement from the upland fields and overflow from diversions and ponds. Soils are primarily 18-40 inches of silty materials over bedrock or colluvium with land slopes of 18-55%, and are well drained. Access for management is poor to nonexistent.

REFERENCE FROM CPPE AND RESOURCE CONSIDERATIONS

Resource:	Plants	Animals						
	Pest Management	Population & Balance						
	D-3-c	E-2-a						
RMS # 1 Practice # And Name:								
410-Grade Stabilization	NA	SIG+						
382-Fencing	FAC	FAC						
372-Livestock Exclusion	SIG+	SIG+						
560-Access Road	SLI+	SLI+						
612-Tree Planting	SIG+	SIG+						
654-Woodland Harvest	SIG+	SLI+						
666-Woodland Improvement	SIG+	SLI+						
645-Upland Wildlife Mgmt.	SLI+	SIG+						

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RESOURCE: WOODLAND MLRA 105 SETTING # 2 UPLAND HARDWOODS								
Resource:	Plants	Animals						
	Pest Management	Pop & Balance						
	D-3-c	E-2-a						
410-Grade Stabilizer	NA	SIG+						
362-Diversion	SLI+	SLI+						
382-Fencing	FAC	FAC						
612-Tree Planting	SIG+	SIG+						
654-Woodland Harvest	SIG+	SIG+						
560-Access Road	SLI+	SLI+						
666-Woodland Improvement	SIG+	SLI+						
372-Livestock Exclusion	SIG+	SIG+						
645-Upland Wildlife Mgmt.	SLI+	SIG+						

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Conservation Management System Options Worksheet

RESOURCE: WOODLAND MLRA 105 SETTING # 2 UPLAND HARDWOODS									
Resource:	Plants	Animals							
Resource Problems	Pest Management	Pop & Balance							
Practices	D-3-c	E-2-a							
410-Grade Stabilization	NA	SIG+							
362-Diversion	SIL+	SLI+							
382-Fencing	FAC	FAC							
612-Tree Planting	SIG+	SIG+							
654-Woodland Harvest	SIG+	SLI+							
560-Access Road	SLI+	SLI+							
666-Woodland Improvement	SIG+	SLI+							
412-Grassed Waterways	NA	SLI+							
386-Field Border	SLI+	SLI+							
342-Critical Area	NA	SLI+							
372-Livestock Exclusion	SIG+	SIG+							
645-Upland Wildlife Mgmt.	SLI+	SIG+							