STATE OF CALIFORNIA-THE RESOURCES AGENCY PETE WILSON, Governor

DEPARTMENT OF FORESTRY AND FIRE PROTECTION
6105 Airport Road
Redding, California 96002
(916) 224-2445

June 17, 1996

Non-Industrial Timber Management
Plan No. N-2-95-012-LAS(2)

Hulsman Ranch Partnership
P O Box 850
Susanville CA 96130

Dear Gentle Persons:

Enclosed is a true copy of your Non-Industrial Timber Management Plan identified by date and file number shown above. The Director of Forestry finds that the plan conforms with the rules and regulations of the Board of Forestry pursuant to the provisions of the Z'Berg-Nejedly Forest Practice Act of 1973. Conformance is indicated by the facsimile signature of his duly constituted representative being shown on the attached copy of the plan.

You may begin the timber operations proposed in the plan according to the conditions specified therein, and subject to the Forest Practice Act, Forest Practice Rules of the Forest District in which the operations will take place, related Board of Forestry regulations and other applicable laws, regulations and ordinances, only after submission of a Notice of Timber Operations as prescribed in 14 CCR 1090.7.

The Forest Practice Act requires the filing of the two reports listed below for each timber harvesting operation undertaken:

1. Timber Operations Work Completion Report - within one month after completion of work described in a plan, excluding work for stocking, a report shall be filed by the timber owner or his agent with the Director that all work, except stocking, has been completed.

2. Report of Stocking - within five (5) years after completion of timber operations covered by a plan, a report of stocking shall be filed by the timber owner or his agent with the Director.

In future correspondence, please refer to the number in the box in the upper right corner of the plan.

Very truly yours,

Lloyd I. Keefer
Region Chief
Coast-Cascade Region

By David T. McNamara
David T McNamara
Deputy Chief
RPF #1667

rb
Enclosure
cc: Ranger Unit Chief
County Planning (THP only)
Board of Equalization (THP only)
Fish & Game (THP only)
Water Quality (THP only)
Phillip E Nemir

FOR ADMIN. USE ONLY
Amendments-date & S or M

1. _____ 7. _____
2. _____ 8. _____
3. _____ 9. _____
4. _____ 10. _____
5. _____ 11. _____
6. _____ 12. _____

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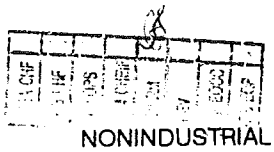

DEC 18 DEPARTMENT OF FORESTRY

RECEIVED
CALAVERAS
AREA OFFICE

FGI LMH
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NONINDUSTRIAL TIMBER MGMT PLAN
STATE OF CALIFORNIA
DEPARTMENT OF FORESTRY AND FIRE PROTECTION

FOR ADMIN. USE ONLY

THP No. N 2-95-12

Dates Rec'd DEC 1995

Date Filed DEC 2 3 1995

Date Approved JUN 17 1996

Date Expires 6-16-99

This THP conforms to my/our plan and upon approval, I/we agree to conduct harvesting in accordance therewith. Consent is hereby given to the Director of Forestry and Fire Protection, and his or her agents and employees, to enter the premises to inspect timber operations for compliance with the Forest Practice Act and Forest Practice Rules.

1. TIMBERLAND OWNER(S) OF RECORD: Name Hulsman Ranch Partnership

Address P.O. Box 850

City Susanville State CA Zip 96130 Phone 916-257-7262

Signature Hannah F. Tarpman Date _____

2. TIMBER OWNER(S) OF RECORD: Name same as Timberland Owner

3. PLAN SUBMITTER(S): Name same as Timberland Owner

4. RPF preparing the NTMP: Name Philip E. Nemir RPF Number 1666

Address P.O. Box 1717

City Susanville State CA Zip 96130 Phone 916-257-2294

After considering the rules of the Board of Forestry and the mitigation measures, I have determined that the timber operation will not have a significant adverse impact on the environment.

I certify that I, personally inspected the THP area, and the plan complies with the Forest Practice Act, the Forest Practice Rules and the Professional Foresters Law.

Signature Philip E. Nemir Date 12/05/95

DIRECTOR OF FORESTRY AND FIRE PROTECTION

This Timber Harvesting Plan conforms to the rules and regulations of the Board of Forestry and the Forest Practice Act:

David T. McNamara
(Signature)

JUNE 17, 1996
(Date)

DAVID .T McNAMARA
(Printed Name)

DEPUTY CHIEF, RPF# 1667
(Title)

HULSMAN RANCH PARTNERSHIP PROPERTY

Lassen County, California

NONINDUSTRIAL TIMBER MANAGEMENT PLAN

December 5, 1995

prepared for

Hulsman Ranch Partnership

by

Philip E. Nemir
Forestry & Appraisal Services
Susanville, California

_____

Philip E. Nemir

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HULSMAN RANCH PARTNERSHIP PROPERTY

Lassen County, California

NONINDUSTRIAL TIMBER MANAGEMENT PLAN

December 5, 1995

5. LOCATION of the timber operations by legal description:

Base and Meridian: Mount Diablo

Section	Township	Range	Acreage	County
20	29N	12E		Lassen
21	29N	12E		Lassen
22	29N	12E		Lassen
27	29N	12E		Lassen
28	29N	12E		Lassen
29	29N	12E		Lassen
32	29N	12E		Lassen
33	29N	12E		Lassen
34	29N	12E		Lassen
		TOTAL ACREAGE	1,697	

6. FOREST DISTRICT in which NTMP is located : NORTHERN FOREST DISTRICT

7. GENERAL PROPERTY DESCRIPTION:

The Hulsman Ranch property is comprised of ±2,854 acres located in a foothill area of the eastside of the Sierra Nevada Mountains. The crest of the Diamond Mountains (a northern extension of the Sierra Nevadas) lies approximately two miles south of the property. The subject is located about 5 miles south of the City of Susanville in a less developed area of the Honey Lake Valley.

A four mile strip of land along unpaved Wingfield from Peter Lassen's Grave to Bass Hill Road is dominated by three ranch ownerships with the Hulsman Ranch lying westernmost. Residences on the ranches are a mile distant from each other and land use is primarily devoted to natural resource use for livestock and timber production. Rural residences are located along Wingfield Road near Peter Lassen's Grave and along Old Archery and Children's Roads on the west side of the Ranch. The property is surrounded by private parcels ranging from 5 to 1,380 acres in size except for the southern property boundary which borders Lassen National Forest. The general area is characterized as natural resource land with scattered rural residential development.

Vegetative cover is a mix of native grass pasture and sagebrush at the lower elevation northeastern portions of the Ranch comprising about 1,150 acres, and Eastside Pine and Sierran Mixed Conifer Forest containing about 1,700 acres on the southern and western part of the property. The forest is well-stocked young growth of varying size classes. Ponderosa/Jeffrey pine is the predominant species. Other conifers include sugar pine, white fir, Douglas-fir and incense cedar. During the past 5 years, a substantial amount of white fir has died as a result of drought-induced insect attacks. Most of the dead and dying white fir has been salvaged.

Terrain is gentle to moderately steep with slopes between 0 to 50%. Most of the forested area is gentle hill land. Steepest ground is located at the southern end of the property. Much of the project area has slopes under 30% slope. All of the property is suitable for tractor/skidder logging.

Elevations range from 4,240 to 6,120 feet. The forest area lies above 4,400 feet. Soils belong to the Bonta, Lasco, Chimney, Janile, Waterman, Chirpchatter, Toiyabe, Quartzburg and Cagwin families. Soil depth ranges from 15" to 60". Soil texture tends to be sandy loams and loamy sands and is derived from weathered granite parent rock.

There are five main watercourses on the property which trend in a south-north direction and which all eventually drain into Honey Lake. None of the streams support fish populations, although Lassen Creek is normally a perennial stream. In droughtier years, all of the watercourses dry up.

Site Class is rated as either Dunning's Site II, III or IV. Site II is found along the watercourses or wet areas. Site III is found on the drier slopes. Site IV ground is limited to rocky areas with shallow soils. Most of the property falls in Site Class III.

Harvesting operations have occurred on the project area over the past 133 years of ownership and the road system is in place and requires limited modifications. It appears that there have been no major fires on the Ranch during the past 60 years.

8. NON-TIMBER PROPERTY USES:

The Hulsman Ranch property is used for a livestock operation (cattle and sheep production), for residential uses (both partners maintain houses) and for recreation. Minor forest products including fuelwood, Christmas trees and, cedar posts and rails are utilized by the timberland owners.

9. TIMBER STAND CHARACTERISTICS:

a). **Management Units** -

The entire forested area of the Hulsman Ranch comprising approximately 1,697 acres is selected to be one management unit.

b). **Stand Management History** -

This property has passed through the Hulsman-Boyle-Tangeman family since it was first acquired from the Peter Lassen Estate in 1863. It has been managed by Phyllis Boyle Tangeman's grandfather and grandmother, by her aunt Hannah Hulsman, by Phyllis and now by Phyllis' daughter Hannah Tangeman-Cheney.

The Ranch forest has been harvested periodically over the years. It appears that the first harvest of the lower portion of the property occurred in the 1870's. A small sawmill operation was located along Mill Creek and is believed to have operated into the 1920's or 1930's.

The largest operation was a sale made in 1957 to Fruit Growers Supply Company which involved a heavy harvest of the southern and western portions of the property.

Harvesting since 1984 has been conducted on a more regular basis as merchantability of young growth stands has improved.

Early cutting until the 1950's is believed to have concentrated on the old growth and larger young growth pine. During the 1950's Douglas-fir was cut along with the pine. White fir prices improved in the 1980's allowing more trees to be marketed. In addition, white fir has been heavily salvaged as a result of losses during the recent drought. Incense cedar has been historically harvested for making split rails on the Ranch. The 1993 harvest included more cedar as a result of the species reaching historic high stumpage values.

Stands closest to Wingfield Road and the Ranch headquarters area have been harvested only lightly during the past 20 years and have the heaviest volumes per acre.

Recent harvest plans have focused on cutting older and less healthy trees, improving spacing and salvaging dead and dying trees. No precommercial cutting has been conducted, nor has artificial tree planting been necessary. While there is evidence of past fires on the property, it appears that there have been no major fires on the Hulsman Ranch during the past 75 years.

c). **Inventory Procedure** - (Trade Secret. See Confidential Addendum.)

(i). Inventory Sampling Procedure
(ii). Data Processing Procedure
(iii). Inventory Precision

d). **Inventory Estimate** - (Trade Secret. See Confidential Addendum.)

(i). Total volume
(ii). Species Composition
(iii). Age Classes
(iv). Stand tables by timber type

e). **Growth Projections** - (Trade Secret. See Confidential Addendum.)

(i). Model Documentation
(ii). Planning Horizon
(iii). Silvicultural prescriptions
(iv). Growth Estimates

f). **Sustained Yield** - (Trade Secret. See Confidential Addendum.)

g). **Potential Pest or Protection Problems** -

The major source of pest problems has been an infestation of the white fir engraver beetle (Scolytus ventralis) which has successfully attacked and killed substantial numbers of white fir trees. An aggressive sanitation-salvage program during the past three years has greatly reduced this problem. The composition of white fir in the overstory has been reduced greatly as a consequence but still maintains a large presence in the forest understory.

Where harvesting within the past 10 years has taken place, one of the major objectives has been to cut overstory trees exhibiting symptoms of being of highest potential risk for mortality. The western area of the property has received limited attention and is in urgent need of a sanitation-salvage harvest in untreated areas.

Much of the property is overstocked with trees of submerchantable size trees and stand densities are greater than recommended levels. This is most striking in the XY and XP stands which would benefit from precommercial thinning. Thinning of these stands would also help reduce, but not completely eliminate, the threat of a disastrous wildfire. On suitable ground when market conditions warrant, precommercial mechanical thinning of small trees shall be considered.

Stand density indexes (SDI) were calculated for all 13 stand types to

measure stocking levels and predict stands most susceptible to pest problems. A study by P. H. Cochran (1992) concluded that for stands of predominantly ponderosa pine, maximum SDI should not exceed 270 and when thinning is undertaken, SDI should be reduced to about 180. SDI for the 13 types on the Hulsman Ranch has been calculated as follows:

Timber Stand Type	SDI
OX2/P3	190
Y1/P2	276
Y1/PSDF2	468
Y2/PSDF2	264
Y3/P4	141
YP1/P2	382
YP2/P3	268
YX1/PSDF2	251
P2/P3	247
XY2/P3	182
XY2/PSDF3	234
XP1/PSDF3	280
X3/B4	65

Y1/PSDF2 stands have the highest SDI and are slated for sanitation-salvage and selection cutting in 1996. The YP1/P2 stands were harvested in 1993 and 1994 but have been experiencing some problems with insect outbreaks and mortality. A thinning from below is recommended and should occur within the next two to three years. Six other stands have a SDI close to the 270 recommended maximum and could benefit from thinning of small trees.

The potential for a serious fire is greatest in the southern half of the forest where dense understories are located. Precommercial thinning and fuels treatment would help reduce this threat. Stands along Wingfield Road are more open with a notable lack of reproduction and little brush or grass. They are less susceptible to a serious fire but could benefit from a cool prescribed fire which would reduce surface fuels.

10. TIMBER MANAGEMENT OBJECTIVES:

This property has belonged to the descendants of the Hulsman family since it was acquired from the estate of Peter Lassen in 1863. The property is currently used as a residence, for a sustainable livestock operation and for long-term timber production. Water from the forest area is used for on-site domestic, and for both on-site and off-site agricultural uses.

The forest management goals of the Hulsman Ranch Partnership are as follows:

1. Maintain a balance between growth and volume cut over the long-term.

2. Utilize an uneven-aged management system to retain forest cover, aesthetics, protect forest soils, reduce the need for artificial

regeneration and minimize impacts to wildlife populations. Use a selection cutting scheme to maintain aesthetics and overall property values while generating an economic return.

3. Improve forest growth and productivity by reducing competition and the potential for an insect outbreak through the thinning of overstocked stands.

4. Reduce fire hazard by 100% treatment (lopping of all logging-generated slash). Where suitable burn or chip logging slash.

5. Generate periodic income through timber harvesting operations.

6. Protect water sources for domestic and agricultural purposes.

11. TIMBER MANAGEMENT ACTIVITIES:

a). Harvest Frequency -

It is anticipated that timber harvesting will occur every one to three years. Individual stands will be entered once every 10 to 20 years depending upon stocking levels, growth and general stand health. Site IV lands will be entered once every 15 to 20 years. Pest problems could cause more frequent entry. Additionally, if biomass harvesting becomes feasible, commercial and precommercial thinning could be undertaken on many of the overstocked areas.

b). Silvicultural Prescriptions -

The forest will be managed on an uneven-aged silvicultural system. The principal silvicultural method will be individual selection. Group selection may be used in circumstances where small openings need to be created to induce natural reproduction of shade intolerant conifer species. Sanitation-salvage harvesting will be done in situations where high risk trees need to be removed. Other intermediate methods will be used, especially in stands needing stocking control.

c). Yarding Systems -

It is planned that all log skidding shall be conducted by tractor or skidder. Feller bunchers may be used for tree felling and bunching for biomass operations.

12. CULTURAL OR HISTORICAL RESOURCES:

See Confidential Addendum.

13. TIMBERLAND CONVERSION CERTIFICATE is not in effect.

14. TIMBER HARVESTING PLAN ON FILE:

None currently on file. All prior THP's have been completed and have satisfied stocking requirements.

15. BIOLOGICAL RESOURCES:

The project area includes four principal vegetation types as identified in the California Wildlife Habitat Relationships System (WHR). Estimated acreage by different Habitat types is as follows:

WHR Type - Description		Acres
SGB	- Sagebrush	631
PAS	- Pasture	527
EPN3P	- Eastside Pine medium trees open cover	45
EPN3M	- Eastside Pine medium trees moderate cover	248
EPN4P	- Eastside Pine large trees open cover	214
EPN4M	- Eastside Pine large trees moderate cover	516
EPN4D	- Eastside Pine large trees dense cover	191
SMC3M	- Sierran Mixed Conifer medium trees open cover	144
SMC3D	- Sierran Mixed Conifer medium trees dense cover	64
SMC4M	- Sierran Mixed Conifer large trees open cover	126
SMC4D	- Sierran Mixed Conifer large trees dense cover	148
		2,854

Primary forest cover is Eastside Pine Forest type (1,215 acres). Age class is young growth between pole and merchantable size trees. Densities are variable from open to dense. The forest area is principally vegetated with ponderosa pine trees 12 inches d.b.h. and larger constituting an overstory with pockets of reproduction. At lower elevations, California black oak is a stand component and the understory may included sagebrush, bitterbrush and grass. White fir and incense cedar are sometimes found in this type, especially along watercourses. An occasional sugar pine or Douglas-fir tree can also be found.

At elevations above 5,000 feet, the Sierran Mixed Conifer type is more prevalent and species diversity is greater than for the Eastside Pine Forest. Total area covered by this type is 482 acres. However, ponderosa pine is still the principal conifer tree species. White fir trees have died and been salvage logged in significant numbers during the past 5 years. Jeffrey pine is found at the highest elevations in place of ponderosa pine. Ground cover is light under the dense stands and covered mostly with pine needles and branches. The more open stands include litter with squaw carpet, grass, pockets of manzanita (in poor condition from the 1990-1991 winter freeze), herbaceous plants and scattered serviceberry and willow bushes.

Two non-forest vegetation types found on the Hulsman Ranch property will not be impacted by the proposed timber harvesting activities. Pasture comprises approximately 528 acres and is native grass. A few small native grass meadows are located within the forested area of the property. Species

composition in these forest meadows includes perennial grasses, quaking aspen, wild rose, willow and alder. Sagebrush plant communities are located north of the forested areas with species composition including sagebrush, bitterbrush, rabbitbrush and grasses.

The area supports a typical mix of wildlife species for the Eastside Pine Forest and Sierran Mixed Conifer types including mule deer, squirrels, mountain lion, coyote, bobcat, jackrabbits, etc.

There are no known significant wildlife or fishery concerns for the area. The property is within an area used for deer winter range. The project, however, should have minimum impact on black oak cover and there is little bitterbrush in the harvest plan area. Deer habitat may actually be enhanced in the short-term with improved production of herbs and forbes as a result of greater sunlight reaching the forest floor.

There are no known threatened or endangered wildlife species which use the property. This information has been confirmed by Beverly Clark, Wildlife Biologist for the Eagle Lake District of the U.S. Forest Service.

Bald Eagles are believed to occasionally fly over the property. There are no known Bald Eagle nests on the property. Similarly, the property is within the range of the Northern Goshawk which is also considered a "sensitive" species, but no nest sites are known to occur in the harvest area.

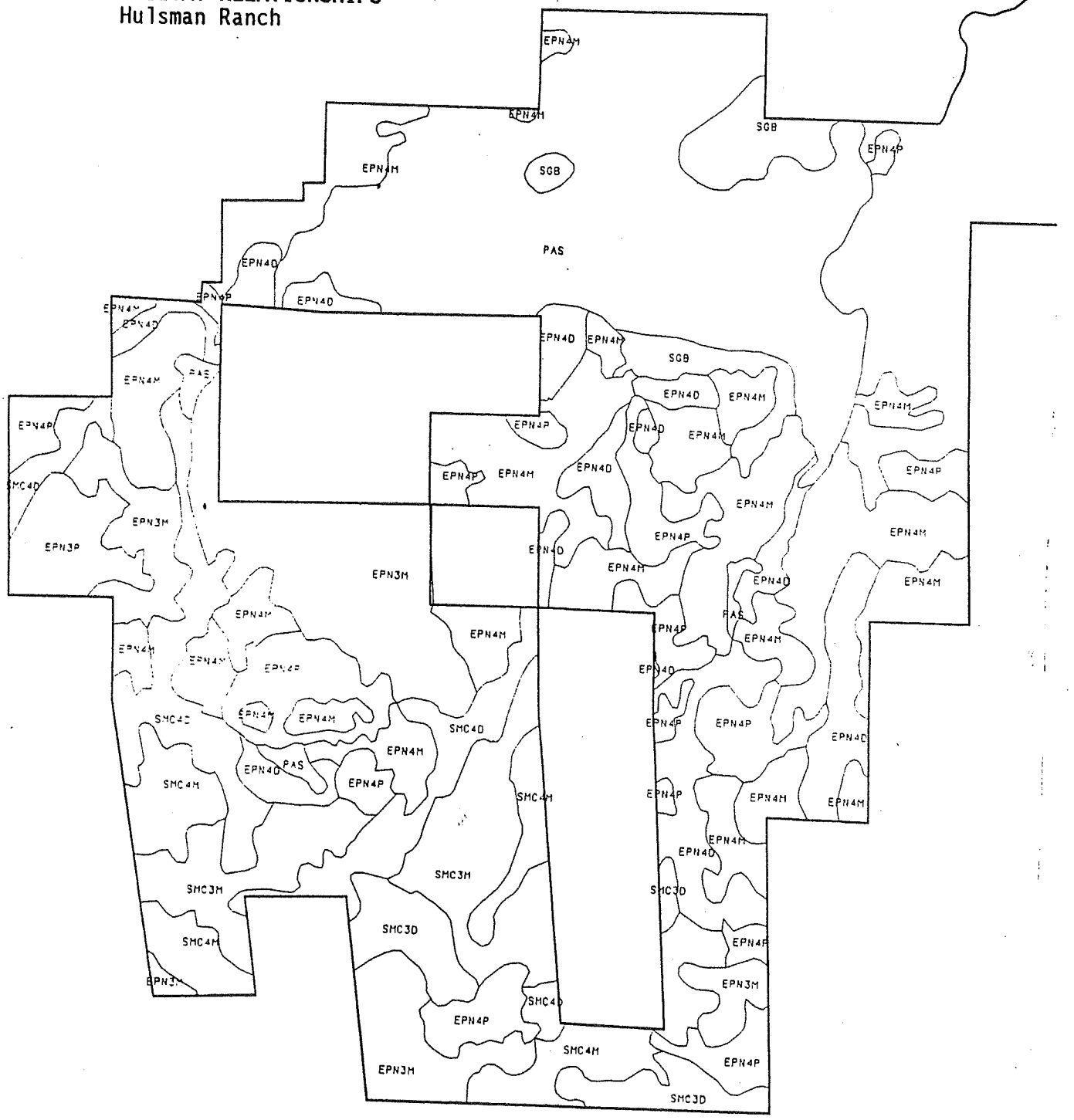
One California Spotted Owl family has been tracked by the Forest Service because it has nesting sites either on National Forest ground just south of the property line or on the Hulsman Ranch in Section 33. The most recent Owl nest was in a very old burned hollow snag in a small open area surrounded by moderately dense young growth mixed conifer forest. The forest area was lightly harvested in 1994 and the nest has not been checked since that time. According to Beverly Clark, this nesting pair does move its nesting site from time to time. Under the proposed uneven-aged management scheme, available habitat will not be altered significantly over the long-term and there is no reason to believe that this nesting pair will be impacted.

The property contains some dead conifer trees. Merchantable dead trees may be marked for future harvest. Retention of conifer snags suitable for cavity nesters has been accomplished by leaving older and larger snags which are not suitable for sawlogs. Additionally, cavity-nesting species do have available habitat on the site from the many black oak trees which are not planned for harvest.

Beth Corbin, Forest Botanist for the U.S.F.S. Lassen National Forest, was contacted regarding the possibility of Rare, Endangered, Threatened or Sensitive plants on the project area. None are currently listed on the quad map covering this project area. Three species of special interest were mentioned as possibly being in the project area: Astragalus inversus, Susanville milk vetch, Cordylanthus capitatus, Yakima bird's beak and Sparginium minimum. The first species has not been observed by this forester on the project area. It is believed not likely that the second species is on the property because the species occurs on the edge of true fir forests, and

N-2-95-12

WILDLIFE HABITAT RELATIONSHIPS
Hulsman Ranch



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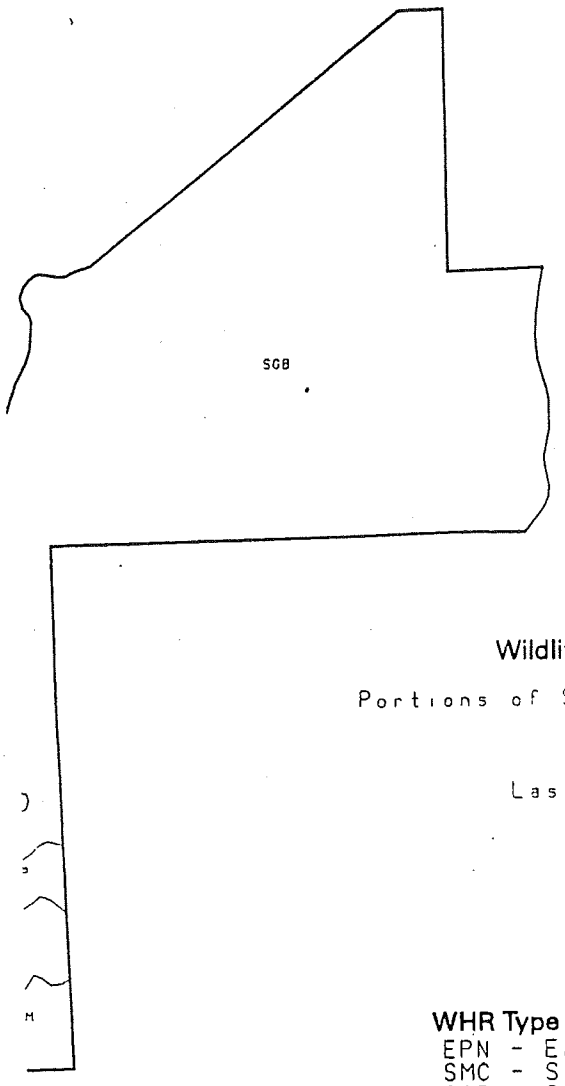
WILDLIFE HABITAT RELATIONSHIPS
Hulsman Ranch



Wildlife Habitat Relationships

Portions of Sections 20, 21, 27-29, 32-34

T29N, R12E, MDM

Lassen County, California

WHR Type
EPN - Eastside Pine
SMC - Sierran Mixed Conifer
SGB - Sagebrush
PAS - Pasture

Tree Size (Mean dbh)
3 - Pole tree (6" - 11")
4 - Small tree (11" - 24")

Canopy Closure
D - Dense Cover (60 - 100%)
M - Moderate Cover (40 - 59%)
P - Open Cover (25 - 39%)

true fir forests are not present on this property. The last species of special interest grows in lakes or pond margins and no activity is planned adjacent or near this kind of habitat. Mimulus pygmaeus (Egg Lake monkeyflower) is a sensitive plant which could marginally inhabit the Hulsman Ranch, but it has not been observed. No additional plants of concerned have been identified after review of the California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California (1994).

Denser forest stands along the watercourses have some characteristics of late seral stage forests. However, all have been harvested and components such as large downed woody material are generally not present. Tree size is also not large enough to qualify for this type. Connectivity with late seral forests on other ownerships is not apparent, including with National Forest lands on the south which have also been harvested. As proposed in this NTMP, the owners intend to maintain the cover of large trees while harvesting more of the understory which is unhealthy and dying, and thinning the least healthy of the overstory trees. Average tree size over time may actually increase as spacing between larger trees increases. General habitat characteristics should remain fairly similar to their current condition over the long-term.

16. WATER RESOURCES:

a). **BENEFICIAL USES** -

Known beneficial uses of water transported in Lassen Creek and the tributary of the Susan River include wildlife and aquatic habitat, and agricultural use. Once water from the project area reaches the pasture on the northern portion of the Ranch, most of it is dispersed into a system of irrigation ditches. Water from the watercourse which passes next to the main ranch house provides domestic water from its source near the Section 28/33 line.

b). **WATERCOURSES & LAKES** -

Lassen Creek and four of its tributaries are the principal watercourses on the Hulsman Ranch located within the THP area. Lassen Creek (on the west), the tributary in Section 29 and Section 32 and Mill Creek (easternmost tributary) are Class II streams. The short section of the watercourse lying in the southeast 1/4 of the northwest 1/4 of Section 28 and the tributary from the Ranch house to the domestic water collection point are Class III streams. The latter watercourse is a Class I above the collection point in Section 33. Jim's Creek on the east is a Class III.

Channel slope of the watercourses is gentle and generally under 15%. Stream banks are stable and gently sloping at elevations below 5,200 feet. Steeper sideslopes are encountered above the domestic water supply point for a short distance to about 5,040 feet elevation. Portions of the Mill Creek watercourse above 5,200 feet are steeper with sections of flatter areas suitable for crossing. Protective vegetation includes overstory ponderosa pine, black oak, white fir, incense cedar and pockets of riparian vegetation along the Class II streams.

Two Class IV irrigation ditches are located in the northern portions of the project area in Sections 20, 21 and 28. They feed off of the main channel of Lassen Creek and in normal years are dry in late summer. The ditches supply water to the main pasture area of the Ranch.

The water pipe which provides domestic water for the main ranch house is identified as a Class IV watercourse. It is buried at shallow depths and is only to be crossed at existing roads and/or crossings approved by the Timberland Owner. Any crossings shall provide for adequate protection by use of brow logs and soil built up over the crossing or other measures providing equal or greater protection.

Watercourse protection measures shall comply with the Rules and Regulations of the State Forest Practice Act including, but not limited to, the following provisions specified in 14 CCR 936.4:

Class I Watercourse -

WLPZ - 75′ slopes < 30%
100′ slopes 30-50%
150′ slopes > 50%

WLPZ to be identified on the ground by RPF with paint, flagging, or other suitable means prior to start of operations.

All harvest trees to be marked in WLPZ by supervising RPF prior to falling within WLPZ so that a base mark is below the sawcut line.

At least 50% of the overstory and 50% of the understory canopies shall be left in a well-distributed multi-storied stand composed of a diversity of species similar to that found before the start of operations. The residual overstory canopy shall be composed of at least 25% of the existing overstory conifers.

Class II Watercourses -

WLPZ - 50′ slopes < 30%
75′ slopes 30-50%
100′ slopes > 50%

WLPZ to be identified on the ground by RPF with paint, flagging, or other suitable means prior to start of operations.

All harvest trees to be marked in WLPZ by supervising RPF prior to falling within WLPZ so that a base mark is below the sawcut line.

At least 50% of the total canopy covering the ground shall be left in a well-distributed multi-storied stand configuration composed of a diversity of species similar to that found before the start of operations. The residual overstory canopy shall be composed of at least 25% of the existing overstory conifers.

Class III Watercourses -

WLPZ - 25′ slopes < 30%
50′ slopes 30-50%
50′ slopes > 50%

WLPZ may be identified on the ground by RPF with paint, flagging, or other suitable means prior to start of operations.

All harvest trees to be marked in WLPZ by supervising RPF prior to falling within WLPZ so that a base mark is below the sawcut line.

At least 50% of the understory canopy covering the ground shall be left living and well-distributed in the WLPZ to maintain soil stability.

Class IV Watercourses -

WLPZ - 25′

Centerline of pipe and WLPZ edge on ditches to be identified on the ground by RPF with paint, flagging, or other suitable means prior to start of operations.

All trees to be marked in WLPZ by supervising RPF prior to falling within WLPZ so that a base mark is below the sawcut line.

No special measures for overstory or understory retention other than compliance with Silvicultural rules.

Trees shall not be felled across Class IV watercourses without Timberland Owner approval.

WLPZ may be flagged to greater distances as site conditions dictate prior to start of operations by supervising RPF.

Crossings of roads and skid trails (across Class II watercourses) are identified on the Table which follows and on the Watercourse and Road Maps.

c). **DOMESTIC WATER** -

A notice requesting information was published in the *Lassen County Times* and a letter to landowners within 1000 feet downstream of the THP boundary was sent requesting information regarding domestic water supplies. There were no responses.

One water source within the THP project area is used for domestic water on the Hulsman Ranch property itself. The collection point is just north of an area where groundwater surfaces from a spring in the Class I watercourse. It is collected into a pipe and transported to a water storage tank in Section 28 and then transported in a pipe down to the house.

5/10/96

Practices which are to be used to minimize the impact of harvesting on domestic water include the following:

1. Use of uneven-aged harvest systems.

2. Increase of WLPZ width above the collection point to a minimum of 75 feet. This watercourse would be rated as a class III stream if water was not used for domestic purposes.

3. No tractor skid trail crossings of the Class I stream from the collection point to the existing road at Crossing #15.

d). **SPRINGS** -

Thirteen springs are identified on the Watercourse Map. RPF will flag boundaries of a 25' WLPZ around these class II wet areas and springs. The springs on the east and west sides of Crossing #26 shall be drained along the south edge of the road. A new spring has emerged on the south side of the road just east of crossing #11 in Section 33. As necessary, the sections of road adjacent to these springs will have crushed rock added for stabilization.

e). **ROADS IN WLPZ** -

Nine sections of existing seasonal road fall within the WLPZ. They are identified as R-1, R-2, R-3, R-4, etc on the Road Crossing Map. R-1, R-2, R-3 and R-4 lie within a 50 foot WLPZ for Class II watercourse, Mill Creek. R-5 and R-10 fall within a 25 foot WLPZ for a Class II spring. R-6 lies within a 25 foot WLPZ for a Class III watercourse. R-7 and R-8 are within a 50 foot WLPZ for the Class II tributary of Lassen Creek. R-9 lies within a 25 foot WLPZ for two Class II springs/seeps which drain onto an existing road on either side of Crossing #26. The standard rule is 14 CCR 936.3(c) which prohibits roads in the WLPZ unless justified and approved. 14 CCR 936.4(a) provides for RPF field examination of watercourses where existing roads are within a WLPZ.

Based upon a field inspection, it is my conclusion that beneficial uses will be least impacted by continued use of these existing road sections. Because of topographic constraints, realignment or reconstruction of these roads sections would have the potential to increase soil erosion and result in greater potential degradation of water quality. Additional protection shall include the requirement that sidecast shall be minimized along these road sections and that all sidecast from road reconstruction or new construction shall be seeded with grass and straw-mulched prior to the winter period and/or the conclusion of logging.

For section R-9, additional measures will be necessary for protection including restoration of the inside ditch along the road where groundwater is seeping and applying clean crushed rock to the road surface to provide for stability and to lessen the possibility of soil be transported into the Class II stream.

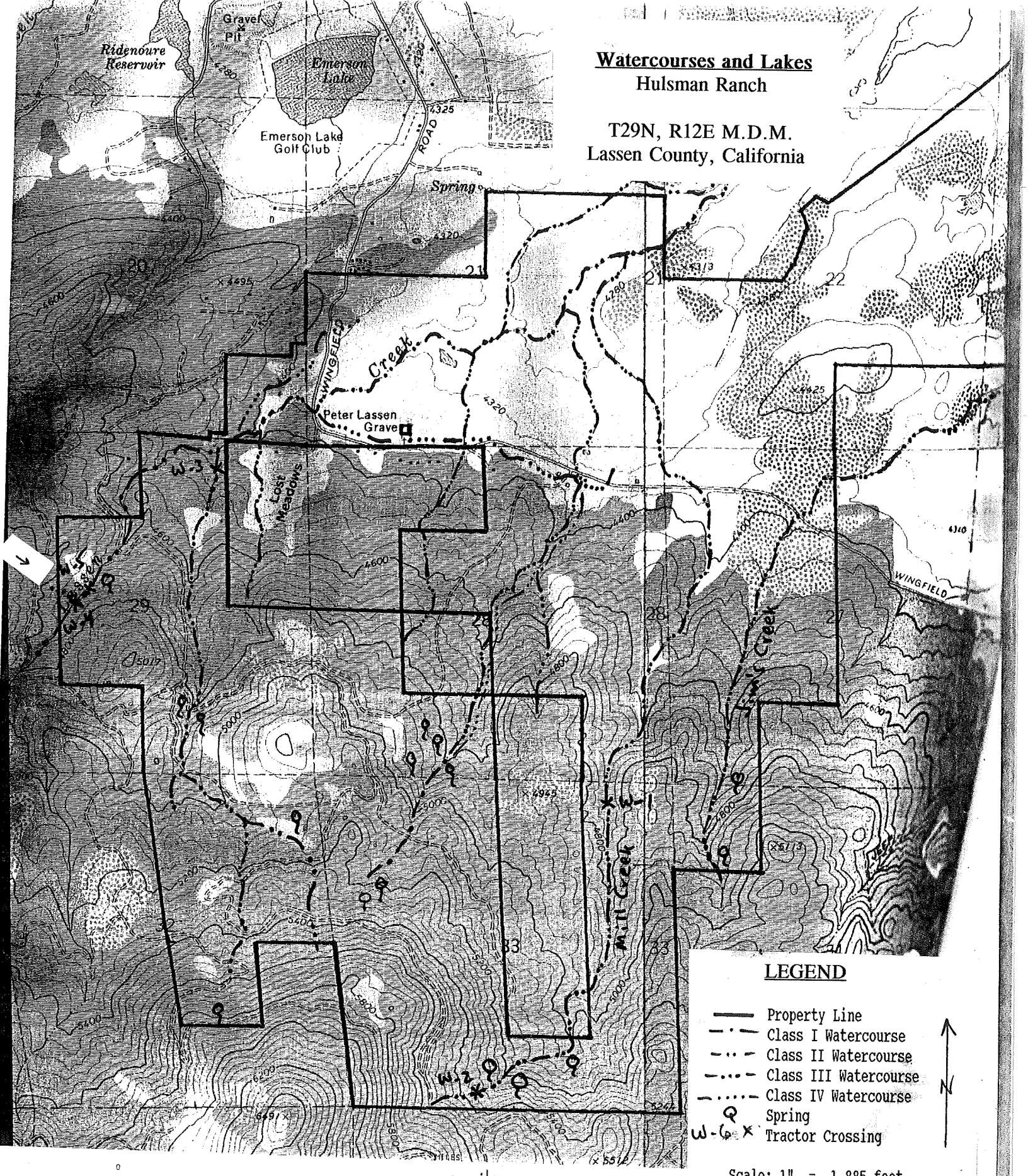
5/10/96

Table of Watercourse Crossings
Hulsman Ranch NTMP

Map No.	Watercourse Class	Crossing Facility	Status
1	III	36"x48" cmp	Existing
2	III	24" cmp	Existing
3	III	18" cmp	Existing
4	II	Add clean gravel to wet crossing as necessary	Existing
5	II	Add clean gravel to wet crossing as necessary	Existing
6	III	14" plastic pipe	Existing
7	II	60" cmp - maintain inside ditch & proper road slope on east side	Existing
8	III	Install 20' 18" cmp	Upgrade
9	II	Install 20' 24" cmp	Upgrade
10	II	Humboldt log	Existing
11	II	Humboldt log	Existing
12	III	Replace existing 12" cmp with 20' 18" cmp. Realign in channel	Upgrade
13	III	Current wet/dry crossing - install 20' 18" cmp	Upgrade
14	III	Current wet/dry crossing - install 20' 18" cmp	Upgrade
15	I	Existing Humboldt - install 20' 18" cmp	Upgrade
16	IV	2 - 20' 18" cmp	Existing
17	II	40' 18" cmp	Existing
18	II	50' 18" cmp	Existing
19	II	Install 20' 18" cmp	Upgrade
20	II	50' 18" cmp	Existing
21	II	30' 18" cmp	Existing

Map No.	Watercourse Class	Crossing Facility	Status
22	II	Install two 20 18" cmp with adequate ditching to maintain seeps. If necessary to maintain a stable road surface, clean gravel will be applied to the road.	Upgrade
23	II	Install 20' 24" cmp - maintain inside ditch on west	Upgrade
24	II	Install 20' 30" cmp	Upgrade
25	III	Install 20' 18" cmp	Upgrade
26	II	Abandon	Abandon
27	III	60' 18" cmp	Existing
28	II	Dry ford in meadow - if wet, install permanent 20' 24" cmp	Overgrown
29	III	Install 20' 18" cmp	Upgrade
30	II	Reinstall 40' 36" pipe washed downstream. Install second 30' 36" cmp on east side. Grass seed & straw mulch exposed soils. Build rock abutment on south side.	Reconstruct
31	II	20' 18" cmp - maintain as crossing for passenger vehicles & skidding	Existing
32	II	Install 30' 36" cmp - build rock abutment on south side. Grass seed & straw mulch exposed soils.	New

5/10/96

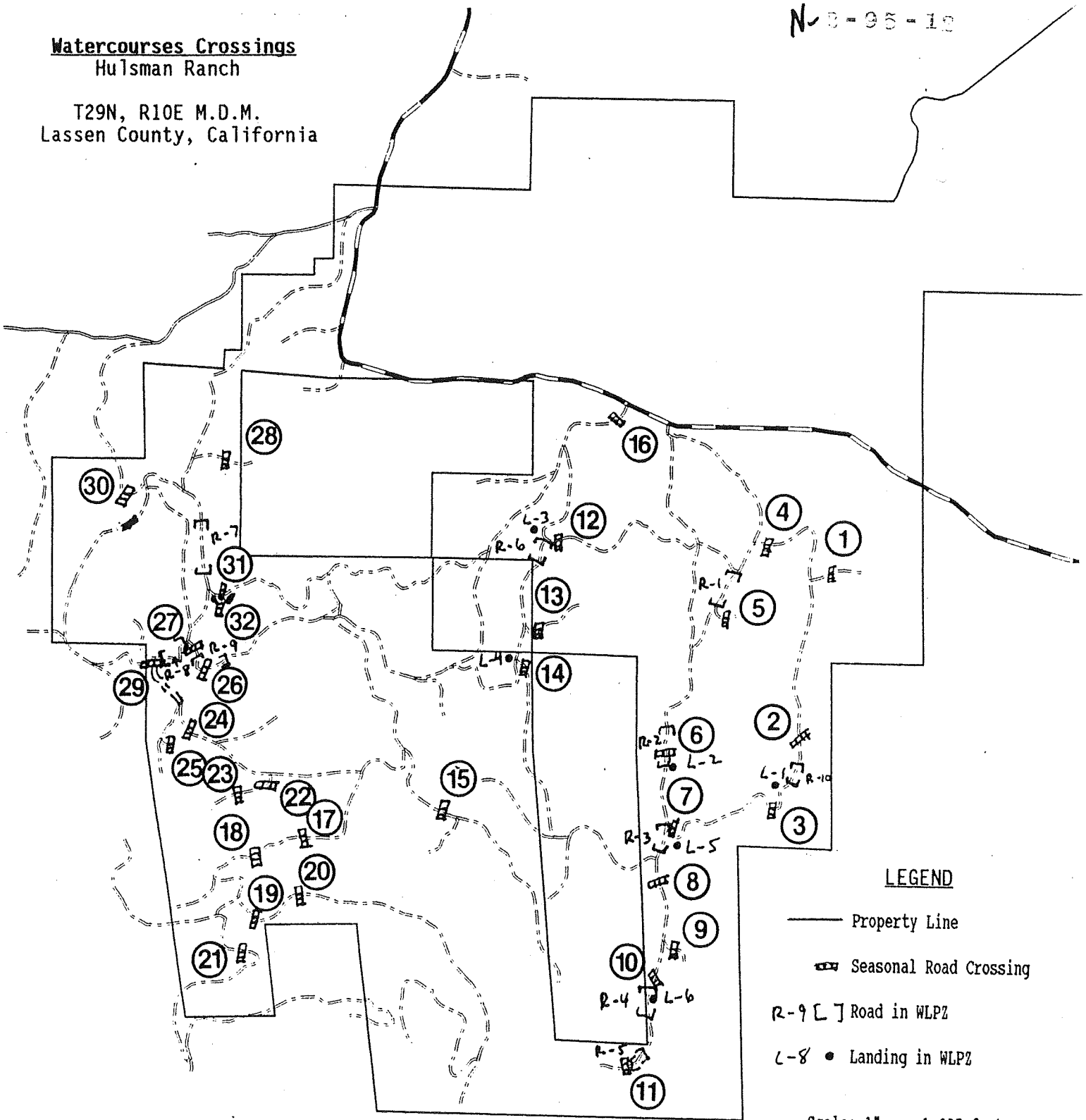

Watercourses and Lakes
Hulsman Ranch
T29N, R12E M.D.M.
Lassen County, California
Ridenoure Reservoir
Gravel Pit
Emerson Lake
Emerson Lake Golf Club
ROAD
Spring
Wingfield Creek
Peter Lassen Grave
Lost Meadows
Mill Creek
LEGEND
Property Line
Class I Watercourse
Class II Watercourse
Class III Watercourse
Class IV Watercourse
Spring
Tractor Crossing
N
0
1 mile
Scale: 1" = 1,885 feet

5/4/04

N-3-95-10

Watercourses Crossings
Hulsman Ranch

T29N, R10E M.D.M.
Lassen County, California



LEGEND

——— Property Line

Seasonal Road Crossing

R-9 [ ] Road in WLPZ

L-8 • Landing in WLPZ

Scale: 1" = 1,885 feet

December 5, 1995

0 MILES 1 2

f). **LANDINGS IN WLPZ** -

Six existing landings within the WLPZ are proposed for use (identified on Watercourse Map as L-1, L-2, L-3, L-4, L-5 & L-6). The standard rule is 14 CCR 936.3(c) which prohibits landings in the WLPZ unless justified and approved. Use of these existing landings will cause less damage because new landing construction would require major soil disturbance and a reduction in area devoted to forest productivity.

L-1 is a landing below crossing #3 and next to a class III stream. It has been used recently and the same mitigation as used in the past will be applied. As before, grass seed and straw mulch will be applied within 25 feet of the stream. The landing will be cross-drained to the northwest.

L-2 has also been used within the past five years. This landing requires that the class III watercourse above (south of) the landing is drained on the west side of the road and landing to crossing #6. Grass seed and straw mulch are to be applied within 25 feet of the class II watercourse at crossing W-1 after logging is concluded and prior to the winter period.

L-3 has been used during the past five years. It is a small landing along a class III watercourse at the intersection of two existing roads. A 25 foot WLPZ shall be flagged prior to use of this landing and logs shall not be decked in the WLPZ.

L-4 has also been used recently for salvage logging. Grass seed and straw mulch shall be applied within the 25 foot WLPZ at the conclusion of logging and prior to the winter period.

L-5 and L-6 are landings along Mill Creek which have been used within the past two years. Landing size shall not be extended towards the creek any further than currently exists.

Further protections are that:

(i). No soil, slash or logging debris shall be deposited between the edge of the landings and the watercourse. Any material accidentally deposited in this area shall be removed prior to the winter period and/or the conclusion of logging.

(ii). At the conclusion of logging, landings shall be waterbarred so that water is discharged into a filter strip and direct discharge of water into the watercourse is minimized.

(iii). Existing landings within the WLPZ may only be used during the early part of the winter period when soils are dry and when there is no predicted (30% or more) chance of rain. RPF shall make determination to shut discontinue operations on these landings after first significant winter precipitation.

5/10/96

g). **FALLING IN WLPZ** -

The standard rule is 936.3(d) which requires that trees felled within the WLPZ be felled away from the watercourse by pulling or other mechanical methods if necessary. Exceptions can be proposed and approved by the Director. It is proposed that in cases where tree lean, safety or topography and ground conditions dictate, trees may be felled across the WLPZ if it will result in a lesser amount of damage to the tree, the leave stand and understory or reduce the amount of skidding and soil disturbance. This exception is proposed for the Class II, III and IV open watercourses. It is not proposed for the Class I watercourse or the Class IV watercourse which is the buried domestic waterline. All such trees shall be marked by the RPF prior to the filing of a Notice of Operations.

17. **SOIL RESOURCES:**

A map of "Soil Types" and a description of the different types is included in this section. The map and soil descriptions are from Soil Vegetation Survey covering part of Diamond Mtn and Greenville 7.5 minute Quadrangles (35A-3) and (35C-2).

Soils of the forest area of Hulsman Ranch Area are characterized as having a weathered granite rock origin. Parent rock is from the Tertiary era. Depths are shallow (12") to deep (up to 60"). Topography is gentle to steep. Soils have the potential to gully without proper diversions. Soils are well-drained and water-holding capacity is low. Soil erosion hazard rating is moderate to high. Soils above 4,800 feet elevation belong primarily to the Toiyabe-Lasco complex or the Cagwin family. These soils are coarse loamy sands with depths between 15" to 49". Lower elevation soils tend to be deeper with a sandy loam texture and belong to the Lasco-Bonta complex or the Chimney-Janile-Waterman association. Small pockets of higher site deep Chirpchatter alluvial soils are located along Mill and Jim's Creeks.

Erosion hazard rating is "moderate" to "high". Some flatter areas at lower elevations may be "low" in EHR but because of the potential for gully erosion are rated as "moderate" in this THP. Drainage on constructed and reconstructed roads shall be rolling dips suitable for passage by a passenger vehicle. Because of the potential for gully erosion on granitic soils, the standards of an erosion hazard rating of "high" shall be applied for all slopes greater than 25%. Spacing requirements are as follows:

	Road or Trail Gradient			
Map Estimated Hazard Rating	<11%	11-25%	26-50%	>50%
High	150	100	75	50
Moderate	200	150	75	50

5/10/96

ESTIMATED SURFACE SOIL EROSION HAZARD
RM-87 (4/84)

STATE OF CALIFORNIA
BOARD OF FORESTRY

I. SOIL FACTORS

A. SOIL TEXTURE	Fine	Medium	Coarse	FACTOR RATING BY AREA A	B	C
1. DETACHABILITY	Low	Moderate	High	27	27	23
Rating	1-9	10-18	19-30			
2. PERMEABILITY	Slow	Moderate	Rapid	1	1	1
Rating	5-4	3-2	1			

A = Steeper southern slopes

B = mid slope hilly

C = flatter northern areas

B. DEPTH TO RESTRICTIVE LAYER OR BEDROCK

	Shallow	Moderate	Deep			
	1"-19"	20"-39"	40"-60" (+)	6	5	2
Rating	15-9	8-4	3-1			

C. PERCENT SURFACE COARSE FRAGMENTS GREATER THAN 2 MM IN SIZE INCLUDING ROCKS OR STONES

	Low	Moderate	High				FACTOR RATING BY AREA		
	(-) 10-39%	40-70%	71-100%	8	9	10	A	B	C
Rating	10-6	5-3	2-1						
						SUBTOTAL ⇨	42	42	36

II. SLOPE FACTOR

Slope	5-15%	16-30%	31-40%	41-50%	51-70%	71-80% (+)	15	6	5
Rating	1-3	4-6	7-10	11-15	16-25	26-35			

III. PROTECTIVE VEGETATIVE COVER REMAINING AFTER DISTURBANCE

	Low	Moderate	High			
	0-40%	41-80%	81-100%	6	6	6
Rating	15-8%	7-4	3-1			

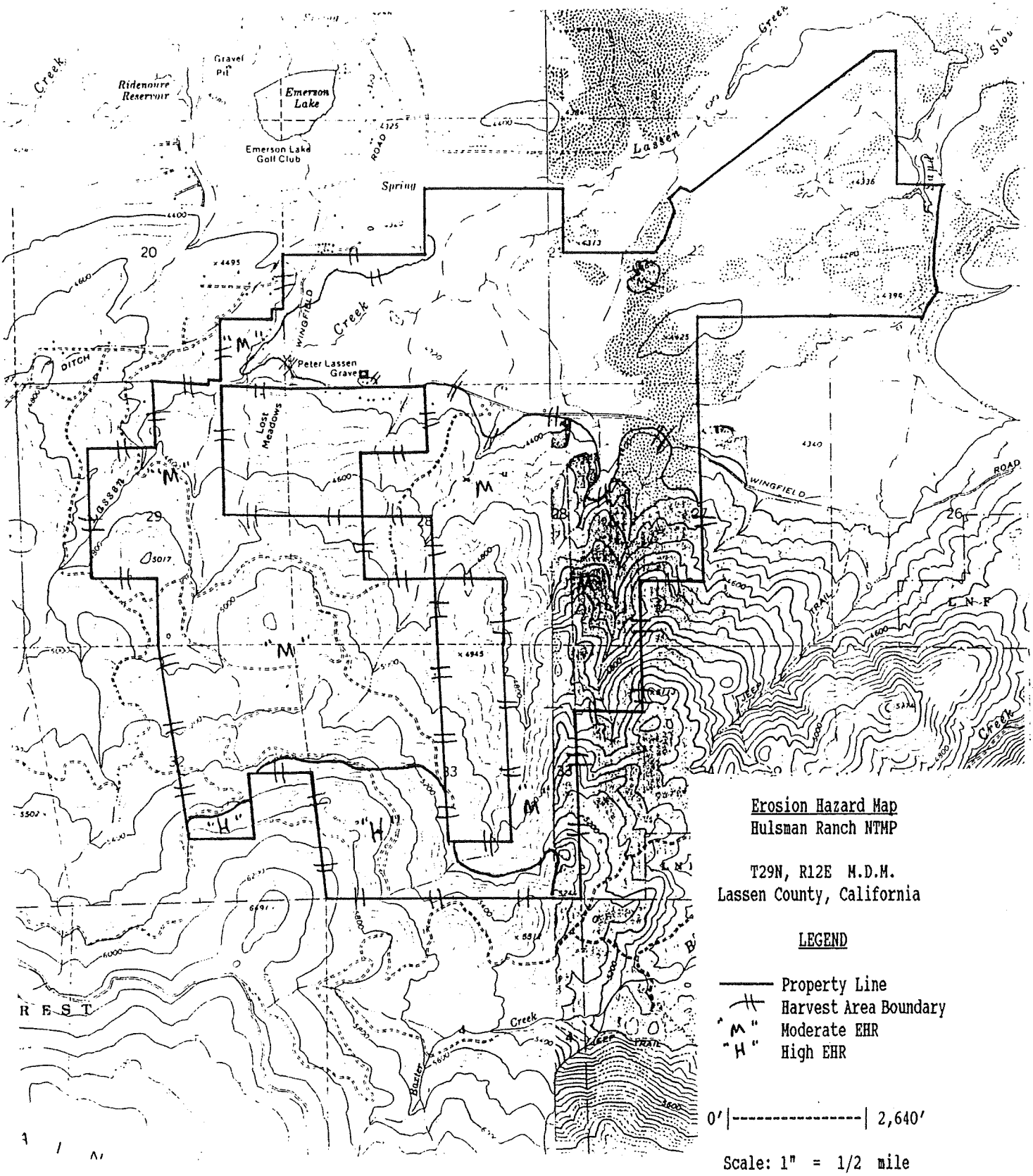
IV. TWO-YEAR, ONE-HOUR RAINFALL INTENSITY (Hundredths Inch)

	Low	Moderate	High	Extreme			
	(-) 30-39	40-59	60-69	70-80 (+)	5	5	5
Rating	1-3	4-7	8-11	12-15			
				TOTAL SUM OF FACTORS ⇨	68	59	52

EROSION HAZARD RATING

<50	50-65	66-75	>75			
LOW (L)	MODERATE (M)	HIGH (H)	EXTREME (E)	H	M	M
			THE DETERMINATION IS ⇨			

N-2-95-13



Erosion Hazard Map
Hulsman Ranch NTMP

T29N, R12E M.D.M.
Lassen County, California

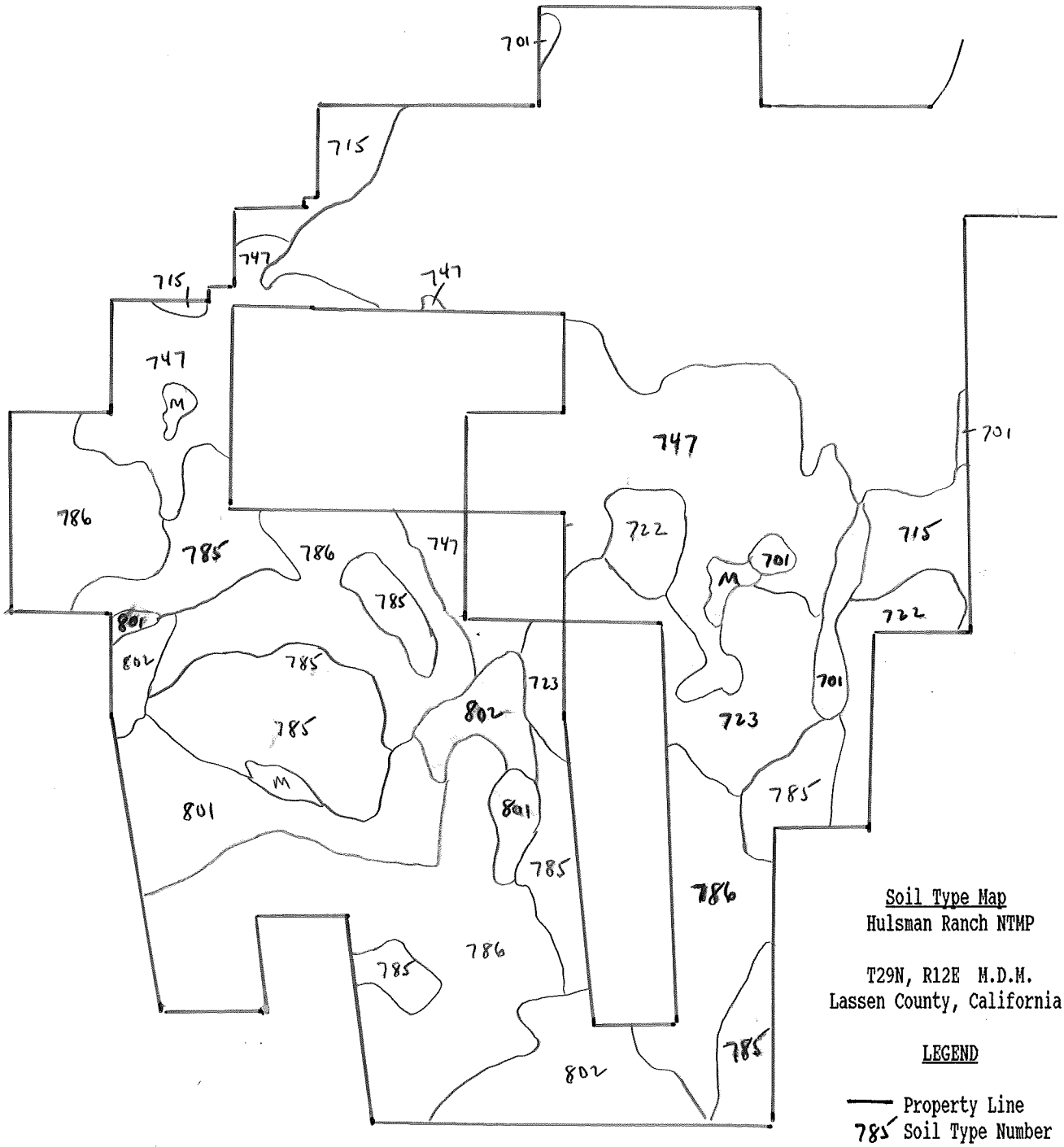
LEGEND

——— Property Line
—#— Harvest Area Boundary
"M" Moderate EHR
"H" High EHR

0'|----------| 2,640'

Scale: 1" = 1/2 mile

October 1995



Soil Type Map
Hulsman Ranch NTMP

T29N, R12E M.D.M.
Lassen County, California

LEGEND

—— Property Line
785 Soil Type Number
M Meadow

0'|----------| 2,000'

Scale: 1" = 2,000 ft.

October 1995

701 - Chirpchatter

701-Chirpchatter sandy loam, 2 to 9 percent slopes

SETTING

Landform: alluvial fans
Elevation: 4300 to 5100 feet
Slope Range: 2 to 9 percent
Vegetation: Jeffrey and ponderosa pine, white fir, perennial grasses and shrubs
Mean Annual Precipitation: 16 to 20 inches
Mean Annual Temperature: 48 to 50 degrees F.
Frost Free Period: 80 to 100 days

COMPOSITION

Chirpchatter sandy loam and similar inclusions: 85 percent
Contrasting Inclusions: 15 percent

CHIRPCHATTER SOIL CHARACTERISTICS

Parent Material: alluvium from granitic and volcanic sources
Important Surface Feature: the surface is covered with duff, 1 inch thick
Typical Profile:
- 0 to 11 inches: grayish brown sandy loam
- 11 to 52 inches: very pale brown sandy clay loam
- 52 to 60 inches: light brownish gray loam

Depth Class: very deep
Drainage Class: well drained
Permeability: moderately slow
Available Water Capacity: moderate
Depth to Water Table: 60 to 72 inches from December to April
Potential Rooting Depth: 60 inches or more
Surface Runoff: slow
Bare Soil Erosion Hazard Rating: low

INCLUDED AREAS

- soils similar to Chirpchatter but are deep to soft bedrock
- soils similar to Chirpchatter but have a very gravelly clay loam subsoil
- impervious material within Janesville

MAJOR USES

Current Uses: timber production, livestock grazing and urban development in some areas

TIMBER PRODUCTION

CHIRPCHATTER VEGETATION CHARACTERISTICS

Main Tree Species: Jeffrey pine and ponderosa pine
Mean Site Index For Stated Species:
Jeffrey pine: 95 based on a 100 year site curve by Meyer
Dunning Site Class: II
Cactos Site Index: 59
Common Understory Plants:
- manzanita
- snowbrush ceanothus
- mountain whitethorn
- needlegrass
- mountain brome

General Management Considerations:
Brushy plants such as manzanita, snowbrush ceanothus and mountain whitethorn limit natural regeneration of pine and fir trees.
If the site is not adequately prepared, competition from undesirable plants can prevent or prolong natural or artificial reestablishment of trees.
Among the trees that are suitable for planting are Jeffrey pine and ponderosa pine.

LIVESTOCK GRAZING

General Management Considerations:
This soil supports an understory plant community suitable for livestock grazing. Forage production is limited by conifer canopy density. Following timber harvest or thinning operations, forage production is enhanced.

URBAN DEVELOPMENT

Major Management Factors:
Moderately slow permeability
Shrink-swell

General Management Considerations:
Absorption lines should be placed below the moderately slow permeable layer. Increasing the size of the absorption area helps to compensate for the moderately slow permeability
Buildings and roads should be designed to offset the effects of shrinking and swelling.

INTERPRETIVE GROUPS

Capability Subclass: IIIe (22), nonirrigated

715 - Bonta

715-Bonta coarse sandy loam, 9 to 15 percent slopes

SETTING

Landform: toeslopes
Elevation: 4100 to 4300 feet
Slope Range: 9 to 15 percent
Vegetation: Jeffrey and ponderosa pine, white fir, perennial grasses and shrubs
Mean Annual Precipitation: 16 to 20 inches
Mean Annual Temperature: 49 to 51 degrees F.
Frost Free Period: 80 to 100 days

COMPOSITION

Bonta coarse sandy loam and similar inclusions: 75 percent
Contrasting Inclusions: 25 percent

BONTA SOIL CHARACTERISTICS

Parent Material: material weathered from granite
Important Surface Feature: the surface is covered with duff, 2 inches thick
Typical Profile:
- 0 to 12 inches: very pale brown coarse sandy loam
- 12 to 36 inches: pink sandy loam
- 36 inches: decomposed granite

Depth Class: moderately deep
Drainage Class: well drained
Permeability: moderately rapid
Available Water Capacity: very low to low
Potential Rooting Depth: 30 to 40 inches
Surface Runoff: medium
Bare Soil Erosion Hazard Rating: low
Depth to Restrictive Layer: 30 to 40 inches to decomposed granite

INCLUDED AREAS

- Lasco gravelly sandy loam
- soils similar to Bonta but have a very cobbly subsoil in draws
- impervious material within Janesville

MAJOR USES

Current Uses: timber production, urban development and livestock grazing

TIMBER PRODUCTION

Major Management Factors:
Very low to low available water capacity

BONTA VEGETATION CHARACTERISTICS

Main Tree Species: Jeffrey pine, ponderosa pine, California black oak

Mean Site Index For Stated Species:
Jeffrey pine: 64 based on a 100 year site curve by Meyer
Dunning Site Class: IV
Cactos Site Index: 43
Common Understory Plants:
- manzanita
- snowbrush ceanothus
- mountain whitethorn
- needlegrass
- mountain brome
- antelope bitterbrush
- big sagebrush

General Management Considerations:
The very low available water capacity in the upper 24 inches reduces the survival of seedlings.
Brushy plants such as manzanita, snowbrush ceanothus and mountain whitethorn limit natural regeneration of pine and fir trees.
Plant competition delays natural regeneration but does not prevent the eventual development of a fully stocked, normal stand of trees.
Roads and landings can be protected from erosion by constructing waterbars.
Among the trees that are suitable for planting are Jeffrey pine and ponderosa pine.

URBAN DEVELOPMENT

Major Management Factors:
Slope
Depth to rock

General Management Considerations:
Cuts needed to provide essentially level building sites can expose bedrock.
Erosion is a hazard in the steeper areas. Only the part of the site that is used for construction should be disturbed.
Revegetating disturbed areas around construction sites as soon as possible helps to control soil blowing.

LIVESTOCK GRAZING

General Management Considerations:
This soil supports an understory plant community suitable for livestock grazing.
Forage production is limited by conifer canopy density. Following timber harvest or thinning operations, forage production is enhanced.

INTERPRETIVE GROUPS

Capability Subclass: VIe (22), nonirrigated

722 - Chimney-Waterman

722-Chimney-Waterman association, 9 to 30 percent slopes

SETTING

Landform: mountains
Elevation: 4300 to 5000 feet
Slope Range: 9 to 30 percent
Vegetation: Jeffrey and ponderosa pine, white fir, perennial grasses and shrubs
Mean Annual Precipitation: 16 to 25 inches
Mean Annual Temperature: 48 to 50 degrees F.
Frost Free Period: 80 to 100 days

COMPOSITION

Chimney gravelly loamy coarse sand and similar inclusions: 65 percent
Waterman bouldery loamy coarse sand and similar inclusions: 20 percent
Contrasting Inclusions: 15 percent

CHIMNEY SOIL CHARACTERISTICS

Position on Landscape: on back slopes
Parent Material: material weathered from granite
Slope: 15 to 30 percent
Important Surface Feature: the surface is covered with duff, 1 inch thick
Typical Profile:
- 0 to 13 inches: grayish brown gravelly loamy coarse sand
- 13 to 36 inches: light yellowish brown gravelly loamy coarse sand
- 36 to 60 inches: pale brown coarse sand

Depth Class: deep or very deep
Drainage Class: somewhat excessively
Permeability: rapid
Available Water Capacity: very low to low
Potential Rooting Depth: 40 to 72 inches
Surface Runoff: rapid
Bare Soil Erosion Hazard Rating: moderate
Depth to Restrictive Layer: 40 to 72 inches to decomposed granite

WATERMAN SOIL CHARACTERISTICS

Position on Landscape: on ridges
Parent Material: material weathered from granite
Slope: 9 to 15 percent
Important Surface Feature: the surface is covered with duff and 10 percent boulders
Typical Profile:
- 0 to 7 inches: grayish brown bouldery loamy coarse sand
- 7 to 18 inches: pale brown very gravelly loamy coarse sand
- 18 inches: weathered granite

Depth Class: shallow
Drainage Class: excessively drained
Permeability: rapid
Available Water Capacity: very low
Potential Rooting Depth: 12 to 20 inches
Surface Runoff: medium
Bare Soil Erosion Hazard Rating: moderate
Depth to Restrictive Layer: 12 to 20 inches to weathered granite

INCLUDED AREAS

- Calpine sandy loam
- Massack loam in some draws
- Mottsville loamy coarse sand on toe slopes
- Impervious material within Janesville

MAJOR USES

Current Uses: timber production, livestock grazing and urban development

TIMBER PRODUCTION

Major Management Factors:
Hazard of erosion
Low available water capacity

CHIMNEY VEGETATION CHARACTERISTICS

Main Tree Species: Jeffrey pine, ponderosa pine, California black oak
Mean Site Index For Stated Species:
Jeffrey pine: 75 based on a 100 year site curve by Meyer
Dunning Site Class: III
Cactos Site Index: 52
Common Understory Plants:
- antelope bitterbrush
- mountain big sagebrush
- Idaho fescue

WATERMAN VEGETATION CHARACTERISTICS

Main Tree Species: Jeffrey pine, ponderosa pine, California black oak
Mean Site Index For Stated Species:
Jeffrey pine: 56 based on a 100 year site curve by Meyer
Dunning Site Class: IV
Cactos Site Index: 40
Common Understory Plants:
- antelope bitterbrush
- mountain big sagebrush
- Idaho fescue

General Management Considerations:
The bare soil erosion hazard rating of the Chimney soil may be reduced to low by managing for approximately 40 percent cover.
The bare soil erosion hazard rating of the Waterman soil may be reduced to low by managing for approximately 40 percent cover.
The very low available water capacity in the upper 24 inches of these soils reduces the survival of seedlings.
Roads and landings can be protected from erosion by constructing waterbars.
Among the trees that are suitable for planting are Jeffrey pine and ponderosa pine.

LIVESTOCK GRAZING

General Management Considerations:
This unit supports an understory plant community suitable for livestock grazing. Forage production is limited by conifer canopy density. Following timber harvest or thinning operations, forage production is enhanced.

URBAN DEVELOPMENT

Major Management Factors:
Hazard of erosion
Inadequate filtering of effluent by the Chimney soil
Slope
Depth to bedrock on the Waterman soil

General Management Considerations:
The bare soil erosion hazard rating of the Chimney soil may be reduced to low by managing for approximately 40 percent cover.
The bare soil erosion hazard rating of the Waterman soil may be reduced to low by managing for approximately 40 percent cover.
Effluent from septic tank absorption fields can surface in downslope areas and thus create a hazard to health.
If the density of housing is moderate to high, community sewage systems are needed to prevent contamination of water supplies as a result of seepage from on-site sewage disposal systems.
Slope is a concern in installing septic tank absorption fields. Absorption lines should be installed on the contour.
Access roads should be designed to control surface runoff and help stabilize cut slopes.
Cuts needed to provide essentially level building sites can expose bedrock.

INTERPRETIVE GROUPS

Capability Subclass: VIe (22), nonirrigated

723-Chimney-Janile-Waterman association, 15 to 50 percent slope

SETTING

Landform: mountains
Elevation: 4300 to 5000 feet
Slope Range: 15 to 50 percent
Vegetation: Jeffrey and ponderosa pine, white fir, perennial grasses and shrubs
Mean Annual Precipitation: 16 to 25 inches
Mean Annual Temperature: 48 to 50 degrees F.
Frost Free Period: 80 to 100 days

COMPOSITION

Chimney gravelly loamy coarse sand and similar inclusions: 35 percent
Janile bouldery loamy coarse sand and similar inclusions: 30 percent

Waterman bouldery loamy coarse sand and similar inclusions: 15 percent
Contrasting Inclusions: 20 percent

CHIMNEY SOIL CHARACTERISTICS

Position on Landscape: on north-facing back slopes
Parent Material: material weathered from granite
Important Surface Feature: the surface is covered with duff, 1 inch thick
Typical Profile:
- 0 to 13 inches: grayish brown gravelly loamy coarse sand
- 13 to 36 inches: light yellowish brown gravelly loamy coarse sand
- 36 to 56 inches: pale brown coarse sand
- 56 inches: weathered granite

Depth Class: deep or very deep
Drainage Class: somewhat excessively
Permeability: rapid
Available Water Capacity: very low to low
Potential Rooting Depth: 40 to 72 inches
Surface Runoff: rapid
Bare Soil Erosion Hazard Rating: high
Depth to Restrictive Layer: 40 to 72 inches to decomposed granite

JANILE SOIL CHARACTERISTICS

Position on Landscape: on south-facing back slopes
Parent Material: material weathered from granite
Important Surface Feature: the surface is covered with duff and 10 percent boulders
Typical Profile:
- 0 to 4 inches: pale brown bouldery loamy coarse sand
- 4 to 19 inches: light gray very gravelly loamy coarse sand
- 19 to 24 inches: light brownish gray extremely gravelly loamy coarse sand
- 24 inches: weathered granite

Depth Class: moderately deep
Drainage Class: somewhat excessively
Permeability: rapid
Available Water Capacity: very low
Potential Rooting Depth: 20 to 40 inches
Surface Runoff: rapid
Bare Soil Erosion Hazard Rating: high
Depth to Restrictive Layer: 20 to 40 inches to weathered granite

WATERMAN SOIL CHARACTERISTICS

Position on Landscape: on ridges
Parent Material: material weathered from granite
Important Surface Feature: the surface is covered with duff and 10 percent boulders
Typical Profile:
- 0 to 7 inches: grayish brown bouldery loamy coarse sand
- 7 to 18 inches: pale brown very gravelly loamy coarse sand
- 18 inches: weathered granite

Depth Class: shallow
Drainage Class: excessively drained
Permeability: rapid
Available Water Capacity: very low
Potential Rooting Depth: 12 to 20 inches
Surface Runoff: rapid
Bare Soil Erosion Hazard Rating: high
Depth to Restrictive Layer: 12 to 20 inches to weathered granite

INCLUDED AREAS

- Bonta sandy loam on south-facing toe slopes
- Mottsville gravelly loamy coarse sand on some toe slopes
- soils similar to Janile but have very gravelly sandy loam subsoil
- Rock outcrop on ridges

MAJOR USES

Current Uses: timber production and livestock grazing

TIMBER PRODUCTION

Major Management Factors:
Hazard of erosion
Low available water capacity
Slope of the Janile soil

CHIMNEY VEGETATION CHARACTERISTICS

Main Tree Species: Jeffrey pine, ponderosa pine, California black oak
Mean Site Index For Stated Species:
Jeffrey pine: 75 based on a 100 year site curve by Meyer
Dunning Site Index: III
Cactos Site Index: 52
Common Understory Plants:
- antelope bitterbrush
- mountain big sagebrush
- Idaho fescue

JANILE VEGETATION CHARACTERISTICS

Main Tree Species: Jeffrey pine, ponderosa pine, California black oak
Mean Site Index For Stated Species:
Jeffrey pine: 74 based on a 100 year site curve by Meyer
Dunning Site Index: III
Cactos Site Index: 49
Common Understory Plants:
- antelope bitterbrush
- mountain big sagebrush
- Idaho fescue

WATERMAN VEGETATION CHARACTERISTICS

Main Tree Species: Jeffrey pine, ponderosa pine, California black oak
Mean Site Index For Stated Species:
Jeffrey pine: 56 based on a 100 year site curve by Meyer
Dunning Site Index: IV
Cactos Site Index: 40
Common Understory Plants:
- antelope bitterbrush
- mountain big sagebrush
- Idaho fescue

General Management Considerations:
The bare soil erosion hazard rating of the Chimney soil may be reduced to low by managing for approximately 60 percent cover.
The bare soil erosion hazard rating of the Janile soil may be reduced to low by managing for approximately 60 percent cover.
The bare soil erosion hazard rating of the Waterman soil may be reduced to low by managing for approximately 60 percent cover.
The very low available water capacity in the upper 24 inches of these soils reduces the survival of seedlings.
Roads and landings can be protected from erosion by constructing waterbars.
The steepness of slope limits the kinds of equipment that can be used in forest management.
Among the trees that are suitable for planting are Jeffrey pine and ponderosa pine.

LIVESTOCK GRAZING

General Management Considerations:
This unit supports an understory plant community suitable for livestock. Forage production is limited by conifer canopy density. Following timber harvest or thinning operations, forage production is enhanced.
Slope may limit access by some classes of livestock. Fencing and water development can improve livestock distribution.

INTERPRETIVE GROUPS

Capability Subclass: VIe (22), nonirrigated

747 - Lasco-Bonta

747-Lasco-Bonta complex, 15 to 30 percent slopes

SETTING

Landform: toe slopes
Elevation: 4300 to 4900 feet
Slope Range: 15 to 30 percent
Vegetation: mixed conifers
Mean Annual Precipitation: 25 to 30 inches
Mean Annual Temperature: 45 to 47 degrees F.
Frost Free Period: 60 to 80 days

COMPOSITION

Lasco sandy loam and similar inclusions: 60 percent
Bonta coarse sandy loam and similar inclusions: 20 percent
Contrasting inclusions: 20 percent

LASCO SOIL CHARACTERISTICS

Position on Landscape: on concave slopes
Parent Material: material weathered from granite
Important Surface Feature: the surface is covered with duff, 2 inches thick
Typical Profile:
- 0 to 9 inches: brown sandy loam
- 9 to 49 inches: light brown sandy loam
- 49 inches: weathered granite

Depth Class: deep
Drainage Class: well drained
Permeability: moderately rapid
Available Water Capacity: low
Potential Rooting Depth: 40 to 60 inches
Surface Runoff: rapid
Bare Soil Erosion Hazard Rating: moderate
Depth to Restrictive Layer: 40 to 60 inches to weathered granite

BONTA SOIL CHARACTERISTICS

Position on Landscape: on convex slopes
Parent Material: material weathered from granite
Typical Profile:
- 0 to 12 inches: very pale brown coarse sandy loam
- 12 to 36 inches: sandy loam
- 36 inches: decomposed granite

Depth Class: moderately deep
Drainage Class: well drained
Permeability: moderately rapid
Available Water Capacity: very low to low
Potential Rooting Depth: 30 to 40 inches
Surface Runoff: medium
Bare Soil Erosion Hazard Rating: moderate
Depth to Restrictive Layer: 30 to 40 inches to decomposed granite

INCLUDED AREAS

- Chimney loamy coarse sand on 30 to 50 percent slopes
- Chirpchatter sandy loam in drainages and on alluvial fans
- soils similar to Lasco but are greater than 60 inches deep
- soils similar to Lasco but are sandy throughout
- soils similar to Lasco but have sandy clay loam subsoils
- similar soils but have slopes of 9 to 15 percent or 30 to 50 percent
- similar soils but have stony or bouldery surfaces

MAJOR USES

Current Uses: timber production and livestock grazing

TIMBER PRODUCTION

Major Management Factors:
Hazard of erosion
Low available water capacity

LASCO VEGETATION CHARACTERISTICS

Main Tree Species: ponderosa pine, Jeffrey pine, incense cedar, California black oak
Mean Site Index For Stated Species:
ponderosa pine: 88 based on a 100 year site curve by Meyer
Dunning Site Class: II
Cactos Site Index: 60
Common Understory Plants:
- manzanita
- snowbrush ceanothus
- mountain whitethorn
- needlegrass
- mountain brome

BONTA VEGETATION CHARACTERISTICS

Main Tree Species: Jeffrey pine
Mean Site Index For Stated Species:
Jeffrey pine: 64 based on a 100 year site curve by Meyer
Dunning Site Class: II
Cactos Site Index: 43
Common Understory Plants:
- antelope bitterbrush
- mountain big sagebrush
- Idaho fescue

General Management Considerations:
The bare soil erosion hazard rating of the Lasco soil may be reduced to low by managing for approximately 60 percent cover.
The bare soil erosion hazard rating of the Bonta soil may be reduced to low by managing for approximately 60 percent cover.
The very low available water capacity in the upper 24 inches reduces the survival of seedlings.
Brushy plants such as manzanita, snowbrush ceanothus and mountain whitethorn limit natural regeneration of pine and fir trees.
Plant competition delays natural regeneration but does not prevent the eventual development of a fully stocked, normal stand of trees.
Roads and landings can be protected from erosion by constructing waterbars.
Among the trees that are suitable for planting are Jeffrey pine and ponderosa pine.

LIVESTOCK GRAZING

General Management Considerations:
This soil supports an understory plant community suitable for livestock grazing. Forage production is limited by conifer canopy density. Following timber harvest or thinning operations, forage production is enhanced.

INTERPRETIVE GROUPS

Capability Subclass: IVe (22), nonirrigated

785 - Toiyabe-Lasco

785-Toiyabe-Lasco complex, 2 to 30 percent slopes

SETTING

Landform: mountains
Elevation: 6000 to 6400 feet
Slope Range: 2 to 30 percent
Vegetation: mixed conifers
Mean Annual Precipitation: 25 to 30 inches
Mean Annual Temperature: 43 to 45 degrees F.
Frost Free Period: 60 to 80 days

COMPOSITION

Toiyabe gravelly loamy coarse sand and similar inclusions: 55 percent
Lasco gravelly loamy coarse sand and similar inclusions: 30 percent
Contrasting Inclusions: 15 percent

TOIYABE SOIL CHARACTERISTICS

Position on Landscape: on convex backslopes
Parent Material: material weathered from granite
Slope: 2 to 30 percent
Typical Profile:
- 0 to 7 inches: brown gravelly loamy coarse sand
- 7 to 15 inches: pale brown gravelly loamy coarse sand
- 15 inches: weathered granite

Depth Class: shallow
Drainage Class: excessively drained
Permeability: rapid
Available Water Capacity: very low
Potential Rooting Depth: 14 to 20 inches
Surface Runoff: medium
Bare Soil Erosion Hazard Rating: moderate
Depth to Restrictive Layer: 14 to 20 inches to weathered granite

LASCO SOIL CHARACTERISTICS

Position on Landscape: on concave backslopes
Parent Material: material weathered from granite
Slope: 5 to 30 percent
Important Surface Feature: the surface is covered with duff, 2 inches thick
Typical Profile:
- 0 to 9 inches: brown gravelly loamy coarse sand
- 9 to 49 inches: light brown gravelly sandy loam
- 49 inches: weathered granite

Depth Class: deep
Drainage Class: well drained
Permeability: moderately rapid
Available Water Capacity: low
Potential Rooting Depth: 40 to 60 inches
Surface Runoff: rapid
Bare Soil Erosion Hazard Rating: moderate
Depth to Restrictive Layer: 40 to 60 inches to weathered granite

INCLUDED AREAS

- soils similar to Lasco but are moderately deep to soft bedrock
- soils similar to Toiyabe but have a very bouldery surface on ridges

MAJOR USES

Current Uses: timber production and livestock grazing

TIMBER PRODUCTION

Major Management Factors:
Hazard of erosion
Very low available water capacity of the Toiyabe soil
Low available water capacity of the Lasco soil

TOIYABE VEGETATION CHARACTERISTICS

Main Tree Species: Jeffrey pine, white fir, ponderosa pine
Mean Site Index For Stated Species:
Jeffrey pine: 61 based on a 100 year site curve by Meyer
White fir: 50 based on a 50 year site curve by Schumacher
Dunning Site Class: IV
Cactos Site Index: 45
Common Understory Plants:
- manzanita
- snowbush ceanothus
- mountain whitethorn
- needlegrass
- mountain brome

LASCO VEGETATION CHARACTERISTICS

Main Tree Species: Jeffrey pine, white fir, incense cedar, Douglas fir, sugar pine
Mean Site Index For Stated Species:
Jeffrey pine: 85 based on a 100 year site curve by Meyer
White fir: 48 based on a 50 year site curve by Schumacher
Dunning Site Class: III
Cactos Site Index: 58
Common Understory Plants:
- manzanita
- snowbush ceanothus
- mountain whitethorn
- needlegrass
- mountain brome

General Management Considerations:
The bare soil erosion hazard rating of the Toiyabe soil may be reduced to low by managing for approximately 40 percent cover.
The bare soil erosion hazard rating of the Lasco soil may be reduced to low by managing for approximately 40 percent cover.
The very low available water capacity in the upper 24 inches of the Toiyabe and Lasco soils reduces the survival of seedlings.
Roads and landings can be protected from erosion by constructing waterbars.
Brushy plants such as manzanita, snowbrush ceanothus and mountain whitethorn limit natural regeneration of pine and fir trees.
If the site is not adequately prepared, competition from undesirable plants can prevent or prolong natural or artificial reestablishment of trees.
Among the trees that are suitable for planting are Jeffrey pine and ponderosa pine.

LIVESTOCK GRAZING

General Management Considerations:
This soil supports an understory plant community suitable for livestock grazing. Forage production is limited by conifer canopy density. Following timber harvest or thinning operations, forage production is enhanced.

INTERPRETIVE GROUPS

Capability Subclass: VIe (22), nonirrigated

786 - Toiyabe-Lasco-Quartzburg

786-Toiyabe-Lasco-Quartzburg complex, 30 to 50 percent slopes

SETTING

Landform: mountains
Elevation: 6000 to 7000 feet
Slope Range: 30 to 50 percent
Vegetation: mixed conifers
Mean Annual Precipitation: 25 to 30 inches
Mean Annual Temperature: 43 to 45 degrees F.
Frost Free Period: 60 to 80 days

COMPOSITION

Toiyabe loamy coarse sand and similar inclusions: 50 percent
Lasco gravelly loamy coarse sand and similar inclusions: 20 percent
Quartzburg stony loamy sand and similar inclusions: 15 percent
Contrasting inclusions: 15 percent

TOIYABE SOIL CHARACTERISTICS

Position on Landscape: on convex backslopes
Parent Material: material weathered from granite
Typical Profile:
- 0 to 7 inches: brown loamy coarse sand
- 7 to 15 inches: pale brown gravelly loamy coarse sand
- 15 inches: weathered granite

Depth Class: shallow
Drainage Class: excessively drained
Permeability: rapid
Available Water Capacity: very low
Potential Rooting Depth: 14 to 20 inches
Surface Runoff: medium
Bare Soil Erosion Hazard Rating: high
Depth to Restrictive Layer: 14 to 20 inches to weathered granite

LASCO SOIL CHARACTERISTICS

Position on Landscape: on north-facing back slopes
Parent Material: material weathered from granite
Important Surface Feature: the surface is covered with duff, 2 inches thick
Typical Profile:
- 0 to 9 inches: brown gravelly loamy coarse sand
- 9 to 49 inches: light brown gravelly sandy loam
- 49 inches: weathered granite

Depth Class: deep
Drainage Class: well drained
Permeability: moderately rapid
Available Water Capacity: low
Potential Rooting Depth: 40 to 60 inches
Surface Runoff: rapid
Bare Soil Erosion Hazard Rating: high
Depth to Restrictive Layer: 40 to 60 inches to weathered granite

QUARTZBURG SOIL CHARACTERISTICS

Position on Landscape: on ridges
Parent Material: material weathered from granite
Important Surface Feature: the surface is covered with 10 percent stones and 5 percent cobbles
Typical Profile:
- 0 to 7 inches: grayish brown stony loamy sand
- 7 to 26 inches: light brownish gray very gravelly loamy sand
- 26 inches: weathered granite

Depth Class: moderately deep
Drainage Class: excessively drained
Permeability: rapid
Available Water Capacity: very low
Potential Rooting Depth: 20 to 40 inches
Surface Runoff: rapid
Bare Soil Erosion Hazard Rating: high
Depth to Restrictive Layer: 20 to 40 inches to weathered granite

INCLUDED AREAS

- Outland very stony loam
- soils similar to Lasco but have a gravelly loamy coarse sand subsoil
- soils similar to Toiyabe but are very gravelly loamy coarse sand throughout
- soils similar to Toiyabe but have bouldery surfaces
- Rock outcrop

MAJOR USES

Current Uses: timber production and livestock grazing

TIMBER PRODUCTION

Major Management Factors:
Hazard of erosion
Slope
Low or very low available water capacity

TOIYABE VEGETATION CHARACTERISTICS

Main Tree Species: Jeffrey pine, white fir, ponderosa pine
Mean Site Index For Stated Species:
Jeffrey pine: 61 based on a 100 year site curve by Meyer
White fir: 50 based on a 50 year site curve by Schumacher
Dunning Site Class: IV
Cactos Site Index: 45
Common Understory Plants:
- manzanita
- snowbrush ceanothus
- mountain whitethorn
- needlegrass
- mountain brome

LASCO VEGETATION CHARACTERISTICS

Main Tree Species: Jeffrey pine, white fir, incense cedar, Douglas fir, sugar pine
Mean Site Index For Stated Species:
Jeffrey pine: 85 based on a 100 year site curve by Meyer
White fir: 48 based on a 50 year site curve by Schumacher
Dunning Site Class: III
Cactos Site Index: 58
Common Understory Plants:
- manzanita
- snowbrush ceanothus
- mountain whitethorn
- needlegrass
- mountain brome

QUARTZBURG VEGETATION CHARACTERISTICS

Main Tree Species: Jeffrey pine
Mean Site Index For Stated Species:
Jeffrey pine: 64 based on a 100 year site curve by Meyer
Dunning Site Class: II
Cactos Site Index: 74
Common Understory Plants:
- manzanita
- snowbrush ceanothus
- mountain whitethorn
- needlegrass
- mountain brome

General Management Considerations:
The bare soil erosion hazard rating of the Toiyabe soil may be reduced to low by managing for approximately 80 percent cover.
The bare soil erosion hazard rating of the Lasco soil may be reduced to low by managing for approximately 60 percent cover.
The bare soil erosion hazard rating of the Quartzburg soil may be reduced to low by managing for approximately 60 percent cover.
The steepness of slope limits the kinds of equipment that can be used in forest management.
The very low available water capacity in the upper 24 inches of the Toiyabe and Quartzburg soils reduces the survival of seedlings.
Roads and landings can be protected from erosion by constructing waterbars.
Brushy plants such as manzanita, snowbrush ceanothus and mountain whitethorn limit natural regeneration of pine and fir trees.
If the site is not adequately prepared, competition from undesirable plants can prevent or prolong natural or artificial reestablishment of trees.
Among the trees that are suitable for planting are Jeffrey pine and ponderosa pine.

LIVESTOCK GRAZING

General Management Considerations:
This soil supports an understory plant community suitable for livestock grazing. Forage production is limited by conifer canopy density. Following timber harvest or thinning operations, forage production is enhanced.

INTERPRETIVE GROUPS

Capability Subclass: VIe (22), nonirrigated

801 - Cagwin

801-Cagwin loamy coarse sand, 15 to 30 percent slopes

SETTING

Landform: north-facing mountain back slopes
Elevation: 5000 to 5600 feet
Slope Range: 15 to 30 percent
Vegetation: mixed conifers
Mean Annual Precipitation: 25 to 30 inches
Mean Annual Temperature: 43 to 45 degrees F.
Frost Free Period:: 60 to 80 days

COMPOSITION

Cagwin loamy coarse sand and similar inclusions: 80 percent
Contrasting Inclusions: 20 percent

CAGWIN SOIL CHARACTERISTICS

Parent Material: material weathered from granite
Important Surface Feature: the surface is covered with duff, 1 inch thick
Typical Profile:
- 0 to 8 inches: brown loamy coarse sand
- 8 to 36 inches: pale brown loamy coarse sand
- 36 inches: decomposed granite

Depth Class: moderately deep
Drainage Class: somewhat excessively
Permeability: rapid
Available Water Capacity: very low to low
Potential Rooting Depth: 20 to 40 inches
Surface Runoff: medium to rapid
Bare Soil Erosion Hazard Rating: moderate
Depth to Restrictive Layer: 20 to 40 inches to decomposed granite

INCLUDED AREAS

- Penstock on colluvial sideslopes
- Quartzburg on some ridge crests
- soils similar to Cagwin but are greater than 40 inches deep
- soils similar to Cagwin but are saturated with water below 40 inches
- Areas that are bouldery, stony or very stony on or near ridge crests
- Areas that are gravelly

MAJOR USES

Current Uses: timber production and livestock grazing

TIMBER PRODUCTION

Major Management Factors:
Hazard of erosion
Very low to low available water capacity

CAGWIN VEGETATION CHARACTERISTICS

Main Tree Species: Jeffrey pine, white fir, Douglas fir, ponderosa pine
Mean Site Index For Stated Species:
Jeffrey pine: 94 based on a 100 year site curve by Meyer
Dunning Site Class: II
Cactos Site Index: 61
Common Understory Plants:
- manzanita
- snowbrush ceanothus
- mountain whitethorn
- needlegrass
- mountain brome

General Management Considerations:
The bare soil erosion hazard rating may be reduced to low by managing for approximately 60 percent cover.
The very low available water capacity in the upper 24 inches reduces the survival of seedlings.
Brushy plants such as manzanita, snowbrush ceanothus and mountain whitethorn limit natural regeneration of pine and fir trees.
Plant competition delays natural regeneration but does not prevent the eventual development of a fully stocked, normal stand of trees.
Roads and landings can be protected from erosion by constructing waterbars.
Among the trees that are suitable for planting are Jeffrey pine.

LIVESTOCK GRAZING

General Management Considerations:
This soil supports an understory plant community suitable for livestock grazing. Forage production is limited by conifer canopy density. Following timber harvest or thinning operations, forage production is enhanced.

INTERPRETIVE GROUPS

Capability Subclass: VIe (22), nonirrigated

802 - Cagwin

802-Cagwin loamy coarse sand, 30 to 50 percent slopes

SETTING

Landform: north-facing mountain back slopes
Elevation: 5000 to 5600 feet

Slope Range: 30 to 50 percent
Vegetation: mixed conifers
Mean Annual Precipitation: 25 to 30 inches
Mean Annual Temperature: 43 to 45 degrees F.
Frost Free Period:: 60 to 80 days

COMPOSITION

Cagwin loamy coarse sand and similar inclusions: 80 percent
Contrasting inclusions: 20 percent

CAGWIN SOIL CHARACTERISTICS

Parent Material: material weathered from granite
Important Surface Feature: the surface is covered with duff, 1 inch thick
Typical Profile:
- 0 to 8 inches: brown loamy coarse sand
- 8 to 36 inches: pale brown loamy coarse sand
- 36 inches: decomposed granite

Depth Class: moderately deep
Drainage Class: somewhat excessively
Permeability: rapid
Available Water Capacity: very low to low
Potential Rooting Depth: 20 to 40 inches
Surface Runoff: rapid
Bare Soil Erosion Hazard Rating: high
Depth to Restrictive Layer: 20 to 40 inches to decomposed granite

INCLUDED AREAS

- Lasco sandy loam on 30 to 50 percent slopes
- Penstock on colluvial back slopes
- Quartzburg on ridge crests
- soils similar to Cagwin but are sandy loam throughout
- soils similar to Cagwin but are very gravelly sandy loam throughout
- soils similar to Cagwin but are greater than 40 inches deep
- Areas that are bouldery, stony or very stony on or near ridges

MAJOR USES

Current Uses: timber production and livestock grazing

TIMBER PRODUCTION

Major Management Factors:
Hazard of erosion
Slope
Very low to low available water capacity

CAGWIN VEGETATION CHARACTERISTICS

Main Tree Species: Jeffrey pine, white fir, Douglas fir, ponderosa pine
Mean Site Index For Stated Species:
Jeffrey pine: 94 based on a 100 year site curve by Meyer
Dunning Site Class: II
Cactos Site Index: 61
Common Understory Plants:
- manzanita
- snowbrush ceanothus
- mountain whitethorn
- needlegrass
- mountain brome

General Management Considerations:
The bare soil erosion hazard rating may be reduced to low by managing for approximately 80 percent cover.
The steepness of slope limits the kinds of equipment that can be used in forest management.
The very low available water capacity in the upper 24 inches reduces the survival of seedlings.
Brushy plants such as manzanita, snowbrush ceanothus and mountain whitethorn limit natural regeneration of pine and fir trees.
Plant competition delays natural regeneration but does not prevent the eventual development of a fully stocked, normal stand of trees.
Roads and landings can be protected from erosion by constructing waterbars.
Among the trees that are suitable for planting are Jeffrey pine.

LIVESTOCK GRAZING

General Management Considerations:
This soil supports an understory plant community suitable for livestock grazing. Forage production is limited by conifer canopy density. Following timber harvest or thinning operations, forage production is enhanced.
Slope may limit access by some classes of livestock. Fencing and water development can improve livestock distribution.

INTERPRETIVE GROUPS

Capability Subclass: VIe (22), nonirrigated

18. TRANSPORTATION SYSTEM:

a). **ROADS & LANDINGS** -

A well-developed existing road and landing system is to be utilized for harvesting. All existing roads on the Hulsman Ranch are classed as seasonal because winter snowpack can make them impassable. Roads which have had timber operations within the past 8 years have been upgraded and are in good condition. Roads on the west side of the property tend to be in poorer condition and in need of improved placement of rolling dips and upgraded crossings.

Only three short new sections of road are proposed to improve the existing system.

The first new road construction (map #RC-1) is proposed to provide for log hauling across the tributary of Lassen Creek. The existing crossing (#31) dips too steeply for log truck use. The proposed route utilizes old road grades, forest openings and old skid trails to the maximum extent feasible. Cross-slope terrain is under 20%. The new road route has been selected after extensive field investigation to reduce potential impacts to the watercourses while providing access for log transportation. New road construction is designated on the THP map. Estimated road distance is 650 feet with approximately 350 being existing older road. Crossing #32 will be installed as part of this reconstruction.

The second new road construction (map #RC-2) is proposed to eliminate use of an old section of road that falls within 50 feet of Lassen Creek and has a wet section overgrown by alders and riparian vegetation as a result of spring flow. The new road is approximately 400 feet long crosses a forested and open area with 30 to 45% cross slopes. The new road will fall substantially outside of the WLPZ.

The third road needing little construction is #RC-3 which includes crossing #28. This short section of spur road is needed to access a small area of timber on the east side of a meadow and requires crossing the meadow. The meadow is flat and it is proposed that minimal blade work be used in the meadow. Tracks and heavy equipment will cross the meadow on one track.

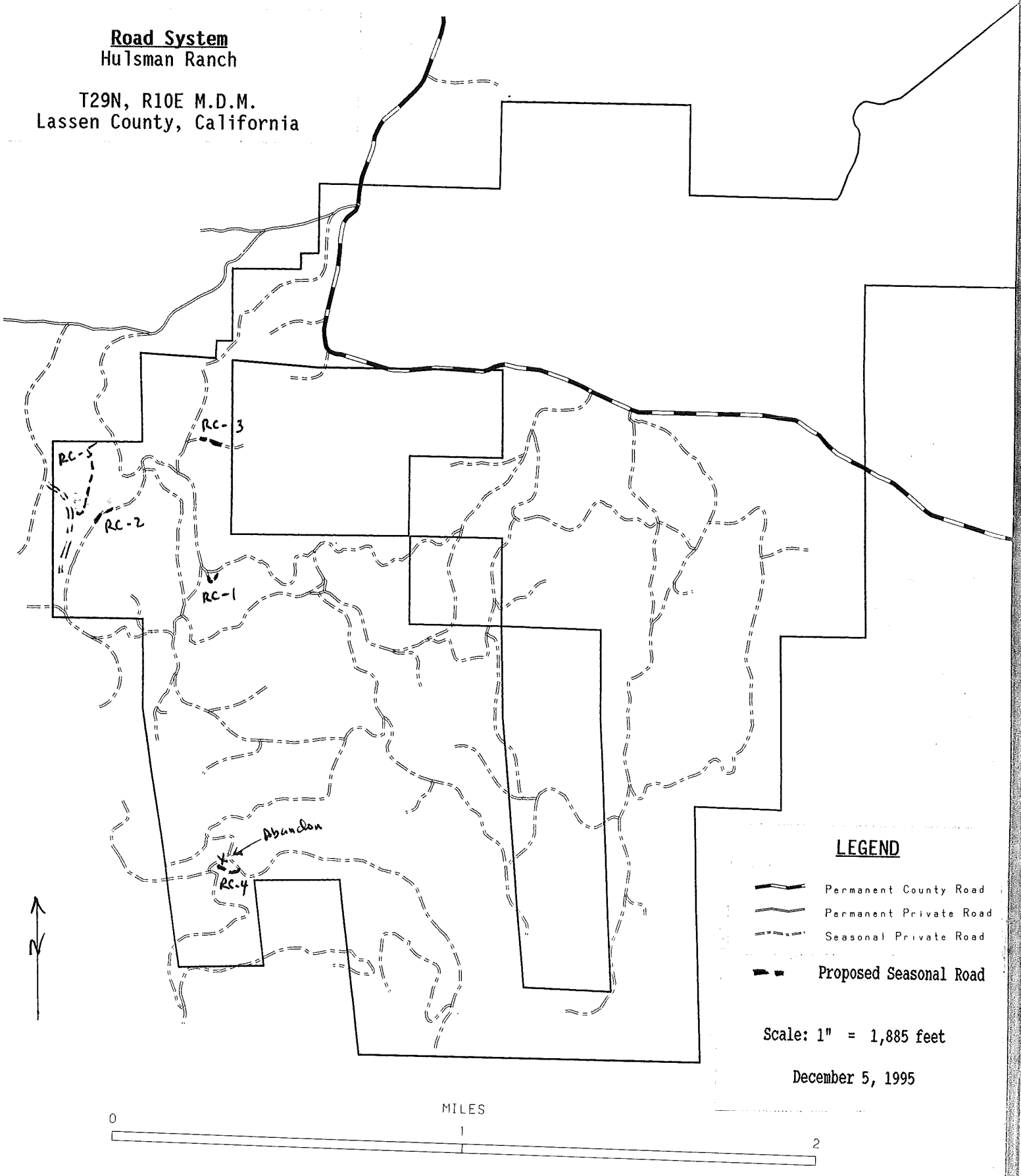
There is no anticipated need to construct landings which are greater than the maximum specified by Forest Practice Rules and Regulations.

Two additional short segments of new seasonal road construction are needed.

RC-4 is approximately 480 feet long and connects two roads in the northwestern portion of the ownership. An existing road connector will be abandoned and used strictly for log skidding (shown on map page 39). It is steep and was not originally designed for log truck traffic. The new road will traverse slopes averaging 20% to 30% with relatively deep soils (Lasco) and an erosion hazard rating of "moderate". Grade of the new segment averages 8%. The LTO shall attempt to construct the road with naturally rolling dips.

RC-5 is an estimated 880 foot section of new road which accesses a corner of the property in Section 29. Most of the terrain varies between 20 to 30% with about 300 feet having sideslopes between 30 to 40% on the downhill side. The location is far above and away from Lassen Creek and utilizes 170 feet of an old constructed skid trail. Erosion hazard is "moderate" with soils ranging from shallow gravelly loam (Toiyabe) to deeper sandy loam (Lasco). There is a 100 foot section of the new construction with larger unconsolidated granite boulders. This new road ties into an existing old road (now shown on replacement map, p. 39) and has become necessary because the road located next to Lassen Creek which was used for prior logging, now has blocked access. Road grade is between 5 to 12% and averages 10%. The LTO shall attempt to construct the road with naturally rolling dips.

5/4/04


Road System
Hulsman Ranch
T29N, R10E M.D.M.
Lassen County, California
RC-3
RC-5
RC-2
RC-1
Abandon
RC-4
N
LEGEND
Permanent County Road
Permanent Private Road
Seasonal Private Road
Proposed Seasonal Road
Scale: 1" = 1,885 feet
December 5, 1995
MILES
0
1
2

5/4/04

19. SITE PREPARATION AND STOCKING STANDARDS:

a). **SITE PREPARATION** -

Site preparation for artificial reforestation should not be necessary because of the selective nature of the proposed timber harvesting. Stocking standards should be met immediately after harvesting. Ground disturbance from skidding should enhance natural regeneration success. Careful logging will prevent damage to existing densely stocked reproduction understory. Natural regeneration should begin the season immediately following harvest.

b). **SELECTION STOCKING STANDARDS** -

Stocking standards to be met shall comply with 14 CCR 933.2(a)(2)(A). For "Selection" regeneration method basal area to be retained after harvest is:

Site II & Site III - 75 square feet of basal area
Site IV - 50 square feet of basal area

c). **GROUP SELECTION STOCKING STANDARDS** -

Stocking standards to be met shall comply with 14 CCR 933.2(a)(2)(B). For "Group Selection", regeneration method basal area to be retained after harvest is:

(i). at least 80% of the plots must meet standards for Selection.

(ii). not more than 20% of the plots meet stocking standards utilizing the 300 point count for trees 10 years or older.

(iii). offset of 8 out of 40 plots allowed where plots fall within small clearings created during current harvest.

d). **COMMERCIAL THINNING STOCKING STANDARDS** -

Stocking standards to be met immediately after harvest shall comply with 14 CCR 933.3(a)(1)(A) where preharvest dominant and codominant crown canopy is occupied primarily by trees greater than 14" dbh:

(i). Site II mixed conifer lands - 100 sq ft of basal area
(ii). Site II, pine > 50% basal area - 75 sq ft of basal area
Site III mixed conifer lands
Site III pine > 50% basal area
(iii). Site IV - 50 sq ft of basal area

Stocking standards to be met immediately after harvest shall comply with 14 CCR 933.3(a)(1)(B) where preharvest dominant and codominant crown canopy is occupied primarily by trees less than 14" dbh:

(i). Site II & III - A minimum of 100 trees per acre over 4" dbh.
(ii). Site IV - A minimum of 75 trees per acre over 4" dbh.

e). **SANITATION-SALVAGE STOCKING STANDARDS** -

Stocking standards to be met immediately after harvest shall comply with 14 CCR 933.3(b) and 932.7(b):

(i). Site II & III - A minimum point count of 300.
(ii). Site IV - A minimum point count of 150.

f). **TRANSITION STOCKING STANDARDS** -

Stocking standards to be met immediately after harvest shall comply with 14 CCR 932.7(b):

(i). Site II & III - A minimum point count of 300.
(ii). Site IV - A minimum point count of 150.

20. **YARDING METHODS:**

a). **GENERAL** -

It is planned that all log skidding shall be conducted by tractor or skidder. Feller bunchers may be used for tree felling and bunching for biomass operations.

b). **STEEP SLOPES** -

Operations on steeper slopes (greater than 50%) with "High" erosion hazard rating shall be limited to use of the pre-existing skid trail network. This will allow for a selective harvest with greater forest canopy retention than would be required by a cable logging system. Use of a cable system is generally not feasible because of the small area meeting the steep slope and "High" erosion hazard condition and the proximity to property boundaries. Should a Licensed Timber Operator desire to construct any additional skid trails on slopes greater than 50%, they must be flagged and approved in advance by the supervising RPF.

c). **RESIDUAL TREES** -

Yarding shall minimize damage to residual trees. Per 14 CCR 934.2(h) "Timber operators shall exercise due diligence so that desirable residual trees and seedlings will not be damaged or destroyed in tractor operations."

d). **WATERCOURSE CROSSINGS** -

Yarding operations at watercourse crossing shall comply with the requirements of 14 CCR 934.8 including:

(i). Maximum use of existing crossings. Minimize number of crossings.

(ii). Prepared crossings (Humboldt or culvert) where skid roads cross a watercourse in which water is present.

(iii). Temporary crossing facilities to be removed prior to the winter period.

Yarding operations at watercourse crossing shall comply with the requirements of 14 CCR 936.3 including:

(i). Accidental depositions of soil and debris at crossings of dry Class III watercourses shall be removed as soon as is practicable after deposition.

(ii). Accidental depositions of soil and debris at crossings of Class I and II watercourses shall be removed immediately after deposition.

In addition, all watercourse crossings shall be flagged by the RPF prior to use for skidding operations. Watercourse crossings of Class I & II streams are shown on the THP Map. All crossings of Class I & II streams shall be grass seeded and straw mulched at the conclusion of logging and prior to the winter period.

Standard rule 14 CCR 936.3(c) prohibits tractor roads in the WLPZ unless justified and approved. It is proposed that for Class III watercourses, tractor crossings are allowable at locations flagged in advance by the RPF provided they are kept to a minimum and existing crossings are utilized to the greatest extent possible.

e). **UNSTABLE AREAS** -

There are no known unstable areas requiring special measures for tractor/skidder yarding.

21. SLASH TREATMENT:

Wingfield Road, Old Archery Road & Children's Road are public roads adjacent to the proposed harvest area which require slash treatment. Treatment shall be 100% lopping or chipping of all logging-generated slash to within 18" of the ground surface within 100 feet of the edge of the travelled surface.

Harvesting near the two houses and the prefabricated home shall comply with 14 CCR 937.2(b) which requires 100% removal of "all woody debris created by timber operations greater than one inch but less than eight inches in diameter within 100 ft. ... shall be removed or piled and burned..." All slash within 100 to 500 ft. of permanent habitations shall also be lopped.

Within the proposed plan area, all other logging-generated slash shall be 100% treated by either lopping to within 24" of the ground surface or chipping, and/or removal.

Any slash piles created at landing sites shall be burned in compliance with 14 CCR 937.5 which requires:

> "(a) Piles and concentrations shall be sufficiently free of soil and other noncombustible material for effective burning.
>
> '(b) The piles and concentrations shall be burned at a safe time during the first wet fall or winter weather or other safe period following piling and according to laws and regulations. Piles and concentrations that fail to burn sufficiently to remove the fire hazard shall be further treated to eliminate that hazard. All necessary precautions shall be taken to confine such burning to the piled slash."

Responsibility to burn any slash piles shall be that of the timberland owner or a party under its supervision.

22. WINTER OPERATIONS: As ground and weather conditions permit normal logging operations will take place including tree falling, skidding, log loading and hauling.

In lieu of a winter operating plan site specific measures to be followed shall be in compliance with 14 CCR 934.7(c):

(1). Tractor yarding or the use of tractors for constructing layouts, firebreaks or other tractor roads shall be done only during dry, rainless periods where soils are not saturated or when ground is frozen.

(2). Erosion control structures shall be installed on all constructed skid trails and tractor roads prior to the end of the day if the U.S. Weather Service forecast is a "chance" (30% or more) of rain before the next day, and prior to weekend or other shutdown periods.

(3). No road construction or crossing installation within WLPZ.

(4). All water breaks and rolling dips must be installed by October 15 or as prescribed above.

(5) "Saturated soil conditions" means:

(a). the wetness of the soil within a yarding area such that soil strength is exceeded and displacement from timber operations will occur. It is evidenced by soil moisture conditions that result in:

(i). reduced traction by equipment as indicated by spinning or churning of wheels or tracks in excess of normal performance, or

(ii). inadequate traction without blading wet soil or

(iii). soil displacement in amounts that cause visible increase in turbidity in a receiving watercourse or lake.

Soils frozen to a depth sufficient to support equipment weight are excluded.

(b). soil moisture conditions on roads and landings, in excess of that which occurs from normal road watering or light rainfall that will result in the significant loss of surface material from the roads and landings in amounts that cause visible increase in turbidity in a receiving watercourse or lake.

23. UNIQUE AREAS:

There are no unique areas within the project boundaries.

24. CUMULATIVE IMPACTS ASSESSMENT:

a). Assessment Checklist -

1. Do the assessment areas of resources that may be affected by the proposed project contain any past, present, or foreseeable probable future projects?

Yes X No ___

An ongoing timber sale program has been occurring on the Hulsman Ranch Partnership property over the past 11 years. THP 84-258-LAS(2) was for 95 acres which were selectively logged with operations completed by November 1984 (Map #6). THP 89-160-LAS(2) entailed a combination selection/overstory removal harvest under an alternate prescription on 260 acres (Map #7). It was completed in the spring of 1990. THP 90EM-42-LAS(2) was a sanitation-salvage harvest conducted on 285 acres of flatter lands along Wingfield Road and completed in August of 1990 (Map #4). THP 90-410-LAS(2) was conducted over a two year period. Total area is 567 acres. The northern 1/2 of the project area was harvested in 1992 (Map #5) and the remainder was completed in November of 1993 (Map #8). Harvesting was done under an alternate prescription closest to the selection method. THP 94EX-2574-LAS(2) expires in October of 1995 (no map #). It covers the entire forest area. In late 1994 and early 1995 a small volume of scattered salvage timber was logged over the ownership.

It can be anticipated that this property will undergo future harvesting under a conservative selection harvest system consistent with sustained yield forest management. Major harvests on areas between 100 to 300 acres will be conducted every one to five years. Minor operations and salvaging may occur annually. These harvests would have watershed, biological, visual and traffic impacts.

Four timber harvest plans have been submitted during the past 12 years for the adjoining Happy Valley Ranch property (Nagel family) lying to the east of Hulsman Ranch. THP 83-147-LAS(2) was for 1,227 acres (Map #1). Silvicultural method was selection. The cut was light and completed by June 1986. THP 88-246-LAS(2) covered 755 acres by commercial thinning and sanitation salvage logging. This harvest was completed in 1988 and not all of the area covered by the harvest plan was actually harvested. The 1988 plan was developed in response to a noted dieback of many pine tree crowns during the spring of that year (Map #2). Finally, THP 92EX-1097-LAS(2) was conducted to remove dead and dying white fir, incense cedar and ponderosa pine in a limited area along the class III watercourse running through the middle of the property and along Wingfield Road (total area of approximately 40 acres & Map #3). During the past two years, light selection harvesting has been undertaken on the Nagel lands under THP 93-186-LAS(2). The plan (Map #14) includes a total area of 310 acres of which 2/3 has been harvested through the end of 1994 under a light selection mark. An additional area of about 80 acres (included as part of #14) will be added to the THP for harvesting in 1995. All of these THP's could have potential impacts on biological, watershed and visual resources.

THP 89-387-LAS(2) on 160 acres of lands owned by Leroy and Eva Cramer along Lassen Creek was logged during the 1989 season along (Map #10). The harvest was a heavy overstory removal cut.

THP 89-488-LAS(2) on 40 acres of lands owned by the Potter Family Trust along Lassen Creek was logged during the 1989 season (Map #13). The harvest was a heavy overstory removal cut.

THP 91-75-LAS(2) on lands of William R. & Peggie L. Butler was originally identified for a sanitation-salvage and transition cut but somehow slipped into an overstory removal blitz. Total area was 120 acres. Logging was conducted in the fall of 1991 (Map #9).

THP 90-545-LAS(2) on lands owned by Walter W. Walker, et al and managed by W.M. Beaty & Associates was logged in 1992. The sale was aimed primarily at salvaging heavy losses of white fir trees from drought (Map #11). Beaty-managed lands tend be harvested on a 15 year cutting cycle.

A 400-acre portion of the much larger Flat Helicopter Timber Sale lies within the boundaries of the Watershed Assessment Area. This Lassen National Forest harvest occurred in 1993 and 1994. Estimated volume removed is 14 million board feet over about 4,500 acres on the upper slopes of the Diamond Mountains (Map #12). A second green sale (Gila Helicopter) proposed for the same area is being logged in the fall of 1995.

2. Are there any continuing, significant adverse impacts from forest land use activities that may add to the impacts of the proposed project?

Yes ___ No X

3. Will the proposed project, as presented, in combination with past, present, and reasonably foreseeable probable future projects identified in items (1) and (2) above, have a reasonable potential to cause or add to significant cumulative impacts in any of the following resource subjects?

	Yes after mitigation (a)	No after mitigation (b)	No reasonable potential significant effects (c)
1. Watershed			X
2. Soil Productivity			X
3. Biological			X
4. Recreation			X
5. Visual			X
6. Traffic			X
7. Other			X

b). **General Site and Vicinity Description** -

The Hulsman Ranch property is comprised of ±2,854 acres located in a foothill area of the eastside of the Sierra Nevada Mountains. The crest of the Diamond Mountains (a northern extension of the Sierra Nevadas) lies approximately two miles south of the property. The subject is located about 5 miles south of the City of Susanville in a less developed area of the Honey Lake Valley. A four mile strip of land along unpaved Wingfield from Peter Lassen's Grave to Bass Hill Road is dominated by three ranch ownerships with the Hulsman Ranch lying westernmost. Residences on the ranches are a mile distant from each other and land use is primarily devoted to natural resource use for livestock and timber production. Rural residences are located along Wingfield Road near Peter Lassen's Grave and along Old Archery and Children's Roads on the west side of the Ranch. The property is surrounded by private parcels ranging from 5 to 1,380 acres in size except for the southern property boundary which borders Lassen National Forest. The general area would be characterized as natural resource land with scattered rural residential development.

Terrain is gentle to moderately steep with slopes between 0 to 50%. Property size is large but harvest intensity will generally be light under a selection system with consequent small impacts on soil erosion, wildlife, water quality, recreation and aesthetics. All logging-generated slash is to be lopped. Thus, visual and fire hazard impacts will also be reduced. Traffic impacts are considered light and estimated at an annual average of approximately 40 round-trips required by logging trucks.

This Nonindustrial Timber Management Plan will have no significant adverse cumulative environmental impacts due to the overriding physical and management conditions within the framework of the Forest Practices Act and the Northern Forest District Rules, as well as the owner's management goals.

c). **Watershed Impacts** -

1. Assessment Area - The area assessed for watershed impacts includes approximately 7,300 acres of the Lassen Creek drainage and the small unnamed tributary sub-basin of the Susan River (Jim's Creek portion on Hulsman property) which covers about 3,500 acres. Both sub-basins drain into the Susan River and the Standish irrigation canal, and ultimately into Honey Lake. Total Watershed Assessment area is approximately 10,800 acres. (See map for Watershed Assessment Area boundaries).

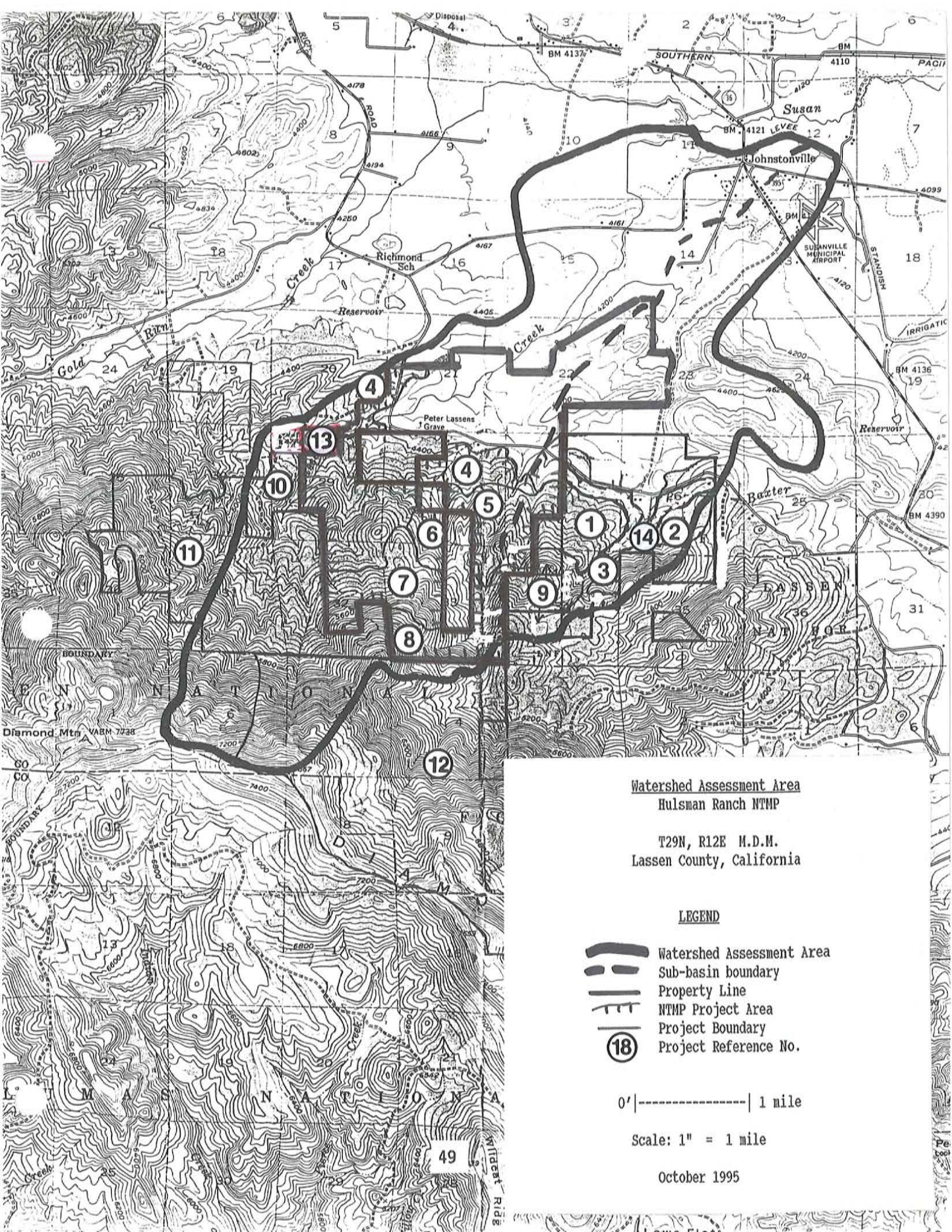
The principle potential impact on the watershed from this project is due to sediment transport off the project area primarily from accelerated erosion created by soil exposure from log skidding and road grading. Sediment could move from the project area into Lassen Creek and its tributaries without mitigations. The unnamed tributary of the Susan River on east is included because 200 acres from the Hulsman Ranch drains into it and operations on other properties could potentially combine to impact the Susan River or the Standish irrigation canal. Watershed boundaries are drawn on the map using standard hydrological techniques.

2. Beneficial Uses - Known beneficial uses of water transported in Lassen Creek and the tributary of the Susan River include wildlife and aquatic habitat, and agricultural use.

3. Project Assessment - Lassen Creek and four of its tributaries are the principal watercourses on the Hulsman Ranch located within the THP area. Lassen Creek (on the west), the tributary in Section 29 and Section 32 and Mill Creek (easternmost tributary) are Class II streams. The tributary from the Ranch house to the domestic water collection point is a Class III stream . This latter watercourse is a Class I above the collection point in Section 33. Jim's Creek on the east is a Class III. Channel slope of the watercourses is gentle and under 15%. Stream banks are stable and gently sloping at elevations below 5,200 feet. Steeper sideslopes are encountered above the domestic water supply point for a short distance to about 5,040 feet elevation. Portions of the Mill Creek watercourse above 5,200 feet are steeper with sections of flatter areas suitable for crossing. Protective vegetation includes overstory ponderosa pine, black oak, white fir, incense cedar and pockets of riparian vegetation along the Class II streams. The most significant potential impacts to the watercourses are from tractor stream crossings. These are to be kept to a minimum. Mitigations also include proper placement of waterbreaks to reduce potential for soil transport, placement of slash on skid trails within the WLPZ, felling and skidding of trees away from the watercourses. The selective nature of the harvesting operation also provides for mitigation by retaining a significant overstory canopy for protection of the soil resource. Forest Practice Act rules provide other mitigations to reduce soil erosion which will further reduce potential for water quality degradation. Proper construction and maintenance of rolling dips on internal seasonal logging roads will be effective in reducing potential for road surface erosion.

4. Past & Future Activities - None of the projects listed above are expected to have long-term impacts on water quality. This RPF is unaware of any water quality problems generated by logging within the last 10 years in the Assessment Area. Past, present and future timber harvests could have short-term impacts on the transport of sediment but these will be mitigated by Forest Practice Rules and Forest Service timber sale contract requirements. Past timber harvesting practices have mitigated potential soil movement by a combination of selection cutting with retention of a good overstory, streamside protection zones, construction and maintenance of effective waterbars and rolling dips. Operations on the Hulsman Ranch within the past 10 years have corrected erosion problems on roads and skid trails and continuing maintenance has further reduced sediment transport.

5. Evaluation - There are no reasonable significant cumulative effects of the project, either alone or in combination with past and future projects, on the watershed assessment area after normal mitigation as contained in the Forest Practice Rules, this THP and Forest Service timber sale requirements for the harvesting on Federal land.


Watershed Assessment Area
Hulsman Ranch NTMP
T29N, R12E M.D.M.
Lassen County, California
LEGEND
Watershed Assessment Area
Sub-basin boundary
Property Line
NTMP Project Area
Project Boundary
18 Project Reference No.
0'|----------| 1 mile
Scale: 1" = 1 mile
October 1995
Johnstonville
Susan
Richmond Sch
Peter Lassens Grave
Diamond Mtn
Baxter
LASSEN NATIONAL FOREST
BOUNDARY

d). **Soil Productivity Impacts** -

1. Assessment Area - Impacts associated with soil productivity area are affected by the harvest of trees and the use of heavy machinery. For this project, the impacted area is the harvest area used by tractors and skidders and the road surfaces used by graders and logging trucks consistent with Technical Rule Addendum #2. The Assessment Area is considered to be the 1,695-acre area within the Harvest boundary and the dirt private roads of the ownership that may be used for hauling.

2. Project Assessment - Soils in the Assessment Area are characterized as having a weathered granite rock origin. Depths are shallow (12") to deep (up to 60"). Topography is gentle to steep. Soils have the potential to gully without proper diversions. Soils are well-drained and water-holding capacity is low. Soil erosion hazard rating is moderate to high. Soils above 4,800 feet elevation belong primarily to the Toiyabe-Lasco complex or the Cagwin family. These soils are coarse loamy sands with depths between 15" to 49". Lower elevation soils tend to be deeper with a sandy loam texture and belong to the Lasco-Bonta complex or the Chimney-Janile-Waterman association. Small pockets of higher site deep Chirpchatter alluvial soils are located along Mill and Jim's Creeks. All roads and skid trails on the property will have waterbars or rolling dips installed. This will stabilize exposed soils and reduce potential for erosion. Soil productivity is further protected by the selective nature of the harvesting operation and the use of a minimum number of skid trails.

3. Past & Future Activities - Soil productivity has been retained after past logging as mitigated by Forest Practice Rule requirements. Skid trail and logging roads are stable and water drainage facilities are reducing potential for soil erosion. Some skid trails may have been compacted limiting vegetative regrowth, but many of these trails will be reused. Impacts to soil productivity are considered fairly insignificant. There are no known current problems on other THP's completed in the area. Recent timber sales on the Hulsman property have corrected problem areas on logging roads and a regular program of timber sales will help ensure that roads across the property are maintained on a periodic basis.

4. Evaluation - The proposed project, either alone or in combination with past projects, will have no reasonably ascertainable impacts after mitigation inherent in the Forest Practice Rules and this THP.

e). **Biological Impacts** -

1. Assessment Area - The assessment area for terrestrial biological resources is considered to be the same as the Watershed Assessment Area (unnamed tributary of the Susan River and Lassen Creek watershed) because this watershed forms the habitat for most migratory and resident species which occupy the project area. Also it can be presumed that this is the greatest area of direct impact from the project. In addition, rare, endangered, threatened and species of special concern for Lassen County are considered.

2. Project Assessment - The 2,854-acre property supports a mixture of forest cover at the higher elevations and pastureland/meadow at the lower elevations. The project will not impact the pasture and main meadow areas of the ranch.

The project area includes four principal vegetation types as identified in the California Wildlife Habitat Relationships System (WHR). Primary forest cover is Eastside Pine Forest type (1,215 acres). Age class is young growth between pole and merchantable size trees. Densities are variable from open to dense. The forest area is principally vegetated with ponderosa pine trees 12 inches d.b.h. and larger constituting an overstory with pockets of reproduction. At lower elevations, California black oak is a stand component and the understory may included sagebrush, bitterbrush and grass. White fir and incense cedar are sometimes found in this type, especially along watercourses. An occasional sugar pine or Douglas-fir tree can also be found.

At elevations above 5,000 feet, the Sierran Mixed Conifer type is more prevalent and species diversity is greater (480 acres). However, ponderosa pine is still the principal conifer tree species. White fir trees have died and been salvage logged in significant numbers during the past 5 years. Jeffrey pine is found at the highest elevations in place of ponderosa pine. Ground cover is light under the dense stands and covered mostly with pine needles and branches. The more open stands include litter with squaw carpet, grass, pockets of manzanita (in poor condition), herbaceous plants and scattered serviceberry and willow bushes.

Two non-forest vegetation types found on the Hulsman Ranch property will not be impacted by the proposed timber harvesting activities. Pasture comprises approximately 528 acres and is native grass. A few small native grass meadows are located within the forested area of the property. Species composition in these forest meadows includes perennial grasses, quaking aspen, wild rose, willow and alder. Sagebrush plant communities are located north of the forested areas with species composition including sagebrush, bitterbrush, rabbitbrush and grasses.

The area supports a typical mix of wildlife species for the Eastside Pine Forest and Sierran Mixed Conifer types including mule deer, squirrels, mountain lion, coyote, bobcat, etc.

There are no known threatened or endangered wildlife species which use the property. This information has been verified by Beverly Clark, Wildlife Biologist for the Eagle Lake District of the U.S. Forest Service.

Bald Eagles are believed to occasionally fly over the property. There are no known Bald Eagle nests on the property. Similarly, the property is within the range of the Northern Goshawk which is also considered a "sensitive" species, but no nest sites are known to occur in the harvest area.

The property contains some dead conifer trees. Merchantable dead trees may be marked for future harvest. Retention of conifer snags suitable for cavity nesters has been accomplished by leaving older and larger snags which are not suitable for sawlogs. Additionally, cavity-nesting species do have available habitat on the site from the many black oak trees which are not planned for harvest.

Beth Corbin, Forest Botanist for the U.S.F.S. Lassen National Forest, was contacted regarding the possibility of Rare, Endangered, Threatened or Sensitive plants on the project area. None are currently listed on the quad map covering this project area. Three species of special interest were mentioned as possibly being in the project area: Astragalus inversus, Susanville milk vetch, Cordylanthus capitatus, Yakima bird's beak and Sparginium minimum. The first species has not been observed by this forester on the project area. It is believed not likely that the second species is on the property because the species occurs on the edge of true fir forests, and true fir forests are not present on this property. The last species of special interest grows in lakes or pond margins and no activity is planned adjacent or near to this kind of habitat. Mimulus pygmaeus (Egg Lake monkeyflower) is a sensitive plant which could marginally inhabit the Hulsman Ranch, but it has not been observed.

There are no known significant wildlife or fishery concerns for the area. The property is within an area used for deer winter range. The project, however, should have minimum impact on black oak cover and there is little bitterbrush in the harvest plan area. Deer habitat may actually be enhanced in the short-term with improved production of herbs and forbes as a result of greater sunlight reaching the forest floor.

Denser forest stands along the watercourses have some characteristics of late seral stage forests. However, all have been harvested and components such as large downed woody material are not present. Tree size is also not larger to qualify for this type. Connectivity with late seral forests on other ownerships is not apparent, including National Forest lands on the south which have been also been harvested. As proposed in this NTMP, the owners intend to maintain the cover of large trees while harvesting more of the understory which is unhealthy and dying, and thinning the least healthy of the overstory trees. Average tree size over time may actually increase as spacing between larger trees increases. General habitat characteristics should remain fairly similar to their current condition over the long-term.

3. Past & Future Activities - Past and future projects are not believed to have had significant impacts on wildlife. The Timber Harvest Plans were mitigated through the Forest Practice Act rules. The Butler, Potter and Cramer THP's were heavy cuts which altered short-term forest cover characteristics because most merchantable trees were cut on each property. Little cutting on those two properties will occur over the next 40 to 50 years as the forest recovers. Harvests on the Hulsman, Nagel, Beaty and Federal ownerships is lighter and retains more of the existing forest character.

4. Evaluation - The project as proposed, either alone or in combination with past and future projects, will have no reasonable potential to cause or add significant cumulative impacts on biological resources.

f). **Recreation Impacts** -

1. Assessment Area - The recreational resource Assessement Area is considered to be the logging area plus 300 feet as identified in Technical Rule Addendum #2.

2. Project Assessment - The only type of recreational activities within 300 feet of the project are dispersed recreation limited to walking, horseback riding, cross country skiing, snowmobiling, wildlife observation and limited hunting. Recreation use is principally by the landowners, their family and friends. Others are trespassing. The project will have no significant impact on recreation use of the Assessment Area except during the short duration of the logging when it is not safe to walk through the forest.

3. Past & Future Activities - Past and future timber harvests both on and off the property will have not significant impact on recreational uses as forest cover will be altered but maintained.

4. Evaluation - The project as proposed in combination with past and future projects will have no reasonable potential to cause or add significant cumulative impacts on recreational resources.

g). **Visual Impacts** -

1. Assessment Area - Visual impacts are created by changes in vegetation and heavy equipment use. These relate to the harvest area and by drivers along Wingfield Road.

2. Project Assessment - The project area is visible along Wingfield Road. Because the operations will be selection harvests, the view will be of a more open forest but with a similar composition of tree species and tree sizes as before logging. There will be very short-term visual impacts when the slash turns brown but all slash will be lopped. Within a couple of years, the visual impact of lopped logging slash is greatly reduced. Over the long-term, it is anticipated that the landowner will clean up much of this slash by piling and burning, and/or utilization for fuelwood so that aesthetics will be enhanced.

3. Past & Future Activities - Slash and brush cleanup for fire protection has enhanced property aesthetics by giving a more open park-like appearance to the forest, especially along Wingfield Road. Visual impacts on the remainder of the project area are considered to be generally light.

4. Evaluation - The project as proposed, either alone or in combination with past or future projects, will have no reasonable potential to cause or add significant cumulative impacts to visual resources.

h). Traffic Impacts -

1. Assessment Area - Periodic short-term impacts on vehicle traffic quantity and flow are generated by transport of heavy equipment, logging trucks and worker vehicles travelling to and from the site. Technical Rule #2 states that the assessment area "involves the first roads not part of the logging area on which logging traffic must travel." This is Wingfield Road to Richmond Road.

2. Project Assessment - The project will generate 0 to about 200 annual round-trips by logging trucks from the NTMP area to sawmills in Susanville, Bieber & Burney, Klamath Falls and Anderson. There will be additional daily trips by the loggers and the forester using pickup trucks and transporting vehicles. These impacts will be exceedingly short-term and as harvesting occurs. There should be few impacts to school children walking or riding bicycles along the paved portion of Wingfield Road to Richmond School, and truck drivers will be reminded to slow down if trips are made in the morning or afternoon hours when children are present when school is in session. Impacts on other public roads beyond Wingfield Road (Richmond Road, Highway 36, Highway 139, Highway 44, etc.) will be rather small in comparison with the normal volume of logging truck traffic generated during the summer and fall months.

3. Past & Future Activities - The prior harvests on the adjoining Butler, Potter, Cramer and Beaty properties are completed. Because harvesting on the Butler, Potter and Cramer properties was so heavy, it is not anticipated that harvests will occur on them again for at least another 20 to 25 years. A small harvest operation remains to be completed on the Nagel property. Because harvesting on the Beaty, Nagel and Lassen National Forest properties is relatively conservative, periodic harvesting on them at 10 to 15 year intervals is more likely. Harvesting from the Hulsman Ranch property is expected to occur sporadically with an average of 40 loads per year. Forest Service logging of the Flat and Gila Helicopter sales should be completed prior to the approval of this THP. Hauling of logs off National Forest lands is not expected to conflict with hauling off the project area because logs from the Forest Services have been taken over Gold Run Road. The impact of the Hulsman Ranch log truck traffic generation will be within the historic levels that have periodically occurred because of the nature of NTMP requirements for sustained yield operations.

4. Evaluation - The project as proposed, either alone or in combination with past and future projects will have no reasonable potential for potential cumulative impacts to traffic or public roads.

PERSONS CONTACTED FOR ADDITIONAL INFORMATION

Name	Organization	Topic	Phone
Frank Goddard	CA Dept. of Forestry, Susanville	Procedures	257-8503
CDF Staff	CA Dept. of Forestry, Redding	Prior THP's	224-2486
Beverly Clark	USFS, Eagle Lake District, Susanville	Wildlife	257-2151
Makoto Kowta	NE CA Info. Center, Chico	Archeology	898-6256
Steve Young	USFS, Lassen Nat. For., Susanville	Watershed boundaries	257-2151
Elaine Sherman	USFS, Eagle Lake District, Susanville	Archeology	257-2151
Scott Lucas	Lassen County Planning Department, Susanville	Developments	251-8264
Don Dockery	USFS, Eagle Lake District, Susanville	Timber Sales	257-2151
Beth Corbin	USFS, Lassen Nat. Forest, Susanville	Botany	257-2151
Phil Nemir	Consulting Forester, Susanville	General, 23 yrs. experience	257-2294
Andrew Jackson	Native American Susanville	Archaeology	257-3177
Hannah Tangeman, Natalie Alpert, Susan Tangeman	Landowner family, Susanville	Archaeology, water	257-7262
Tim Robards	CA Dept. of Forestry, Sacramento	Procedures	657-4778

LITERATURE REVIEWED FOR PREPARATION OF THIS THP & CUMULATIVE IMPACT ASSESSMENT

Cochran, P.H. 1992. Stocking Levels and Underlying Assumptions for Uneven-Aged Ponderosa Pine Stands. USFS Res. Note PNW-RN-509. 10p.

Mayer, Kenneth E., Editor. 1988. A Guide to Wildlife Habitats of California. California Department of Forestry & Fire Protection. Sacramento. 166 p.

CA Department of Forestry & Fire Protection, et al. 1990. Soil Vegetation Survey covering part of Janesville 7.5 minute Quadrangle (35A-4). 59p.

CA Department of Forestry & Fire Protection, et al. 1990. Soil Vegetation Survey covering part of Diamond Mtn and Greenville 7.5 minute Quadrangles (35A-3) and (35C-2). 126p.

CA Native Plant Society. 1994. Inventory of Rare & Endangered Vascular Plants of California.

US Geological Survey. 1980. Bougher Gravity Map of California, Westwood Sheet.

APPENDIX

(916) 283-0800

FEATHER PUBLISHING CO., INC.

P.O. BOX B, QUINCY, CA 95971

STATE OF CALIFORNIA }
County of Lassen } ss.

Keri B. Taborski deposes and says: That she is the Principal Clerk for the Publisher of the

Lassen County Times

a newspaper published and circulated at Susanville, Lassen County, State of California, adjudicated as a newspaper of general circulation December 7, 1981, Decree No. 15466; that the NTHP- for Hulsman Ranch Partnership

of which the attached is a true printed copy, was published in the weekly issue of said newspaper (and not in a supplement thereof) for 1 consecutive weeks, beginning April 25, 1995 and ending same, both dates inclusive, to wit: April 25, 1995

Date: APR 25 1995 Keri B. Taborski

Keri B. Taborski

Proposed timber harvest

A Nonindustrial Timber Management Plan (NTMP) will be submitted to the California Department of Forestry and Fire Protection by the Hulsman Ranch Partnership. The proposed NTMP is located approximately 5 miles south of the City of Susanville, CA. This notice is requesting information concerning domestic water supplies from the Lassen Creek watercourse draining the NTMP area which are within 1,000 feet downstream of the NTMP boundary. If you have any knowledge of domestic water supplies downstream of the following NTMP areas, please notify the Hulsman Ranch Partnership, c/o Phil Nemir, P.O. Box 1717, Susanville, CA 96130 within 10 days of the publishing of this notice.

Legal description: portions of Section 14, 15, 20, 21, 22, 23, 27, 28, 29, 32, 33, 34 Township 29 North, Range 12 East, M.D.M.

Published LCT
April 25, 1995

Philip E. Nemir
Forestry & Appraisal Services
P.O. Box 1717
Susanville, CA 96130
(916-257-2294)

May 11, 1995

Mallery Properties Inc
702-915 E. Richmond Rd.
Susanville, CA 96130

SUBJECT: Domestic Water Use Downstream of Hulsman Ranch Property

Dear Mallerys:

The Hulsman Ranch Partnership is requesting information concerning domestic water supplies within 1,000 feet downstream of timber harvest plan areas that may be affected by future timber harvesting activities on lands in the vicinity of Peter Lassen's Grave. If you have any knowledge of domestic water supplies downstream of the following THP area, please notify Hulsman Ranch Partnership, c/o Phil Nemir, P.O. Box 1717, Susanville, CA 96130 within 10 days of the postmarked date of this letter.

> Legal description: portions of Section 14,15,20,21,22,23,27,28,29, 32,33,34 Township 29 North, Range 12 East, M.D.M. Watercourse downstream of the THP area is Lassen Creek. (A map is enclosed for reference purposes).

Thank you.

Sincerely,

Philip E. Nemir
Registered Professional
Forester No. 1666

Philip E. Nemir
Forestry & Appraisal Services
P.O. Box 1717
Susanville, CA 96130
(916-257-2294)

May 11, 1995

Potter Family Trust
783 Rio Del Mar Blvd.
Aptos, CA 95003

SUBJECT: Domestic Water Use Downstream of Hulsman Ranch Property

Dear Potters:

The Hulsman Ranch Partnership is requesting information concerning domestic water supplies within 1,000 feet downstream of timber harvest plan areas that may be affected by future timber harvesting activities on lands in the vicinity of Peter Lassen's Grave. If you have any knowledge of domestic water supplies downstream of the following THP area, please notify Hulsman Ranch Partnership, c/o Phil Nemir, P.O. Box 1717, Susanville, CA 96130 within 10 days of the postmarked date of this letter.

> Legal description: portions of Section 14,15,20,21,22,23,27,28,29, 32,33,34 Township 29 North, Range 12 East, M.D.M. Watercourse downstream of the THP area is Lassen Creek. (A map is enclosed for reference purposes).

Thank you.

Sincerely,

Philip E. Nemir
Registered Professional
Forester No. 1666

-CONFIDENTIAL-

Archaeological and Historical Resources Survey and Impact Assessment
A Supplemental Report for a Timber Harvesting Plan

This report is intended to be submitted by an RPF as a CONFIDENTIAL addendum to a Timber Harvesting Plan (THP) to achieve compliance with the Forest Practice Rules and Regulations (14 CCR 929.1, 949.1 and 969.1). It should not be used to achieve compliance for any project other than a THP, especially if such projects require a full CEQA review. This report is highly confidential and SHALL NOT be made available to the general public since it contains sensitive archaeological information possibly displaying the specific location of archaeological sites. It shall be made available to those individuals and agencies authorized by CDF to review it and to those individuals with responsibility to protect archaeological resources described herein. The report may either be typed or carefully handwritten in ink. The RPF should send a completed copy of this report, with two copies of any site records, to the appropriate Archaeological Information Center within 30 days of the survey. **Contact CDF Archaeology Program Coordinator, Dan Foster at (916) 653-0839 for information concerning the use of this form.**

May 10, 1996	Hulsman Ranch NTMP
Date This Form Prepared	Project Name
	Lassen
THP # (assigned by CDF)	County

Janesville & Diamond Mountain 7.5'	1,700	T29N, R12E, Sec.20/33 MDM
Name of USGS Quad(s)	Total THP Acres	Township/Range/Section(s)

Philip E. Nemir	
Name of Archaeological Surveyor	Signature of Surveyor
Same as above	P.O. Box 1717, Susanville, CA 96130
Name of RPF Preparing Plan (if different than surveyor)	Address of RPF

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Archaeological Records Search Information

Note: Archaeological record search information should be current.

Identify and **ATTACH** the archaeological record search information for this THP as follows:

Information Center File # K95-153

Date of Records Check Response: May 15, 1995

For ownership-wide record search, indicate date of search (and updates) and **ATTACH** appropriate portion of basemap showing zones of sensitivity and areas recommended for archaeological survey.

Date of ownership-wide record search or most recent update: May 15, 1995

5/10/96

Archaeological Records Search Information - Continued

Yes	No	
[x]	[ ]	Did the Information Center records reveal the presence of any known archaeological or historical sites within the THP area? Show site locations on Archaeological Coverage Map.
[x]	[ ]	Has any portion of the THP area been **PREVIOUSLY** surveyed for cultural resources? If yes, display area on the "Archaeological Survey Coverage Map" using \\\\ lines.
[x]	[ ]	Did the Information Center recommend that the THP area be archaeologically surveyed prior to logging?
[x]	[ ]	Did the Information Center make any specific recommendations other than the area to be archaeologically surveyed? List recommendations:

1. A professional archeologist be contacted to relocate the recorded sites reported to be within the project boundaries and then flag the site boundaries so the site may be avoided during project operations.

2. If any additional cultural resources are encountered during actual harvest operations, all work should cease within the area of the find until the site and materials can be inspected by a professional archeologist.

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Native American Consultation Information

The RPF is required to contact local tribal groups identified by the Native American Heritage Commission (NAHC), request information on the existence of any archaeological or cultural sites known to Native Americans within the THP boundaries, and to notify them of the opportunity to participate in the THP review process [14 CCR 929.1, 949.1 and 969.1]. The CDF Region Offices and Ranger Units can provide RPF's with the list and addresses of tribal groups. For the most current information, contact the NAHC at (916) 653-4082. Describe the results of this contact including name(s) and dates individuals were consulted:

Letters sent to Andrew Jackson & Susanville Rancheria on March 31, 1995. Andrew Jackson responded by telephone on May 2, 1995. He said there was a site and trail in Section 27. He said there was a trail along Lassen Creek in Section 29 and along a creek in Section 32. He also said there was a site in Section 34. Letter sent to Ronnie Morales on April 29, 1996 with no response.

5/10/96

NOTICE OF PREPARATION

A Non-Industrial Timber Management Plan or an amendment to an existing plan that may be of interest to you has been submitted to the California Department of Forestry & Fire Protection. The Department will be reviewing the proposed timber operation for compliance with various laws and rules. This review requires the addressing of any concerns you may have with what is being proposed. The following briefly describes the proposed timber operation and where and how to get more information.

The review times given to the Department to review the proposed timber operation are variable in length, but limited. To ensure the Department receives your comments please note the following:

The earliest date the Department may approve the plan or amendment is: _____. This is 45 days from the date of receipt of the plan by the Department.
The plan or amendment was sent to the Department on: _____.
The actual review required by the Department will determine the length of the review period beyond the noted minimum, normally it is longer. Please check with the Department to determine the date when public comment closes.

Questions about the proposed timber operation or laws and rules governing timber operations should be directed to:

California Department of Forestry & Fire Protection
Forest Practice Program
6105 Airport Road
Redding, CA 96002
(916) 225-2445

The public may review the plan or amendment at the above Department office or purchase a copy of the plan or amendment. The cost to obtain a copy is $2.50 for the first 20 pages and 12 cents for each additional page. (To be completed by the Department upon receipt. The cost to obtain a copy of the plan or amendment is:_____.)

Information about the plan or amendment follows:

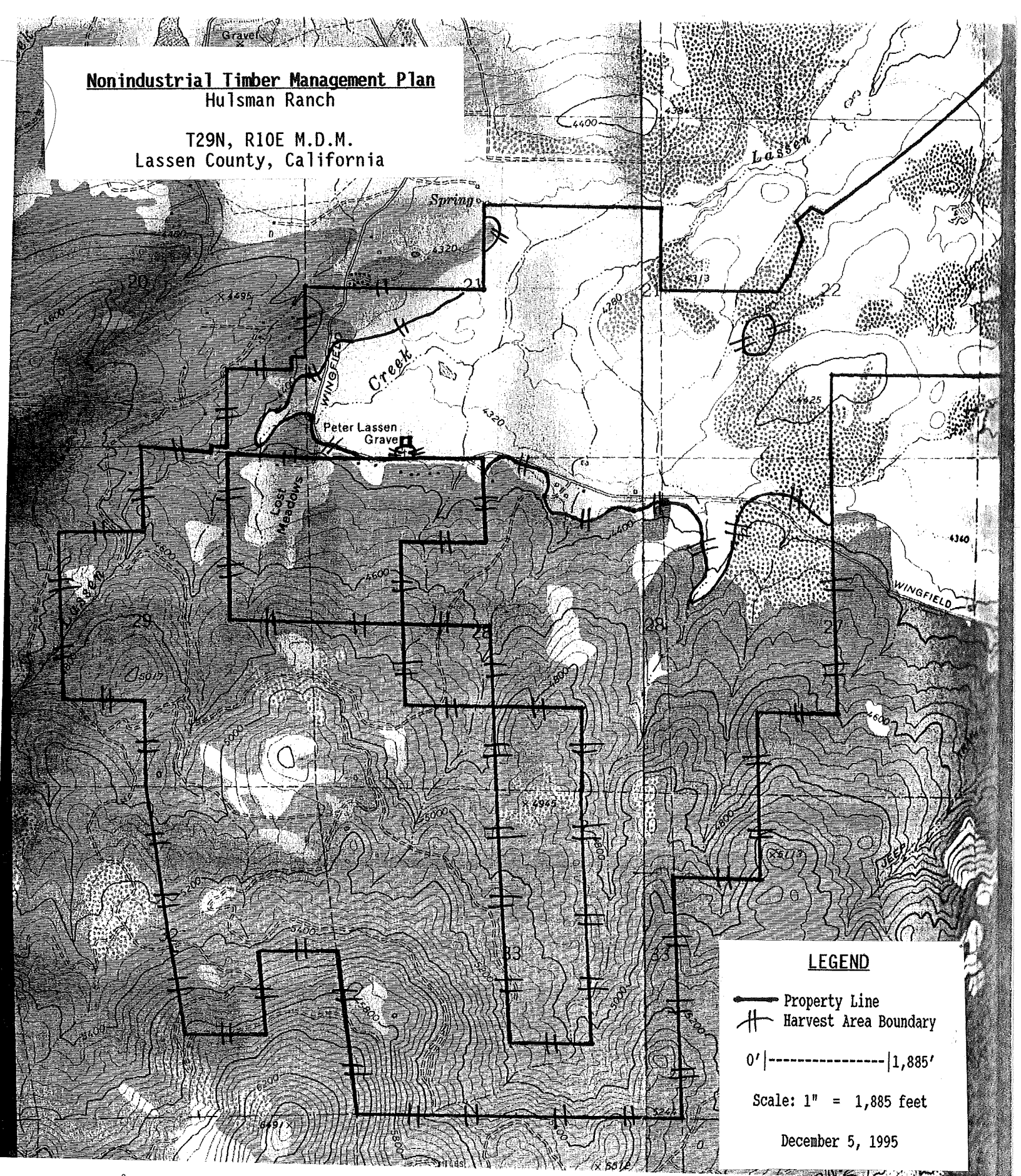
1. Timberland Owner where the timber operation is to occur: Hulsman Ranch Partnership
2. Registered Professional Forester who prepared the plan or amendment: Philip E. Nemir
3. Name of individual who submitted the plan or amendment: Hulsman Ranch Partnership
4. Location of the proposed timber operation (county, legal description, & approximate distance of the timber operation from the nearest community or well-known landmark): Lassen County. T29N, R12E, portions Sec. 20, 21, 22, 27, 28, 29, 32, 33 + 34 MDM. 5 miles south of Susanville
5. The name of and distance from the nearest perennial stream and major watercourse flowing through or downstream from the timber operation: Lassen Creek flows through the property.
6. Acres proposed to be harvested: 1,697
7. The regeneration methods and/or intermediate treatments to be used: Selection, Group Selection, Transition, Commercial Thinning, Sanitation- Salvage

A map is attached to help in locating where the proposed timber operation is to occur.

FOR DEPARTMENT USE ONLY

NTMP NO. _____ DATE OF RECEIPT _____

Region II, September 1, 1992


Nonindustrial Timber Management Plan
Hulsman Ranch
T29N, R10E M.D.M.
Lassen County, California
Gravel
Spring
Lassen
Creek
WINGFIELD
Peter Lassen
Grave
Lost Meadows
WINGFIELD
DEEP
20
21
22
29
28
27
33
LEGEND
Property Line
Harvest Area Boundary
0'|----------|1,885'
Scale: 1" = 1,885 feet
December 5, 1995

Mailing Labels for Adjoining Landowner Notification

Milton & Patricia Mallery
702-915 E. Richmond Rd.
Susanville, CA 96130

Kenneth & Jean Weaver
811 Mark St.
Susanville, CA 96130

Rodney & Rebecca Chambers
700-150 Four Oaks Rd.
Susanville, CA 96130

William & Julia Ellena
470-290 Wingfield Rd.
Susanville, CA 96130

Robert & Susan Getty
700-240 Four Oaks Rd.
Susanville, CA 96130

Barry & Sheri Christensen
470-065 Wingfield Rd.
Susanville, CA 96130

Veryl & Dollie Drury
2100 Wingfield Rd.
Susanville, CA 96130

Robert & Bonnie Hawes
699-780 Old Archery Range Rd.
Susanville, CA 96130

Raymond Pfau
POB 5019
Upland, CA 91785

John Cuthill & Nina Bliss
699-990 Old Archery Range Rd.
Susanville, CA 96130

Robert & Anne Fleming
700-050 Old Archery Range Rd.
Susanville, CA 96130

Mark & Deborah Jensen
700-100 Old Archery Rd.
Susanville, CA 96130

Russek 1992 Revoc Living Tr
469-585 Children's Rd.
Susanville, CA 96130

Ralph & Dorothy Blake
1002 Modoc St.
Susanville, CA 96130

Consuelo Grams
15721 Hesperian Blvd.
San Lorenzo, CA 94580

Lon Fitton & Elizabeth Weiss
700-105 Old Archery Rd.
Susanville, CA 96130

Wendy Nagle
1 S. Creek Medical Center
Monticello, KY 42633

Potter Family Trust
783 Rio Del Mar Blvd.
Aptos, CA 95003

Eagle Lake Ranger District
Lassen National Forest
55 S. Sacramento
Susanville, CA 96130

Frederic & Barbara Fam Revoc Tr
PO Box 243
Susanville, CA 96130

Walter W. Walker, et al
c/o W.M. Beaty & Assoc.
PO Box 990898
Redding, CA 96099

Cramer Family Trust
704-605 Center Rd.
Susanville, CA 96130

Treasure Robertson
700-180 Wingfield Rd.
Susanville, CA 96130

Philip & Carol Hamlin
700-240 Wingfield Rd.
Susanville, CA 96130

Donald & Mary Suderman
PO Box 125
Susanville, CA 96130

Jeffrey & Rebecca Guess
700-460 Wingfield Rd.
Susanville, CA 96130

Danny & Jean Graham
700-460 Wingfield Rd.
Susanville, CA 96130

David & Marvous Nobles
700-580 Wingfiled Rd. E.
Susanville, CA 96130

Terrence & Mary Hoffman
700-590 Wingfield Rd.
Susanville, CA 96130

Charlotte Throop
c/o Alma Smart
826 Carro Dr #1
Sacramento, CA 95825

Joseph Coscarelli
700-810 Wingfield Rd.
Susanville, CA 96130

Frederick & Ronda Mallery
707-335 Wingfield Rd.
Janesville, CA 96114

Willam & Peggy Butler
P O Box 606
Janesville, CA 96114

J.H. & Susan Dillard
P O Box 512
Susanville, CA 96130

Grand Lodge
Free & Accepted Masons of CA
1111 California St.
San Francisco, CA 94108

Jason Cheney, et al
P O Box 850
Susanville, CA 96130