ST
Whitman, Sales
Examination, July-August 1910.

HEAD WATERSHED

MIDDLE FORK JOHN DAY RIVER

WHITMAN NATIONAL FOREST OREGON

1910

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FOREWORD

The tract under consideration embraces the most accessible large lumbering unit or units on this Forest. The examination was made in anticipation of there being an early application for the purchase of at least one-third of the timber: Two prospective purchasers, the Sumpter Lumber & Timber Company of Baker City, Oregon, and Messrs. Garrow and Bannon of Sumpter, Oregon, having examined the tract in company with Forest Service officials and made relevant inquires.

Although the tract was known to contain about 27,000 acres and to have upon it over 130 million feet of mature yellow pine timber, in addition to several million feet of mature yellow pine timber, in addition to several million feet of associated species – a quantity greater than was likely to be desired in a single sale, and though neither of the prospective purchasers seemed desirous of applying for more than about 50 million feet, it was considered necessary to examine the entire drainage basin. This would render it impossible to make an intelligent division of the whole area into natural logging units and to plan properly for future management.

The field data was taken by Lumberman W.T. Andrews and Forest Assistant M.L. Merritt and Forest Ranger R.E. Smith, assisted by the necessary temporary employees.

1. DESCRIPTION OF TRACT.

The tract examined comprises the entire portion of the drainage basin of the main headwaters of the Middle Fork of the John Day River that is included within the boundaries of the Whitman National Forest. It is approximately 6-1/2 miles in width east and west at its widest point by about 11-1/2 miles north and south at its greatest length.

It comprises portions of unsurveyed Tp. 11, 12 and 13 S., R. 35-1/2 E., W.M., unsurveyed, and E1/2 Sec. 1 and part of N1/2 Sec. 12, T 12 S, R 35 E, W.M.; a portion of W1/2 Sec. 6, T 12 S, R 36 E, W.M., and all or nearly all of Sec. 18, 19, 20, 29, 30, 31, and 32, and parts of Sec. 6, 7, 17, 28 and 33 of T 11 S, R 36 E, W.M., an area of approximately 27,622 acres.

It is bounded upon the west by the National Forest boundary for the north-central portion and by the low divide between Clear Creek and Squaw Creek; on the east by the divide between the Middle Fork of the John Day and the North Fork of Burnt River, which divide is also the county line between Baker and Grant counties; on the north of the boundary of the Whitman National Forest, and on the northwest by the divide between Idaho Creek and Crawford Creek, which latter divide is also the east and south boundary of the Baker White Pine Lumber Co. timber sale of June 13, 1910.

DIVISION INTO BLOCKS

Since the tract examined is too large to be considered in a single sale under the present regulations limiting the time of removal to five years, and since the advisability of making a short time sale for more than about 50 or 60 million feet is questionable at this time when no accurate data is at hand showing the quantity of mature yellow pine timber upon this Forest, the tract has been divided into three blocks, each comprising a complete and more or less distinct logging unit. These blocks have been designated as Block I, Block II and III, and each comprises practically all of the drainage basin of Squaw, Idaho and Summit Creeks respectively. A portion of the region between Idaho and Squaw Creeks, which apparently belongs with Block I, has been thrown over to Block II (Idaho Creek) in order to supply to the purchaser of the Block some easy logging to offset the large area of poorly forested rocky land and the scattered nature of the timber generally upon that Block, as well as to make the quantity of timber in the different blocks more nearly equal. This timber can as easily be removed with Block II as with Block I.

BLOCK I

SQUAW CREEK DRAINAGE

The Block is located mainly in unsurveyed T 11 and 12 S, R 33-1/2 E. W.M., though a small part is found in approximately Sec. 1, 2 and 3, T 13 S, R 35-1/2 E, W.M., unsurveyed, and in Sec. 1 and 12 of T 12 S, R 35 E. It comprises a single drainage area, that of Squaw Creek, and is a complete natural logging unit. It comprises a total area of approximately 11,777 acres of which 177 acres has been listed for entry under the provisions of the act of June 11, 1906, and 92 acres has been withdrawn for Ranger Stations.

It is bounded upon the west by the Forest boundary and by the Squaw-Clear Creek divide; on the east by the Burnt River-Squaw Creek divide, which is also the Grant-Baker county line; on the northeast by the divide just north of Papoose Creek, and on the north by the divide between Squaw and Idaho Creeks.

For convenience in reference the portion of Block I lying north of a line extending due west from the junction of Savage and Squaw Creeks to the sale boundary, and in a southeasterly direction up Savage Creek to the sale boundary has been designated as

Compartment 1, and the portion south of said line containing an area of approximately 3,040 acres, all surveyed, has been designated as Compartment 2.

BLOCK II

IDAHO CREEK DRAINAGE

This Block is located mainly in unsurveyed T 11 S, R 35-1/2 E, W.M., though a small area is located in surveyed land to the northeast. It comprises all of the drainage basin of Idaho Creek and that portion of Summit Creek lying to the southeast thereof. Taken together this constitutes a single logging unit.

It is bounded upon the west by the Forest boundary; upon the northwest by the Idaho-Crawford Creek divide; on the north by the Forest boundary; on the northeast by the Baker-Grant county line; on the east by a divide extending from the junction of Road and Summit Creeks in a northeasterly direction to the county line, and from the same point in a southerly direction along the low divide just west of Road Creek to the boundary line of Block I, thence following the south boundary of Block I in a northeasterly direction along the low divide north of Papoose Creek and between Idaho and Squaw Creeks to the Forest boundary.

It comprises an area of approximately 9419 acres, of which 40 acres has been withdrawn as a Ranger Station.

BLOCK III

UPPER SUMMIT CREEK DRAINAGE

This Block is located in the eastern portion of unsurveyed T 11 and 12 S, R 35-1/2 E, W.M., and in the surveyed portion of the tract immediately east thereof. It includes all of the upper drainage basin of Summit Creek. It is a single complete logging unit and contains an are of approximately 6586 acres of which 40 acres is patented land and 40 acres, the NE1/4 NE1/4 Sec. 36, T 11 S, R 35-1/2 E, W.M., unsurveyed, is not included in the sale area.

It is bounded on the west and northwest by the east boundary of Block II, on the south by the northeast boundary of Block I, and on the east and southeast by the John Day-Burnt River divide, which divide is also the county line between Union and Grant counties.

2. PRIVATE AND OTHER RELATED INTERESTS.

BLOCK I

The June 11 claim of L.D. Olmstead, List No. 791, area 141,425 acres, is located approximately in portions of Sec. 27, 28, 33 and 34, T 11 S, R 35-1/2 E, W.M., unsurveyed. This claim is bona fide, and contains no merchantable timber.

Mrs. Hannah J. Olmstead, mother of L.D. Olmstead, made June 11 application, List No. 789, covering 36.115 acres of mountain meadow, located approximately in Sec. 14, T 12 S, R 35-1/2 E, W.M., unsurveyed. There are upon the tract a small log house and a large hayshed. A substantial fence surrounds the area. The claim is apparently abandoned. No merchantable timber is found upon the area.

The wagon road between Austin, Oregon and Burnt River to the east passes through the tract, following a course south of Squaw Creek past the June 11 claim of Mr. Olmstead, thence in an easterly direction into Block II. Although a well traveled public road, this seems not to be a county road but merely one kept open by constant travel. The portion of the road south of the June 11 claim of Mr. Olmstead, however, was built under special use permit from the Forest Service at a time when the construction of a fence around his claim closed up the road which formerly ran through his homestead.

A branch road extending from Mr. Olmstead's claim south to Olmstead Creek, thence up Olmstead Creek was built at sometime in the past probably prior to the formation of the Forest. It is at present passable for teams, although seldom used except by pack horses.

It is believed that neither road will in any way interfere with a timber sale in this region except the portion up Olmstead Creek. Here it will probably be necessary for the railway right of way to follow approximately the course of the wagon road for the greater part of the distance. It is doubtful if this will meet with serious objection on the part of the very few who ever use this road; however, this matter should be considered fully by the officer in charge of the sale before permission is given to build the road and if serious and valid objections are made to the temporary obstruction of any portion of the road, the purchaser should be required to provide a suitable temporary passage way for wagons, subject to the approval of the Forest officer, around such obstructions. A clause covering this point and providing that the road be reconstructed after cutting is completed should be incorporated in the contract.

A small temporary dam, located just east of the Blue Mountain Ranger Station, and a small ditch loading from it across the station land to the ranch of Mr. Phipps to the west, was constructed by Mr. Phipps and is used for irrigation purposes.

Portions of the SE1/4 SE1/4 and NE1/4 SE1/4 of Sec. 12, T 12 S, R 35 E, W.M., an area of approximately 15 acres, is patented land.

The records in the U.S. Land Office at La Grande, Oregon show that other lands have been selected in lieu of Sec. 16 and 36, T 12 S, R 35-1/2 E, W.M., unsurveyed. The portions of these sections embraced within this tract have therefore been considered as National Forest land. (See L District-Settlement, Nov. 23, 1910.)

The Blue Mountain Ranger Station, having upon it a two-room house and with about 40 acres under pasture, comprises a withdrawal of 80 acres, comprising the two forties in Sec. 28, T 11 S, R 35-1/2 E, W.M., unsurveyed, which lie east of the SE1/4 NE1/4 and the NE1/4 SE1/4 of Sec. 25, T 11 S, R 35 E, W.M. The south half is upon Block I and the north half upon Block II. A telephone line connected with the telephone central in Austin has recently been installed in this station.

The Squaw Meadow Ranger Station comprises a withdrawal of about 52 acres located in approximately Sec. 15, T 12 S, R 35-1/2 E, unsurveyed. The improvements consist of about 25 acres of pasture under fence.

So far as is known, no other claims exist upon Block I.

BLOCK II

The wagon road already mentioned as crossing Block I continues in an easterly direction across the Block. It will in no way interfere with the sale. A clause in the contract when this Block is sold should provide that suitable crossings be made wherever railway lines cross the road, it shall be kept sufficiently open to permit passage of vehicles, and that the road be placed in good condition when the tract is removed.

As already stated, the north half of the Blue Mountain Ranger Station is located in this Block.

So far as is known no other private interests are involved in Block II.

BLOCK III

The NW1/4 SE1/4 Sec. 30 T 11 S, R 36 E, W.M. is private land. There are no improvements.

The Austin-Burnt River wagon road which crosses Blocks I and II follows up Road Creek to the county line. Two branches, one to the right and one to the left, follow up two main draws to the summit. An old wagon road also strikes the head of Summit Creek from the south. None of these roads are county roads. A clause similar to that suggested for Block I should be inserted in the contract.

The La Grande Land Office states (see L District-Settlement, Nov. 23, 1910) that land has been selected in lieu of all except the NE1/4 NE1/4 of Sec. 36, T 11 S, R 35-1/2 E, W.M., unsurveyed. This area is therefore considered National Forest land with the exception of the forty noted.

So far as is known no other private interests are involved in Block III.

3. OLD CUTTINGS.

Except for the cutting of occasional trees by travelers and settlers no timber cutting has been done upon this area.

4. TOPOGRAPHY AND SURFACE.

BLOCK I

The northern portion of this block is a high bench land cut by several gulches and presenting an exceptionally easy logging proposition. Farther south and east it consists of long steep slopes leading down to Squaw Creek and its branches. The slopes leading to Squaw Creek north of Squaw Meadow Ranger Station are especially steep and rocky, requiring steam logging machinery for their successful exploitation. In other places the surface is most often comparatively smooth, although there are steep rocky spots scattered throughout the Block.

None of the streams are drivable.

BLOCK II

The extreme northeastern portion of this Block is a high and more or less flat plateau. The streams rising here have cut comparatively deep, and often rocky valleys through the upper part of their courses. The hillslopes in this portion are comparatively steep and often rocky. For about half a mile below its junction with Fly Creek, Idaho Creek has steep rocky sides. Below that it broadens out greatly. The lower portion of the Block consists of hillsides sloping off gradually towards the creeks and draws and breaking off more steeply as the gullies are approached. North of Idaho Creek are many open areas. These are usually rocky, being covered with basaltic fragments from four inches to two feet in diameter. Along the gulches the surface usually is smooth. Upon wooded hillsides generally the surface is more often than not smooth and free from rocks, although rocky slopes are common, especially on a southern exposure.

The portion of Block II which is located south of Summit Creek is a sloping plateau with a smooth surface over all but the northwestern portion where the surface is covered with large basaltic fragments.

None of the streams are drivable.

BLOCK III

This Block is a hilly country cut by many gulches and draws. It rises rapidly from Summit Creek and its tributaries to the tops of the ridges. North of Summit Creek the surface is rocky in many places, especially on exposed south slopes and upon a few flat benches. Elsewhere the surface generally is free from rocks except for comparatively small and isolated patches.

5. SOIL

The soil throughout the tract in general is a sandy, gravelly loam. In the bottoms of draws and streams it is generally deep, fertile and for this region comparatively moist. Upon hillslopes the depth of soil varies greatly. Upon steep south exposures it is apt to be comparatively shallow, dry, and mixed with many rocks and stones. Upon north slopes the soil is deeper, contains a much larger amount of humus, and is more moist. Upon benches and plateaux it is deeper, freer from rocks and stones, and, in general, fairly dry, although this depends greatly upon exposure, drainage and elevation, - south slopes being drier than north ones and low altitudes than high.

The base rock in this region is mainly basalt and trap.

6. CHARACTER AND CONDITION OF THE FOREST.

There are upon this tract three more or less distinct types of forest, viz:- yellow pine, north slope and lodgepole types.

Yellow Pine Type

Upon nearly all warm, moderately dry, and well drained situations between the elevations of 4,200 to 6,000 feet the forest growth is predominantly yellow pine, usually in nearly pure stands. Such conditions are found upon south and west slopes, upon well drained benches and plateaus, and upon north hillsides with moderate slopes and low altitudes.

In parts of the tract where soil conditions are at least moderately good, where there is sufficient soil moisture for yellow pine but not enough for the growth of any number of competing species, and where no especially rocky, high, or moist situations occur, is found the really typical yellow pine of the region. Such conditions obtain throughout the larger part of the tract. In such places yellow pine grows in nearly pure stands with Douglas fir, western larch, white fir, and lodgepole pine, as associated species. These species are largely confined to draws, on north and east slopes, and in moist situations generally. Douglas fir is the first of these trees to appear as the soil becomes more moist.

Shrubby undergrowth is usually absent though it makes its appearance as the ground becomes more moist and sheltered and as higher elevations are reached. Generally, however, the forest presents an open parklike appearance with a fair growth of grass, known locally as "pine grass", beneath the trees.

In typical situations the trees range from 95 to 120 feet in total height with a merchantable length of from 65 to 95 feet. Trees with a clear length of more than 30 feet are the exception, while often no clear timber at all is obtainable.

The forest is uneven aged, being composed of a stand of large mature and overmature trees, young immature pines, known locally as "bull" pines, and large numbers of seedlings, saplings, and poles. Upon the whole area these occur numerically in the following proportions: saplings (8 feet in height to 4 inches in diameter) 26%, poles (4 to 12 inches in diameter) 25%, immature trees 12 inches and over in diameter 18%, mature and overmature trees 31%. A glance at the summary table given in the appendix will show the relative amounts of these different classes of blocks.

It is also estimated that there are about 7/8 of one dead tree per acre. The larger part, probably 95% of these are unmerchantable, having been dead for sometime and being badly weather checked.

In the regions between Squaw and Idaho Creeks, north of Idaho Creek, south of Squaw Creek, and north of Summit Creek, there are many places where little or no soil is present, the surface being mainly composes of angular fragments of basaltic and trap rocks varying in size from a few inches to a foot or two in diameter. The sun dries such situations out so badly during the summer that few trees grow in such places. Often they are entirely bare. Along their edges, however, and on the thin soil adjoining them tree growth is scattered; the trees are short, stunted, limby, and of inferior quality, no timber of the upper grades being found. There is seldom any undergrowth. An occasional Douglas fir may be found in such situations while in the rocky openings juniper and mountain mahogany occur as scattered individuals or clumps. Naturally exploitation is difficult in such places.

On the plateaus in Block II between Road Summit and Squaw Creeks the stand of timber is so dense that most of the trees although fully mature are small and slender. Trees 12 inches in diameter which have every appearance of being 250 or more years old are common. There is no undergrowth in such places although pine grass is thick. The quality of the timber is below the average. Logging will be exceptionally easy owing mainly to the topography.

Upon high ridges and plateaus where moisture is fairly abundant and the soil fertile and fairly deep yellow pine reaches its highest individual development. Here the trees are tall, large and well formed, with a large per cent, of clear length. It is not all uncommon to find single specimens having from 50 to 60 feet clear length out of a total merchantable height of from 120 to 150 feet. The average diameter of mature trees in such situations ranges much larger than at lower levels. Undergrowth is generally comparatively dense and large numbers of associated species are present. As the yellow pine type grades into the north slope and lodgepole types at these higher altitudes and number of yellow pines becomes fewer and fewer. Usually, however, the trees which occur in such situations are individually of excellent quality. Lines between yellow pine and other types of forests are however generally sharply defined.

The situations which produces the heaviest stands of yellow pine timber is one located about midway in altitude in the yellow pine belt where there is a gentle slope to the north affording a slight protection from the drying rays of the sun. In general, the better the

soil and the more moisture it contains the heavier the stand and better the quality of timber produced, until the soil moisture is sufficient to permit the growth of too many competing species, when the yellow pine is crowded out.

Larch growing in draws and in mixture with the yellow pine types reaches a large size and has an excellent form. The butt cuts of large trees, however, are usually rotten or seamy so that good grades of lumber are rarely secured except from the second cuts.

Douglas fir which occurs in the yellow pine type is usually sound but of inferior quality, the tree being short, limby and with almost no clear length.

White fir is very defective, nearly all of the older trees being rotten at the heart for nearly all of their length. Merchantable logs are found mainly in small trees and in the top cuts of larger trees. No clear lumber is secured.

Lodgepole is not merchantable saw timber.

As already stated, there has been estimated to be about 7/8 of one dead yellow pine per acre on the average. Most of these trees appear to have been killed by insect attack, mainly Dendroctonus brevicomis. The trees, however, are found in all stages of attack, some being newly infested while others have fallen as a result of decay, having apparently been killed a long time in the past. Present damage to old trees does not appear to be extensive, in fact, it is doubtful if it is any greater than can reasonably be expected in a normal virgin forest in which no attempt at control work has been made. There are, however, a few localities where a number of younger "bull" pines ranging in diameter from 4 to 12 inches have been attacked. This later work seems to be mainly that of Dendroctonus monticolae, and while not at present alarming there is a possibility of attack upon this class of trees by this species, especially in view of the greatly increased activity which it has shown in lodgepole pine upon the Whitman Forest recently, and especially, as will be noted later in this report, since a great deal of lodgepole is being killed along some of the stream bottoms.

Lightning has struck many trees. Although these usually die, individuals occasionally recover but are always defective and undesirable. It often happens that trees are attacked at once by bark beetles after being struck. Thus any chance of recovery is precluded.

North Slope Type.

The north slope type is so-called since it grows mainly upon north hillslopes where it is protected from the hot drying sun so that a sufficient amount of soil moisture is retained to permit the growth of other species than yellow pine, usually to the exclusion of that tree. This type of forest also occurs upon moist stream bottoms and benches generally.

Larch, Douglas fir, lodgepole pine, and White fir are the usual species comprising this type. These are desirable in the order named. Larch is present in the greatest quantity

as regards merchantable board feet, while numerically and as regards the actual per cent of the area occupied lodgepole pine and White fir are by far the most common. Yellow pine is found as scattered trees in many situations where the exposure is such as to give the warming, drying effects of the sun a chance, or where drainage is especially good.

Many shrubs occur within this type, which, with the fallen trees and pole which result from insects, fires, and crowding, form a mass of debris which renders this type especially susceptible to fire damage. As might be expected, fires have occurred from time to time in the past so that there is hardly a situation in which the forest has reached normal maturity. In most places after a fire has burned through the forest a heavy stand of lodgepole with scattering trees of larch springs up. If undisturbed the large usually overtops the lodgepole, much of which finally dies out. Douglas fir and White fir also work into these areas, sometimes at the start but oftener at some later periods. In places where fires have not burned seriously for long periods there is little if any lodgepole, white fir being the most numerous tree. This latter species being a prolific seeder reproduces rapidly after it has once obtained a foothold.

The north slope type, therefore, comprises stands in all stages of development from young lodgepole burns to mature stands of larch and Douglas fir. Even in the best places, however, fire and insects have worked together, doing so much damage that the forest seldom has much present commercial value. In many places there are excellent stands of young larch which, if protected from fire, should develop into valuable timber land. Along well drained stream bottoms there is usually a much larger quantity of mature larch than in any other situation.

Larch is generally sound but usually has rotten and seamy butts in the larger trees. A species of Dendroctonus has killed many trees, - not in any single bad attack but generally, - infesting a few trees each year.

Large numbers of Douglas fir have been killed by Dendroctonus pseudotsugae. These attacks occur mostly in groups. This species seems very subject to insect attack in this region though the attack at present is not as bad as it apparently was a short time in the past. Douglas fir has pitchy butts and is subject to the attack of "cruisers conk," - 25% of the trees being attacked and about 10% unmerchantable from this cause.

????????? larger trees being rendered practically worthless, except sometimes for the top cut, by a heart rot. It is also attacked by another species of Dendroctonus.

Lodgepole Type.

This type of forest occurs upon flats, benches and high ridges where there is an abundance of moisture, poor drainage and fertile soil. It is usually composed of a dense pure stand of lodgepole pine. Many dead poles and trees are present which make the forest extremely susceptible to fire damage. In older stands the trees range from 6 to 10 inches in diameter. But very little merchantable sawtimber is present, hence it is not

the intention to do more than secure a few railway ties at the present time except in the case of large individual trees which chance to be near a cutting area.

In the higher, drier and better drained situations in lodgepole bottoms are large trees of larch which are merchantable if present in sufficient numbers to warrant logging operations.

The portions of this type of forest which occur along Idaho Creek have been very badly attacked by Dendroctonus monticolae, in places as high as 75% of the trees are infected and as many as 20% dead. Elsewhere, there is comparatively little serious damage although groups of infested trees are found in nearly all portions of the type.

7. REPRODUCTION.

Throughout the larger part of the yellow pine type generally reproduction is good. Where the forest is open and there is little or no undergrowth, which condition obtains on al but the highest south and west slopes and upon the lower north slopes and benches, excepting of course extremely rocky situations, it is almost invariably excellent. It is estimated that there are at least 3,000 seedlings per acre on the average in such places. Where there are openings in the forest, especially those in which a group of dead trees are found, seedlings are of vigorous growth, ranging from one to four feet in height. Where the forest cover is more nearly closed, the seedlings are small and inconspicuous yet a close examination shows that they are ordinarily numerous even then.

Higher up the slopes and on the upper benches towards the upper limits of the pine range there is a heavier undergrowth of shrubs. Here seedlings are much more scattered or entirely lacking. Where the slope merges into the yellow pine type the larger number of trees and the many competing seedlings of other species often crowd out practically all seedling pine. In such places much care must be exercised in marking in order to insure a second crop of desirable species.

Upon the rocky openings which occur there are often no seedlings at all although many work in around the edges of such places.

Over approximately 80% of the yellow pine type it is estimated that there is a sufficient number of seedlings already started to insure a stand. In the heavier portions of the type it is believed that the opening up of the forest as a result of logging will promote reproduction of yellow pine, provided of course that the area is not burned over.

While scattering seedlings of other species are found, yellow pine is the predominating species occurring in that type.

In the north slope type there is invariably a superabundance of seedlings wherever the shade is not too great.

In the lodgepole type reproduction is always abundant except in cases where considerable areas have been burned over several times in succession.

Sheep are at present grazed upon the entire area. In most places this has worked no injury to the present stand of young seedlings. On the contrary, it is believed that properly regulated grazing promotes that starting of seedlings directly by the sharp hoofs of the sheep loosening up the surface and forming a better seed bed, and indirectly because grazing keeps down an accumulation of grass, herbs, and shrubs which, if left undisturbed from year to year, would form a highly inflammable ground covering which would quite certainly take fire at some time during a period of five or ten years. Upon properly grazed lands surface fires which, in the dry climate of eastern Oregon, would otherwise be almost uncontrollable, are usually checked readily. In this connection it may be remarked that so far as observed the age of yellow pine seedlings generally throughout the Whitman Forest seems to bear a marked relation to the length of time for which a given area has been grazed. For example, the older grazing region farther down the main and Middle Forks of the John Day River has a good Growth of seedlings and saplings from 5 to 15 feet in height.

There are several localities upon the area examined, however, where poor management of bands of sheep have done and are doing considerable damage to young forest growth as well as the range itself. As the worst example of mismanagement upon the tract, might be cited the region around Squaw Meadows Ranger Station. The lower portion of the pine slope east and southeast of here as well as the south slopes of several of the gulches of that vicinity, become veritable dust beds towards the close of the grazing season. The damage to reproduction in such cases is self evident. The fault, however, seems not to be that too many sheep are grazed but that unreliable and careless herders continually persist in driving their sheep back and forth from the bedding to the grazing grounds, thus nearly ruining that portion of the range.

Should such continual driving of sheep to and from bedding grounds be persisted in, the number of permitted animals must be reduced or, in aggravated cases, the permits cancelled entirely. After cutting is completed and until the new growth is well started this must be insisted upon absolutely. The danger to be avoided is not so much over grazing as over tramping.

8. ACCESSIBILITY

General

From Baker City, Oregon the Sumpter Valley Railroad, (narrow gauge) extends in a general southwesterly direction 86 miles to Prairie City, Grant County, Oregon. This railroad is owned and operated by the same stockholders as those of the Oregon Lumber Company whose headquarters are at Salt Lake City, Utah. This lumber company, with David Eccles as president, is capitalized at about one million dollars,

having large mills at Baker City, Hood River and Inglis, Oregon, and a small mill at Austin, Oregon. Mr. Eccles is also president of the railroad company.

The topography of the country traversed by the railroad is such that severe grades are encountered. The route was located with a view to cheap construction rather than to low cost of operation and maintenance or of good service.

The road crosses two divides before reaching the tract under consideration in this report, one between the town of Sumpter, on the headwaters of Powder River, and the small town of Whitney, upon the North Fork of Burnt River, the other between Whitney and the small town of Austin, on the middle Fork of the John Day River. The road was built primarily for logging the vast tracts of yellow pine timber, owned by the Oregon Lumber Company, situated in the Powder River valley, in the head watershed of the North Fork of Burnt River and in the upper end of the valley of the Middle Fork of John Day River. The road is poorly constructed, equipped, and operated.

The freight rates "extracted" from shippers place the lumber manufacturers along this road at a disadvantage compared with those along lies which come in, to some extent, for State freight regulation. It is understood that the Sumpter Valley Railroad company's tariff was, a time or two, considered by the State Railroad Commission but nothing came of it. The case of a small shipper is pending at this date. Mr. S.S. Landis, General Freight and Purchasing Agent of the road, stated in a conversation with the writer that the company's rate of $2.50 per thousand feet B.M. green lumber for a 60 mile haul would be increased rather than decreased. At the same time he stated that in case a shipper would guarantee 10 to 15 cars per day a small reduction in the new rate might receive consideration.

Austin, Oregon, a sawmill town, is located on the Sumpter Valley Railroad 62 miles from Baker City. The Oregon Lumber Company operates a 40,000 feet capacity band mill here, owns the townsite, and considerable land adjacent.

The natural outlet terminal for the timber on the entire tract under consideration is at Austin, where, it is believed, the mill for sawing in rough should be located. The rough lumber would be loaded directly from the mill lumber-transfer to cars and shipped to the finishing mill which would be located at Baker City. The reasons for locating the planing mill at the point mentioned are: (1) lumber air-seasons at Baker City in 60 days while it requires 90 to 100 days at Austin; (2) it is obvious that handling the finished product in shipping and transfer to transcontinental line would entail loss; (3) transportation dispatch; (4) fire hazard great at Austin.

From the mooted mill site at Austin, near the Oregon Lumber Company's mill, it is 3.5 miles up the Middle Fork of the John Day River to the west boundary of the Forest where the logging road would tap the entire tract under consideration. This 3.5 miles of railroad would be a permanent way until logging in the whole drainage basin is completed.

BLOCK I – SQUAW CREEK UNIT.

Of the three units embraced within the large tract this block represents the largest areas, the greatest volume the best quality, the greatest density on the merchantable area and the most practical one on which to begin logging.

While it is believed that the Block contains a larger amount of timber than most lumberman would care to consider since the maximum time limit is five years, and the milling plants would require a large investment, with no absolute certainty of securing adjoining timber at the end of five years, no logical reduction of the area can be made. The milling plants would need to have a capacity of 65,000 to 70,000 feet per day and operate for four and one-half 250 day years (six months for construction) to complete the contract within five years. It is believed that a required output of 40,000 to 50,000 feet per day would be a more inviting proposition to prospective purchasers. In case of a required cut of 40,000 feet per day the maximum time limit would need be 7 years.

The Block contains:

Yellow pine to cut	60,180,400
Larch, Douglas fir and white fir	13,624,400
Total	73,804,800

From the hypothetical mill site it will require 3.5 miles of permanent line to reach the Forest boundary, in addition to which there would be necessary 1.5 miles within the Forest, or 5 miles of permanent way, and 3 miles of spurs to cover the first year's logging. One and five-tenths miles of steel for spurs would be sufficient for the first year.

The 3.5 miles from the proposed mill site up the river to reach the Forest boundary is a very light gradient, less than one per cent, and requires only light grading for the major portion. The amount of rock work is small and the bridging costs nominal.

It will require 7 miles of main line, and approximately 25 miles of spur roadbed with the Block. Construction of roads will not be difficult or costly. For the most part the grades are light, but little of the area being inaccessible for practical logging railroad spurs. The routes will for the most part follow the creeks and dry ravines where there is an abundance of lodgepole pine suitable for ties. A rod locomotive may be used the first 1-1/2 years after which a second locomotive will be needed which should be of the geared type.

ESTIMATED COST OF RAILROAD PER MILE.

<u>Permanent Way:</u>

Engineering	$100.00
55 tons, 35# steel, relaying rails at $38	2,090.00
357 angle bars, complete, at 50 cents	178.50
5,170 lbs., 5x9/16 spikes at 2-3/4 cents	142.20
2,650 ties, (hewn) at 25 cents	662.50
Bridges (2)	450.00
Grading	800.00
Laying track	150.00
Ballast	150.00
	$4,723.20

NOTE: Each $1.00 per ton variation in the price of rails will make a difference of $55.00 per mile.

The cost with a 30# rail would be $300.00 per mile less.

Each switch, complete, $50.00 additional.

The above is estimate for line per mile to Forest boundary; within boundary $600.00 per mile.

Railroad, Spurs, per Mile:

Engineering	$100.00
47-1/7 tons, 30# steel rail at $40	1,886.00
3,960 lbs. 4-1/2x1/2 spikes at 3 cents	118.18
357 splice joints at 35 cents	125.00
2,350 ties (hewn) at 20 cents	470.00
Grading	350.00
Laying steel and lining track	100.00
	$3,149.00

NOTE: Each $1.00 per ton variation in the price of rails will make a difference of $47.00 per mile.

The cost with a 25# rail would be $330.00 less per mile.

Delivery included in above estimates.

An estimate, by years, of the investment necessary to handle the proposition in seven years, follows.

Initial Investment.

Band mill at Austin, Oregon	$30,000.00
Planing mill at Baker City	16,000.00
Railroad, Permanent way, 5 miles	23,000.00
Railroad spurs	4,500.00
1, 24 ton rod locomotive	5,000.00
12, logging cars	7,200.00
1, tank car	750.00
2, yarding donkeys	5,000.00
1, halfbreed yarder	2,750.00
1, loading engine	1,000.00
Cable	1,700.00
Wood tools	400.00
Track tools	150.00
Machine-shop and tools	2,000.00
Camps, cook-house on cars, cabins, portable	2,750.00
	102,200.00
Working capital	20,000.00
	$122,200.00

The above represents the investment necessary to place the project on a permanent working basis.

LOGGING PLANT

Investment First Year	
Logging equipment, as above	$56,200.00
2 miles spur complete	6,300.00
Working capital	5,000.00

	$67,500.00
Investment Second Year	
5 miles spur, 3 miles steel	11,500.00
3 switches	150.00
	$11,650.00
Investment Third Year	
5 miles spur, under ties	$3,500.00
1 mile spur, complete	3,150.00
1, 20 ton geared locomotive	4,500.00
1, bull donkey and cable	4,500.00
	$15,650.00
Investment Fourth Year	
1 mile permanent way	$4,200.00
2 miles spur, under rails	2,150.00
1 mile chute road	1,100.00
	$7,450.00
Investment Fifth Year	
1.5 miles permanent way	$6,300.00
4 miles spur, under ties	2,600.00
6 logging cars	3,600.00
	$12,500.00
Investment Sixth Year	
3 miles permanent	$12,500.00
2 miles spur, under ties	1,400.00
	$13,900.00
Investment Seventh Year	
4 miles spur, under rails	$4,500.00
Total Permanent Investment	$133,150.00
Total Residual Value	$62,500.00
Total Expense	$113,875.00

Cost Per Thousand	$1.51

Methods of logging other than outlines herein might be readily applied to the larger portion of the unit, as, for instance, big wheels or two-wheel carts might be used to good advantage. But it is believed that the tract taken as a whole, steam is the most practical method. It is believed that by the use of donkey power the whole tree, in most cases, may be yarded direct to the landings and then bucked in log lengths. This method is practical from two standpoints: (1) lessened yarding costs; (2) clear lengths more easily determined at the landing than in the woods.

Assuming that the company begins actual operations within six months from date of start on construction work, and that three months more will have elapsed before the sales become adequate to take care of current operating expense, it is estimated that a working capital of $5,000.00 is necessary, upon which interest has been calculated at 6% per annum for seven years.

All interest charges are based upon 6% per annum.

WOODS OPERATION

Felling and bucking	$0.65
Swamping and brush piling	.45
Yarding	1.00
Roader and halfbreed	.07
Landings and loadings	.20
Cable depreciation	.22
Tool depreciation	.06
Administration	.15
Incidental labor	.10
Felling snags	.05
	$2.95

SUMMARY

Railroad and equipment and logging equipment	$1.51
Repairs and contingencies	.20
Woods operation	2.95
Transportation	.35

R.R. Maintenance	.10
Tax	.01
Cost of logs at mill	$5.12
Logging cost	$5.12
Sawing in rough, f.o.b mill	2.00
Freight to Baker City	2.50
Unloading, piling, seasoning, insurance	1.00
Planing, loading and selling	1.70
Cost f.o.b. Baker City	$12.32

The volume by species is as follows:

	Board ft.	
Yellow pine	60,180,400	82%
Larch	8,284,100	11%
Douglas fir	4,900,000 and	7%
White fir	428,300	
	73,792,800	100

It is estimated that the yellow pine stand should cut the following percentages of grades, or the equivalent in average value:

2% B Sel. and Bet. Yd. Stk. S 2 S	at $46.00	$.92
8% C Sel. Yd. Stk. S 2 S	at 34.00	$2.72
15% No. 1 Shop	at 25.00	$3.75
20% No. 2 Shop	at 17.00	$3.40
25% No. 3 Shop	at 13.50	$3.37
20% No. 2 Boards	at 15.50	$3.00
5% No. 2 Boards	at 12.00	$.60
5% Boards all W. and L.	at 10.00	$.50
		$18.26

Average selling price, yellow pine, f.o.b. $18.26

Slabs, .5 cord per M at .60		.30
		$18.56
Logging and milling costs	$12.32	
Stumpage	2.25	14.57
	Profit	$3.99

LARCH

This species will produce a small percentage only of dressed stock. The trees are for the most part small, and the lumber is hard and very heavy. The principal product will consist of dimension and construction stuff. While the principal costs from the log to market are sawing in rough and freight, the average market value is low.

DOUGLAS FIR

The product from this species will be low grade, the principal stuff being dimension and ties. The trees, for the most part, carry no clear length, are short, limby, hard and pitchy.

WHITE FIR

While there are a great number of trees of this species, it is estimated that not to exceed 15% of the volume of any of them is merchantable, this amount being in the top logs. The lumber is chiefly used for boxes.

LODGEPOLE PINE

There is a very small quantity of this species that is suitable for sawtimber. The trees are small and will be utilized principally for ties in logging railroad construction on the tract.

The four last named species, namely, larch, Douglas fir, white fir and lodgepole pine, can not be expected to carry a stumpage price of more than $1.00 per thousand. This price is recommended for the above species.

DEAD YELLOW PINE

While there is a considerable number of trees of dead yellow pine, both standing and down, there is an exceedingly small amount of merchantable volume, being confined to trees killed in the last year or two. The stumpage price should be the same as for green timber of this species.

STUMPAGE – Lumber Prices – Time Limit.

The average lumber value of yellow pine quoted above is deduced from the average quotations covering the several months during the year when the market was normal. The stumpage price is based upon a normal market. Since October 1 the market has been steadily declining, and has become sluggish. From late quotations it appears to be off 10 to 15%. There is no log market in this section of the country, hence at attempt has been made to place the stumpage price upon lumber value which, it is obvious, fluctuates a great deal more than the price of logs. Great care may be used in figuring values on the lumber market today, but one month hence the market is off one or two dollars per thousand making the close figuring on costs, in order to place every 25 cents per thousand possible on the stumpage, seem absurd. The contract should be renewed, charging $.50 more for timber at the present time since the quality for the past three years will be the best. The cost of logging according to the report will be the lowest of any of the operations.

The maximum time limit for removal is necessary, and it is believed that a sale could be made sooner, and at a better advantage to both the government and the purchaser, were the time extended to six or seven years, the stumpage price clause to become voidable, with provision that it may be increased not to exceed $.50 per M., at the end of say, half the life of the contract. The advantage that would accrue to the purchaser is that its initial investment would not be so large in either milling or logging plant; in case of a dull market curtailment or a complete shut-down could obtain at a lesser loss than were the plant a large one, and with no fear of penalty. The first year's railroad construction is considerable, and with the many details of management to get the proposition on a stable working basis, it is believed a maximum time limit of five years is too short. If a longer time were granted, the operator would feel that he had a margin. It would then be optional with him in choosing the size of his plant. Assuming that he be required to remove the entire amount of timber within five years it amounts to the government dictating the size of the purchaser's business. Were it not illogical to divide the tract into smaller unites the size of the operation could rest largely with the purchaser.

The question of a stumpage on an upward sliding scale is not consistent in this case. The heaviest stand, the best quality and the cheapest logged timber lies at the front of the tract where logging must first begin. An annual increasing stumpage price, a constant increasing logging cost, and a corresponding lowering in the quality of timber are the prime reasons why a sliding scale stumpage value is inconsistent. Again it brings in an element of uncertainty and speculation on the purchaser's part.

In further reference to the stumpage value, the following is noted: South of the mouth of Savage Creek (40 acre tract No. 347) and lying on the east side of Squaw Creek there is a narrow strip of yellow pine about 2-1/2 miles long designated upon the map as Compartment 2. This compartment contains all of the merchantable timber upon forty acre tracts numbered 351,356, 357, 360, 361, 366, 369, and 371-381 inclusive, a total estimated volume of 3,553,500 feet B.M. of yellow pine, 312,800 feet B.M. of larch, 130,300 feet B.M. of Douglas fir, and 32,200 feet B.M. of white fir. This timber, being detached from the main body, lying in irregular groups and strips, and requiring about

2.5 miles of railroad to get it, makes logging costly. The item of roads would amount to $2.25 per thousand. From a silvical point of view it is desirable that the timber be removed. Therefore, it is recommended that the area be included in the sale and that the stumpage price be placed at $1.00 per thousand. Of course, should the inclusion spoil a sale of the balance of the Block it should be stricken out.

Cordwood from unmerchantable timber can not, at the present, be handled at a profit on account of the freight cost to Baker City, the only market.

Should the purchaser elect to cut piling or mining timbers, such products should be scaled and paid for as sawtimber.

The tract will not become more accessible from a logging point of view, but may become more accessible to market, and the true stumpage value may be received, when the Sumpter Valley Railroad Company's tariff receives proper consideration at the hands of the State Railway Commission in the way of freight rate regulation.

CONCLUSIONS

(a) The maximum time limit should be extended in this case to seven years, and the stumpage clause be made voidable at the termination of half the life of the contract, and subject to an increase of not more than 50 cents per thousand feet B.M.

(b) A stumpage price of $2.25 per thousand feet for yellow pine, and $1.00 per thousand for all other species on all the area except Compartment 2, is recommended.

(c) A stumpage price of $1.00 per thousand for all species on Compartment 2 is recommended.

(d) It is believed that it is not advisable to advertise the timber under General Notice sale until the lumber market regains its normal condition.

Block II - Idaho Creek Unit

This Block is second in size in acreage and volume of timber. The quality of the timber is the lowest of the three Blocks and the density of the stand is lighter and more irregular than on Block I.

Logging on this area would logically follow Block I. The permanent way has been provided for from the hypothetical mill site at Austin to the Forest boundary and 1.5 miles of main line Block I can be utilized during the first year's operation.

It will require seven miles of main line and approximately fifteen miles of spur roadbed to complete the railroad scheme. Roadbed construction is not difficult or costly. There is ample lodgepole pine timber along all of the permanent way and most of the spur ways, suitable for ties. The steel used on Block I is more than ample for Block II.

There is a considerable portion of this area that is not accessible to logging spurs, which will have to be reached by fore and aft pole roads. The steel is charged against the operation at a residual value of 75%. The logging and railroad equipment at 50% of its original value.

A statement of the estimated logging costs follows. Charges are made to carry the residual value of all logging equipment, steel and 4.75 miles roadbed used in the operation on Block I.

Investment, First Year	
Residual value from Block I	$62,500.00
4-1/2 miles spur, construction work	5,000.00
1-1/2 miles chute road	1,580.00
	69,080.00
Investment, Second Year	
1 mile permanent way, construction work and ties	1,750.00
4 miles, spur construction work and ties	4,400.00
Camps	2,500.00
	8,650.00
Investment, Third Year	
2 miles permanent way, construction work and ties	3,500.00
3 miles spur, construction and old ties	2,640.00
	6,140.00
Investment, Fourth Year	
2 miles permanent way, construction work and ties	3,750.00
2 miles spur, construction work and old ties	1,950.00
2 miles chute road	2,200.00
	7,900.00
Investment, Fifth Year	
1-3/4 miles permanent way, construction work and old ties	3,000.00
1-3/4 miles spur, construction work and old ties	1,900.00
	4,900.00
Total Permanent Investment	$96,670.00

Total Residual Value	49,500.00
Total Expense	72,317.00
Cost per M feet B.M.	1.30

The residual value an here given represents the worth assuming that the equipment will be used in logging Block III.

Woods Operation

Felling and Bucking	$.65
Swamping and Brush Piling	.45
Yarding	1.00
Roader and Half-breed	.12
Landing and Loading	.20
Cable	.25
Tools	.06
Administration	.15
Incidental Labor	.10
Felling Snags	.05
	3.03

Summary

Railroad and Equipment and Logging Equipment	$1.30
Repairs and Contingencies	.40
Wood Operation	3.03
Transportation	.30
Railroad Maintenance	.15
Tax	.01
	5.19

The estimate of volume by species is as follows:

	Ft. B.M.	Ft. B.M.	
Yellow pine		47,359,400	84%

Larch			
Douglas fir	4,590,100		
White fir	211,900	4,802,000	8%
		56,514,000	

Average selling price yellow pine		$17.75
slabs, .6 cord per M		.36
		18.11
Logging costs	$5.19	
Manufacturing, Freight, Planning and Selling	7.20	
	12.39	
Stumpage	2.00	-14.39
		3.72

Of the associate species, larch is the most valuable. Douglas and white firs are very inferior in quality. Lodgepole pine is of little importance, being suitable for ties mostly. Either of the above species will not but little profit on the manufacture.

CONCLUSIONS

(a) It is assumed that a purchaser would consider Block I as the more desirable on which to begin operations, especially if the maximum time limit were extended to seven years. In the event the time limit on Block II would not need be extended beyond five years. But in case a purchaser elects to begin operations on this tract, it is believed that it would be equitable to allow six years for removal, by reason of the larger amount of mill and railroad construction necessary before actual cutting can be begun. Stumpage prices should be readjusted at the end of three years.

(b) A stumpage price of $2.00 for yellow pine and $1.00 for associated species is recommended, in case this Block is exploited first. In the event Block I is selected for a beginning of course, no price for Block II can be recommended at the present.

BLOCK III -- SUMMIT CREEK UNIT

One of three blocks this one contains the smallest area and the least volume of timber. The quality will equal that of Block I. The density of stand is more irregular than upon either of the other Blocks.

Logging would not be practiced on this unit until both Blocks I and II have been completed which may not be until 10 to 12 years hence, therefore, no statement of stumpage value is necessary at this time.

When this Block is made accessible by completed operations on the other two Blocks, it is suggested that examination be made of that portion of the North Fork of Burnt River watershed lying contiguous to this Block for the purpose of including in such sale were it deemed practical.

9. ADDITIONAL INFORMATION

No application has been received.

It is believed that a bond of $6,000.00. is sufficient.

No special uses are required.

While both winter and summer logging and milling are common in this region, it is generally conceded that it is not advisable to count on more than nine or ten months' operation.

The labor problem does not present any difficulties. The laborers are mostly Americans, and operators who are disposed to pay a fair wage and are equipped to provide the comforts that intelligent woodsmen have good reason to expect, have no trouble in securing and holding the required number of men. The wages of unskilled laborers are from $2.75 to $3.00 per day.

The sale will require practically all of the undivided attention of two Forest officers. A competent Forest Assistant should be placed in charge of the sale. One Forest Ranger who has had considerable training in scaling can do the scaling. The Whitman Forest can, at present, supply these men.

10. RULES FOR MARKING TIMBER AND FOR HAULING SALE

Marking must be done differently in each of the different forest types. The remarks concerning any one type, however, apply equally well in all Blocks. The species to favor throughout the whole are is western yellow pine wherever there is likelihood of that species growing successfully. In other situations, western larch and Douglas fir are most desirable. White fir is always a weed tree and every effort should be made to rid the forest of this species.

Since the yellow pine type is essentially uneven aged, it should be treated as a selection forest, bearing in mind that it is now overstocked with mature and overmature trees. The estimate shows that upon Block I there are the following number and quantity of yellow pine trees per acre on the acreage.

	Number per acre
Saplings	7.8
Poles	7.6
Immature trees 12" and over	5.7
Mature and overmature trees	10.8
Total	31.9
Volume of immature trees	1,950 ft. B.M.
Volume of mature trees	9,560 ft. B.M.

In Block II the proportion of yellow pine is as follows:

	Number per acre
Saplings	8.3
Poles	8.6
Immature trees 12" and over	5.0
Mature and overmature trees	10.7
Total	32.6
	Ft. B.M. per acre
Volume of immature trees	1,630
Volume of mature trees	8,600
	10,230

In Block III the proportion of yellow pine is as follows:

	Number per acre
Saplings	8.5
Poles	7.8
Immature trees 12" and over	5.9
Mature and overmature trees	8.2
Total	30.4
	Ft. B.M. per acre
Volume of immature trees	2,240

Volume of mature trees	7,640
	9,880

Supposing that there will be an average annual increment of 60 feet B.M. per acre per year to the trees 12 inches and over in diameter after the mature crop is removed, -- and this is believed to be a conservative estimate, since all trees which will be left will be healthy, growing trees, already well established and at an age when their growth is most rapid, there would be produced a volume of 3,000 feet B.M. per acre at the end of fifty years which added to the present stand of 1,950 feet in the case of Block I, would be 4,950 feet B.M. per acre for that Block. Although the forest would not then be fully mature it would yield a crop sufficiently large to warrant exploitation at the time should be necessity demand. Meanwhile the poles and saplings would be growing rapidly and would be forming the basis for still another stand at the end of another cutting cycle.

In marking trees for cutting diameter limits must be almost entirely disregarded, since diameter alone is not a fair measure of the degree of maturity which a tree has reached.

In general, in the case of yellow pine, all young thrifty growing trees should be left regardless of size. Usually these will be sufficiently numerous for seed trees. However, in places where there are few of these, enough thrifty mature yellow pines should be left to insure reseeding. In places where large numbers of seedlings and saplings are well started fewer seed trees need be left even though there are no "bull" pines at all. However, no area should be left entirely without seed trees, since there is always danger of fire destroying the reproduction after logging.

Towards the upper limits of the yellow pine type, where reproduction is scant and where the production of a future crop is more of a problem, marking must be more conservative. It should be remembered, however, that the expense of reaching out-of-the-way places is great, hence the purchaser should be given all trees which can reasonably be spared. If, however, it is evident that isolated groups of trees located in remote portions of the tract cannot be removed without considerable loss to the purchaser unless more trees are marked than can reasonably be spared, the whole group should be left rather than sacrifice the future stand. The leaving of such groups however should be avoided.

In places where other species occur in mixture with yellow pine upon true yellow pine land all such trees should be marked for cutting when merchantable unless there are plainly too few yellow pine trees to insure reseeding.

Summarized, this means that trees should be marked for cutting upon the yellow pine type in the following order:

1. All insect infested trees of all species
2. All merchantable dead trees

3. All merchantable spike-topped, fire injured, lightning struck, or otherwise defective trees of all species.
4. Suppressed, stunted or especially ill-formed trees
5. Sound overmature trees of all species
6. Sound mature trees of all species other than yellow pine
7. Sound mature trees of yellow pine which are not needed to insure reproduction
8. Bull pines where thinnings are necessary

Young, thrifty growing trees should be always be left regardless of size, unless thinnings are necessary.

Even distribution of seed trees need not be regarded, although no area of more than two or three acres should be left without some trees.

Ordinarily there is little danger from windfall yet in places where there are groups of tall and slender trees or in other places especially exposed to wind injury, the leaving of isolated trees should be avoided.

In marking timber upon the north slope type no such definite suggestions can be made as with yellow pine. Much depends upon the judgment of the Forest officer doing the work. This type of forest varies greatly in its composition and degree of maturity. Cutting here should be considered as an improvement cutting, having in view the production of a forest in which larch and Douglas fir are the desirable species. Wherever conditions approximate the yellow pine type that species should be given every opportunity to develop since pine, if it grows at all in this type has an excellent form and produces a superior grade of lumber.

In general, all young thrifty trees of larch and Douglas fir should be retained. In places where both larch and Douglas fir occur and it seems advisable to choose between them, larch retained if no young seed trees are available. White fir and lodgepole should be considered undesirable and no effort should be made to reproduce them unless no other species are present.

In the lodgepole type no marking will ordinarily be done, as this timber is not merchantable under present conditions. Such trees however as will be needed for railway ties or such as might produce saw timber should be marked if accessible. Cut of unmarked trees for railway ties should not be allowed unless explicit instructions are given by the Forest officer as to the place where such cutting may be done.

Summarized, it is the intention that trees should be left upon the sale area as follows:

1. In the yellow pine type – (a) All thrifty young growing trees of yellow pine except where it is necessary to make thinnings. (b) Thrifty mature trees of yellow pine where and insufficient number of class (a) trees are found. (c) Thrifty young trees of western larch or Douglas fir in all locations where there are no yellow pine seed trees.

2. In the north slope type – (a) All thrifty young growing trees of yellow pine except where thinnings are necessary. (b) Thrifty mature trees of yellow pine where an insufficient number of class (a) trees are found. (c) All young thrifty trees of western larch in all situations where such trees will not be injurious to yellow pine. (d) All young thrifty trees of Douglas fir where such trees will not be injurious to yellow pine or larch. (e) Thrifty mature trees of larch or Douglas fir in all situations where no other seed trees are found.

The past fire season has emphasized the well known fact that standing dead trees and snags are a serious fire menace. It is therefore recommended that the purchaser be required to fell and lop and pile all inflammable material in the tops from all dead trees and snags 15 feet and over in height which are found upon cutting areas, unless in the opinion of the Forest officer such cutting is unnecessary. It is the intention of this regulation to confine this work mainly to the yellow pine forest and not require the purchaser to clean up old burned areas which occur upon north slopes in which little or no merchantable timber is found.

All brush should be compactly piled by the purchaser and burned by the Forest Service.

II. RECOMMENDATIONS

It is recommended that either Block I or Block II be advertised for sale as soon as applied for, and that the other two Blocks be not sold at the present time. This is recommended since definite information regarding the volume of yellow pine timber upon the Whitman Forest has not yet been secured and since the maximum annual cut which should be made upon this Forest cannot, therefore, be determined at present. It is quite possible that this maximum annual cut, when determined, will not be sufficiently large to include the timber upon the entire tract examined, in addition to that of sales already made and upon areas which will probably be applied for within the next few years. It is deemed far preferable to make a number of comparatively small sales rather than dispose of too large a per cent of the maximum annual cut to a single person or company. At the present time there are several tracts of timber upon the Whitman Forest for which it is probable that application will be made within the next few years.

Should no application for purchase be received it is recommended that no general notice of sale be made at this time, since the market for yellow pine lumber is already oversupplied and it is considered inadvisable to attempt to force timber upon the market while such conditions prevail.

This sale is highly desirable from a silvical point of view. The Forest is now overstocked with mature and overmature timber and it is believed that the present annual increment but little more than balances the normal loss due to decay, injury and death. The removal of the mature stand in the manner already outlined would leave the Forest in such condition that a heavy increment growth may be expected.

On the other hand there is every probability that the stumpage price will increase very materially in the future. The financial gain from this cause alone will in all probability exceed that which might be expected from growth after the present mature stand is removed. For example, an increase in stumpage price of but 50 cents per M. would increase the value of the present crop more than $5.00 per acre, whereas a growth of 1,000 feet B.M. per acre, which increase could hardly be expected in less than 10 years' time, would amount to but $2.75 per acre. A greater increase than this in stumpage rates, such as is likely, would increase this difference correspondingly.

There is also a possibility, though no present probability, that some arrangement may be made whereby the present high freight rates of the Sumpter Valley Railway Company may be reduced. These conditions and the facts that the market is already oversupplied and that there seems to be no real need for the timber at this time furnish reason why the sale should not be urged unduly.

Summarized, the recommendations regarding the making of a sale are:

1. That one Block, and one only, be advertised for sale when applied for.

2. That no general notice of sale be made, - at least not until the lumber market becomes normal.

3. That the period of the sale for Block I be made 7 years and for Block II 6 years instead of 5, provided a sale is consummated before January 1, 1912.

4. That, if a prospective purchaser desires Compartment 1 only of Block I, a sale be made for that Compartment only if it appears that an insistence upon the taking of both Compartments would preclude the making of a sale. It is far preferable, however, to have the sale include both Compartments.

It has been recommended that the brush be piled by the purchaser and burned by the Forest Service. While this will necessitate the incurring of small expense by the Service it will place the control of this important work directly under the Forest officer, without the possibility of controversy regarding the amount of time and labor necessary for burning which might arise were the purchaser compelled to furnish labor to do this work. The retention of the brush for silvical reasons is not necessary.

It is recommended that only marked timber be cut and that marking be done as already outlined.

After the sale is completed care should be exercised to prevent damage from grazing as already suggested.

If Block I is offered for sale the notice of sale should read about as follows:

Sale of Timber, Portland, Oregon, ____ 1910. Sealed bids marked outside, "Bid, Timber Sale, Application ___ Whitman", and addressed to the District Forester, Forest Service, Portland, Oregon, will be received up to and including the __ day of ___for all the merchantable dead timber standing or down and all the live timber marked or otherwise designated for cutting by the Forest officer, located on an area to be definitely designated by the Forest officer before cutting begins of about 11,508 acres, comprising the E1/2 Sec. 1 and a portion of N1/2 Sec. 12, T 12 S, R 35 E, W.M., surveyed and approximately all of Sections 33 and of a portion of Sections 28 and 34, T 11 S, R 35-1/2 E, W.M. unsurveyed; approximately all of Sections 4, 9, 10, 11, 14, 15, 22, 26 and 35 and portions of 3, 12, 13, 16, 21, 23, 25, 27, 34 and 36, T 12 S, R 35-1/2 E, W.M. unsurveyed; approximately portions of Sections 1, 2, and 3, T 13 S, R 35-1/2 E, W.M. unsurveyed, (in case Compartment 1, Block I only is advertised, the portion in T 13 S, R 35-1/2 E W.M. unsurveyed, should be emitted and the description of sections in T 12 S, R 35-1/2 E, W.M. unsurveyed should read "approximately all of Sections 4, 9, 10, 11, 14 and 15 and parts of Sections 1, 2, 3, 12, 13, 16, 21, 22, 23, 25 and 26, T 12 S, R 35-1/2 E, W.M., unsurveyed"); bounded approximately as follows: Beginning from the quarter corner on the east side of Sec. 25, T 11 S, R 35 E, W.M.; thence in a southerly direction along the west boundary of the Forest to the southwest corner of Sec. 1, T 12 S, R 35 E, W.M.; thence in a southeasterly direction along the divide between Clear and Squaw Creeks to the Baker-Grant County line, at approximately the south line of Sec. 2, T 13 S, R 35-1/2 E, W. M. unsurveyed; thence in a northeasterly direction along the Baker-Grant County line to the ridge north of the North Fork of Papoose Creek in approximately Sec. 12, T 12 S, R 35-1/2 E, W.M., unsurveyed;thence in a northwesterly direction following said low divide north of Papoose Creek to Squaw Creek; thence in a northerly direction following Squaw Creek and the east line of the Olmstead homestead to the divide between Idaho and Squaw Creeks; thence in a westerly direction along said divide to point of beginning; estimated to be 56,626 feet B.M. live and merchantable dead western yellow pine upon the area designated as Compartment 1, lying north of Savage Creek, and 3,553,500 feet B.M. live and merchantable dead western yellow pine upon the area designated as Compartment 2, lying south of Savage Creek; 8,296,100 feet B.M. live and merchantable dead western larch; 4,900,000 feet B.M. live and merchantable dead Douglas fir; 428,300 feet B.M. white fir; and 50,000 feet B.M. lodgepole pine; saw timber, log scale, more or less. No bid of less than $2.25 per M. feet B.M. for the live and merchantable dead western yellow pine upon Compartment 1, $1.00 per M. feet B.M. for the live and merchantable dead western yellow pine upon Compartment 2, $1.00 per M. feet B.M. for the live and merchantable dead western larch, Douglas fir, white fir and lodgepole pine will be considered, and a deposit of $1,000.00 payable to the order of the First National Bank of Portland, Oregon, must be sent to that bank for each bid submitted to the District Forester. Timber upon valid claims is expected from sale. The right to reject any and all bids is reserved. For further information and regulations governing sales address Forest Supervisor, Whitman National Forest, Sumpter, Oregon.

_____
Forester.

Should Compartment 1 only be desired in this sale, the portion of the description of the tract beginning "thence in a southeasterly direction along the divide between Clear and Squaw Creeks" and ending "in approximately Sec. 12, T 12 S, R 35-1/2 E, W.M. unsurveyed" should be changed to read "thence in a southeasterly direction along the divide between Clear and Squaw Creeks to a point approximately due west of the junction of Savage and Squaw Creeks; thence east to the junction of Squaw and Savage Creeks; thence up Savage Creek in a southeasterly direction to the Baker-Grant County line; thence in a northerly direction along said county line to the ridge north of the North Fork, etc." – The area should be changed to read 8401 acres, and the amounts of timber and stumpage prices as already given.

If Block II. is offered for sale the notice of sale should read about as follows:

Sale of Timber, etc. (as in first notice) – on an area to be definitely designated by the Forest officer before cutting begins of about 9379 acres, comprising portions of Sections 6, 7 and 18, T 11 S, R 36 E, W.M. and approximately all of 2, 11, 12, 14, 21, 22 and 26 and portions of Sections 1, 3, 10, 13, 15, 23, 24, 25, 27, 28, 34 and 35, T 11 S, R 35-1/2 E, W.M. unsurveyed; and approximately portions of Sections 1, 2, and 3, T 12 S, R 35-1/2 E, W.M. unsurveyed; bounded approximately as follows: Beginning from the quarter corner on the east side of Sec. 25, T 11, S, R 35 E, W.M.; thence north along the Forest boundary to the southwest corner of Sec. 16, T 11 S, R 35-1/2 E, W.M. unsurveyed; thence east along the south boundary of said Sec. 16; thence in a northeasterly direction along the divide between Idaho and Crawford Creeks to the Forest boundary at approximately the south line of Sec. 34, T 10 S, R 35 E, W.M.; thence east along the Forest line to the Baker-Grant County line; thence in a southeasterly direction along said county line to a point in Sec. 18, thence south to the west quarter corner Sec. 18, T 11 S, R 36 E. W.M.; thence in a southwesterly direction down the main divide between Idaho and Summit Creeks to the junction of Road and Summit Creeks; thence in a southerly direction along the low divide west of Road Creek to the divide north of Papoose Creek, thence in a northeasterly direction following said divide to Squaw Creek, thence in a northerly direction along Squaw Creek and the east line of the Olmstead homestead to the Squaw-Idaho Creek divide; thence in a westerly direction to the point of beginning; estimated to be 47,359,400 feet B.M. of live and merchantable western yellow pine; 4,436,000 feet B.M. of live and merchantable dead western larch; 4,460,200 feet B.M. of live and merchantable dead Douglas fir; 211,500 feet B.M. white fir; and 50,000 feet lodgepole pine, saw timber, log scale, more or less. No bid of less than $2.00 per M. feet B.M. for the live and merchantable dead western yellow pine, and $1.00 per M. feet B.M. for the live and merchantable dead western larch, Douglas fir, white fir, and lodgepole pine will be considered and a deposit of $ payable to the order of the First, etc. – (as in former notice).

When Block III is applied for the notice of sale should read about as follows:

Sale of Timber --- etc., as in first Block --- of about 6506 acres, comprising surveyed sections 19 and 30, and portions of Sections 17, 18, 20, 28, 29 (not including NE1/4 of SW 1/4), 31 and 32, T 11 S, R 36 E, W.M.; a portion of Section 6, T 12 S, R 36 E, W.M.;

and approximately portions of 13, 23, 24, 25, 35 and 36 (not including NE 1/4 of NE1/4) T 11 S, R 35-1/2 E, W.M. unsurveyed; and approximately portions of Secs. 1, 2, and 12, T 12 S, R 35-1/2 E, W.M. unsurveyed; bounded approximately as follows: Beginning at the junction of Road and Summit Creeks, in approximately the southeast corner of Sec. 25, T 11 S, R 35-1/2 E, W.M.; thence in a northerly direction along the main ridge to the main divide between Summit and Idaho Creeks; thence in a northeasterly direction along said divide to the Baker-Grant County line to a point in Sec. 18, T 11 S, R 36 E, W.M.; thence in a southerly direction along said county line to a point approximately in Sec. 12, T S, R 35-1/2 E, W.M. unsurveyed; thence following the low divide just west of Road Creek in a northerly direction to the point of beginning, estimated to be 36,747,200 feet B.M. of live and merchantable dead western yellow pine; 5,931,300 feet B.M. of live and merchantable dead western larch; 743,700 feet B.M. of white fir; and 50,000 feet B.M. of lodgepole pine. No bid of less than ___ per M. feet B.M. for live and merchantable dead western larch, ___ per M. feet B.M. for live and merchantable dead western yellow pine; ___ per M. feet B.M. larch and merchantable dead western larch, ___ per M. feet B.M. for live and merchantable dead Douglas fir, white fir and lodgepole pine will be considered -- (etc. as in Block I.)

The following sample contract has embodied in it the special provisions necessary in this sale, as well as the regular stipulations in such cases.

ST
Whitman, Sales

We, the , a corporation organized and existing under the laws of the State of , having an office and principal place of business at State of , hereby agree to purchase in accordance with our bid submitted in pursuance of the notice of sale of certain timber in the Whitman National Forest, duly given by publication as required by law, all the merchantable dead timber, standing or down, and all the live timber marked for cutting by the Forest officer, located on an area to be definitely designated, by the Forest officer before cutting begins, including about acres on the watershed of Squaw Creek (or Idaho and Summit Creeks) in the (insert the same description as in Notice of Sale followed by the statement there given regarding estimated amount of timber by species to "log scale, more or less.")

We do hereby, in consideration of sale of this timber to us, promise to pay to the First National Bank of Portland, Oregon (U.S. Depository) or such other depository or officer as shall hereafter be duly designated by the United Sates, to be placed to the credit of the United States, the sum of dollars ($), more or less, as may be determined by the actual scale measure, or count, for the timber at the rate of $2.25 per thousand feet B.M. for the live and merchantable dead western yellow pine upon the portion of area designated upon the map attached hereto as Compartment 1 (north of Savage Creek); $1.00 per thousand feet B.M. for the live and merchantable dead western yellow pine upon the portion of are designated upon the map attached hereto as Compartment 2 (south of Savage Creek); and $1.00 per thousand feet B.M. for live and merchantable dead western larch, Douglas fir, white fir and lodgepole pine in advance payments of at

least Three Thousand Dollars ($3,000.00) each when called for by the Forest officer in charge, credit being given for the sums, if any, heretofore deposited with the said U.S. Depository in connection with this sale.

And we further agree, in consideration of the sale of this timber to us, that the Forest Service shall have the right on (date to be 3-1/2 years after date of contract) to readjust the prices to be paid under this sale as now set forth in the preceding paragraph, and to increase each or every price so set forth in a sum not greater than fifty ($.50) cents per thousand feet B.M.; Provided, That in order to be effective, notice of not less than ninety (90) days in writing shall be served on the purchaser under this agreement.

And we further agree that if such an adjustment of the prices is made by the Forest Service, the adjustment shall not have any effect on the remaining provisions and conditions of the agreement, but that the said remaining provisions and conditions shall remain in full force and effect as though the readjustment had not been made.

And we further promise and agree to cut and remove said timber in strict accordance with the following and all other regulations governing timber sales prescribed by the Department of Agriculture:

(1) Timber upon valid claims and all under contract is exempted from this sale.

(2) No timber will be cut or removed until it has been paid for.

(3) No timber will be removed until it has been scaled, measured, or counted by a Forest officer.

(4) No timber will be cut except from the area specified by the Forest officer. No live timber will be cut except that marked or otherwise designated by the Forest officer.

(5) All merchantable timber used in building, skidways, bridges, constructions of roads or other improvements, will be paid for at the price fixed by this agreement. Wood taken from the tops or from unmerchantable saw?? timber necessary for fuel in connection with the logging operations only shall be allowed free of charge.

(6) No unnecessary damage will be done to young growth or to trees left standing, and no trees shall be left lodged in the process of felling. Unmarked trees that are badly damaged during the process of logging will be cut, if required by the Forest officer, and when such damage is due to carelessness the trees so injured ?????????? will be paid for at twice the price fixed by this agreement.

(7) Stumps will be so cut as to cause the least possible waste, and will not be cut higher than 18 inches, except in unusual cases, when at the discretion of the Forest officer this height is not considered practicable.

(8) All trees cut will be utilized to as low a diameter in the tops as possible, so as to cause the least possible waste, and to a minimum diameter of 7 inches when straight and sound and the log lengths so varied as to make this possible.

(9) Tops will be lopped and all brush and other debris resulting from the logging operations shall be piled compactly at a safe distance from living trees when practical or otherwise disposed of in an economical and practical manner as may be directed by the Forest officer.

(10) Unless extension of time is granted all timer will be cut and removed on or before, and none later than (7 years after date of contract) and at least 3,000,000 feet B.M. will be paid for, cut, and removed on or before (1 year from date of contract) and at least 7,000,000 feet B.M., during each year of the remaining period.

(11) Timber will be scaled by Scribner rule, Decimal C, or counted or measured as prescribed in the Use Book or specifically provided in the agreement.

(12) The maximum scaling length of all logs shall be 16 feet. Greater lengths shall be scaled as two or more logs, and upon all logs an additional length of 4 inches shall be allowed for trimmings. Logs overrunning more than the specified allowance for trimming will be scaled as if 2 feet longer.

(13) All marked trees and all dead timber sound enough for lumber of any merchantable grade or timbers shall be cut. Unmarked living trees which are cut, marked trees or merchantable dead timber left uncut, timber wasted in tops, stumps and partially sound logs, trees left lodged in the process of felling and any timer merchantable according to the terms of this agreement which is cut and not removed from any portion of the cutting area after logging on that portion of the cutting area is completed, or is left within the National Forest, after the expiration of this agreement, shall be scaled and paid for at double the price fixed by this agreement.

(14) All sawlogs which scale at least 33-1/3% of sound material shall be considered merchantable.

(15) So far as is reasonable, all branches of the logging shall keep pace with one another, and in no instance shall the brush disposal be allowed to fall behind the cutting, except when the depth of the snow, or other adequate reason, makes proper disposal impossible, when the disposal of brush may, with the written consent of the Forest Supervisor, be postponed until conditions are more favorable.

(16) The removal of all species shall take place simultaneously.

(17) All snags, stubs or unmerchantable dead trees over 15 feet high on the cut-over area shall be felled, and all tops and inflammable material piled for ??????? of the Forest officer in charge such cutting is not necessary. Should the purchaser elect to begin operations on any natural logging area, the cutting on that area shall be fully

completed to the satisfaction of the Forest Supervisor, before cutting may begin on the other areas.

(18) Camps, buildings, railroads, logging roads, skid-roads, log-chutes, and all other improvements and structures necessary for the successful carrying on of logging operations shall be located as agreed upon with the Forest Supervisor. All improvements shall be removed within six months after the termination of this contract; if not removed within such time they shall become the property of the United States, unless permits for their occupancy and use are obtained from the Forest Supervisor.

(19) Camp sites shall be kept, and on abandonment, shall be left in a sanitary condition.

(20) The purchaser shall clear, and keep clear, the railroad rights of way of all inflammable material including snags, and dead trees, for a distance of 50 feet on either side of the center of track, in such manner and at such times as may be designated by the Forest officer in charge. No refuse shall be burned during the months of June, July, August and September of each year without the written consent of the Supervisor; also during these months the purchaser may be required in the discretion of the Forest Supervisor to patrol all railroad tracks after the passage of each locomotive.

(21) All locomotives, donkey engines, or other steam power engines shall be equipped with an efficient spark arrester, ?????? which is satisfactory to the Forest Supervisor, a steam pump with not less than a 1 inch discharge, 150 feet of fire hose, 6 buckets, 5 shovels, and a constant supply of the equivalent of 6 barrels of water, this equipment to be suitable for fire fighting purposes and to be so used when necessary.

(22) At each setting of each donkey engine or other steam logging contrivance, the ground shall be cleared of all inflammable material for a distance of 50 feet in all directions. During the period from June 1 to October 1 of each year, no donkey engine or other steam logging contrivance in actual use shall be left during the noon hour without a watchman, and during the same period of each year the purchaser may be required, at the discretion of the Forest Supervisor, to employ a night watchman to guard against the escape of fire from the logging engines.

(23) As soon as logging is completed on any area covered by a specific landing and before logging equipment is moved from such landing or area, decision as to compliance with all cutting regulations on the specific area shall be immediately given the purchaser by the Forest Officer in charge of the sale. Such decision shall be final.

(24) No rigging shall be slung upon trees left for seed, unless absolutely necessary. Where it is necessary to fasten leads, tail, holds or guys by means of rigging commonly called "chokers" or "straps" round the trunk of seed trees, protection from girdling shall be secured by first encircling the tree with suitable poles or blocks of wood.

(25) During the time that this agreement remains in force, we and all out employees, subcontractors, and employees of subcontractors will independently, and upon request of Forest officers, do all in out power to prevent and suppress forest fires, and we hereby agree, unless prevented by circumstances over which we have no control, to place ourselves, our employees, subcontractors and employees of subcontractors at the disposal of any authorized Forest officer for the purpose of fighting fires, with the understanding that, if the fire does not threaten our property or the area embraced in this agreement, we shall be paid for services so rendered unless we, our employees, subcontractors, or employees of subcontractors are directly or indirectly responsible for the origin of the fire.

(26) All damage sustained to telephone lines in connection with the logging operations shall be immediately repaired by the purchaser to the satisfaction of the Forest officer.

(27) All wagon roads and trails shall be kept sufficiently open to allow reasonable usage at all times, and suitable crossings shall be maintained wherever railroads cross such roads or trails.

(28) Should the purchaser elect to cut cordwood for sale, it shall be paid for at 25 cents per cord, provided, no merchantable saw timber shall be used for this purpose.

(29) Cross ties used in the construction of railroads necessary to log the timber specified herein shall be paid for at the rate of 3 cents each. Ties cut for sale shall be paid for at the rate of 4 cents each.

The title to the timber included in this contract shall not pass to the purchaser until it has been paid for and scaled, counted, or measured as herein provided.

The decision of the Forester shall be final in the interpretation of the regulations and provisions governing the sale, cutting, and removal of the timber covered by this contract.

Work may be suspended by the Forest officer in charge if the regulations contained in this agreement are disregarded, and the violation of any one of said regulations, if persisted in, shall be sufficient cause for the Forester to revoke this agreement and to cancel all permits for other privileges.

No member of or Delegate to Congress is or shall be admitted to any share, part, or interest in this agreement, or to any benefit to arise thereupon. (See sections 3739 to 3742, inclusive, Revised Statutes of the United States.)

No person undergoing a sentence of imprisonment at hard labor can be employed in carrying out the terms of this contract. (See Executive Order, May 18, 1905.)

Refund of deposits under this agreement will be made only at the discretion of the Forester, except when the amount of such deposits is more than the value of the timber on the cutting area covered by this agreement.

This contract is non assignable. (See section 3737, Revised Statutes of the United States.)

The conditions of the sale are completely set forth in this agreement, and none of its terms can be varied or modified except with the written consent of the Forester. No other Forest officer has or will be given authority for this purpose.

And as a further guarantee of a faithful performance of the conditions of this agreement, we deliver herewith a bond in the sum of $6,000.00, which bond together with all moneys paid or promised under this agreement upon failure on our part to fulfill, all and singular the conditions and requirements herein set forth, or made a part hereof, shall become the property of the United States as liquidated damages and not as penalty.

Signed in duplicate this __ day of __, 1910.

Witnesses

_____

_____

_____

Signature of purchaser

_____

Portland, Oregon

Approved under the above conditions,

_____, 1910

_____

District Forester.

A clause should also be added to this contract which makes proper provision that main railway lines which are constructed and used for the logging of Block I (or Block II should that block be purchased first) which would be useful and necessary in logging other portions of the National Forest contiguous thereto, may be used for such purposes by the purchasers thereof upon payment of a reasonable freight rate or upon payment of a reasonable portion of the original cost of construction for such lines.

APPENDIX.

The following brief description will explain the general plan by which the work was done:

Since the major portion of the tract examined was unsurveyed, a skeleton map of the region to be estimated was first made upon cross section (scale one mile equal to four inches) by running traverse lines by F.S. standard compass and chain up all main streams and in a few other places necessary to make the map complete. Stakes set and numbered at intervals of about ten chains along each traverse line served as a ready means of locating any part of the tract. The inch squares upon the cross section paper were then numbered consecutively so as to include as nearly as was possible all timbered portions on the area to be examined. The area was thus divided into 40 acre tracts and each tract conveniently designated.

Starting, then, at the proper distance from some numbered stake estimating lines were run twice through each strip of forties, five chains from each side of the forty. The crews doing this work ordinarily considered of a compassman and cruiser. The compassman kept a direct course and paced, using a tally register to record the number of paces. The cruiser also paced, tallied all trees for a distance of one-half chain on each side of the line, kept notes on topography and on density of stand. Wherever a surveyed line was found the course was checked thereon.

The following form copied on the pages of the ordinary F.S. note book, Form 289, is that used for tallying trees:-

Date--- Party--- Forty No. ----

Yellow pine					Larch	Douglas fir	White fir	Notes
d.b.h.	Cut	Leave	Saplings	Poles				
12								
14								
16								
18								

An extra column was left to tally on an occasional strip the number of dead trees of yellow pine. The headings were also varied somewhat at times to conform to local variations.

Trees were not calipered but the diameter was estimated. Each day each estimator invariably measured sufficient trees by means of a diameter tape, which was always carried, to satisfy himself as to the accuracy of his work. The largest trees were often measured throughout the day. The estimating done in this way was rapid, satisfactory, and believed to be fairly accurate.

The column headed "Notes" was used to record information regarding quality, surface, reproduction, area cruised, merchantable area, type of forest, location of logging roads and other points of importance.

This method gives an estimate of 10% of the stand which is quite satisfactory in most stands. Single strips were tried in a few cases but were very unsatisfactory. In places, however, where the stand is very uneven the strip method does not give a fair estimate of the stand. In such cases a whole area count was usually made. In a few instances ocular estimates were made and listed upon the tally sheet to check up the tally.

To keep topography notes a sheet in the back of the Form 289 notebook was ruled with inch squares for a series of forties and each forty properly numbered. As the party progressed through the line of forties topography notes were kept for the part covered, aneroids were used to determine elevations. On the return, strip contour lies were connected with the portions already made, and so on with the next row of forties. A series of cross lining symbols were also adopted to indicate different densities of stand per acre. These were placed upon the same sketch with the topography notes. The following sketch serves to illustrate this point.

. .
. . Over 13 M ft. per A
. .

. .
. . 6-13 M ft. B.M. per A
. .

. .
. . Under 6 M ft. per A
. .

. .
. . Lodgepole
. .

While the scale used is apparently small, this system was very satisfactory, especially since the keeping of topography notes for several forties on a single sketch required that contour and stream lines be connected in the field. The topography notes thus kept were transferred to the base map approximately as fast as taken.

A barometer was kept in camp and readings taken every two hours by the cook to check, as far as possible, any irregularities in barometer reading.

Working with but one man in a crew was tried, but was very unsatisfactory, excepting for very short runs. Three men per party were also tried, -- an estimator, compassman

and tallyman. While faster than with two, it is not advisable on account of the additional cost.

A reasonable day's work for two men is from 8 to 10 forties per day in most yellow pine stands, less if the country is rough or brushy. More than this is not advisable in most cases since the crews became fatigued and do inaccurate work. The accuracy of the results depends almost entirely upon the estimator using clear judgment for each tree, which he is apt not to do when badly fatigued.

Computation work was done in the office after field work had been completed.

A number of faults in the work became self-evident as the work progressed.

First, – A transit should have been used to run the base lines in unsurveyed parts, as the compass was not entirely satisfactory mainly on account of local attraction in certain places.

Second, – A regular computing clerk and draftsman should have been taken into the field, together with the necessary equipment, which should include a folding drawing table and board at least 3 x 5 feet. Thus estimators would be relieved of the necessity of working evenings or Sundays or of taking a day occasionally during the week, all of which time is really taken at the sacrifice of field efficiency.

Third, – Computation should keep pace with estimating. Thus the density symbol can, if necessity be varied to conform to the estimate while the matter is still fresh in mind. Errors in computation on will also be more readily noted and in instances where results are evidently very questionable, as has been the case in a few instances, the forty can be reestimated, if necessary. The clerk above referred to could probably do all necessary computation and drafting for two crews, assisted, if necessary, by the estimators. Although not tried, it is confidently believed that this plan would lessen the expense of computing, result in greater accuracy, and avoid the rush and hurry of office computation.

Fourth, – The work was hurried too much toward the finish, due mainly to the extremely bad fire season, so that the estimate of Block III was not entirely satisfactory, nor were the unmerchantable areas examined carefully enough.

Fifth, – There was a tendency to hurry the work and not keep complete notes regarding each forty. If work had been checked up each day by a computing clerk the larger part of these omissions would have been avoided. It is believed that the greater part of the clerical errors which have crept into the report are due to this cause. All should have been avoided.

Sixth, – Pacing lines were carried for too great a distance. They should not usually be longer than one mile without a tie point.

Seventh, – The equipment was not entirely satisfactory. In addition to the transit and drafting equipment already noted, the party should have been supplied with a better grade of barometers. Those issued were unsatisfactory, – they varied greatly aside from changes due to weather and did not check with each other. It is believed that a good barograph should have been kept in camp. An Abbey hand level should have been taken in order to determine readily the approximate gradient of streams and future railway routes generally. The Jacob's staffs issued are clumsy and have too blunt points for the best use in the field. They should be light and have long sharp steel points. The F.S. standard compasses used are not readily accessible for repair, cleaning or drying. They should be so made as to be readily taken apart.

A good camp, with a cook, who also did the necessary packing, was provided and very essential. In the present case the attempt was made, however, to work too far from camp. More camps should have been made so that none of the strips be more than three miles from camp. For this examination but two main camps were established with a temporary one at the north end.

The following summary gives the approximate expense of the work

<u>Field Expenses.</u>	
Forest Officer's salary and expenses	$581.00
Temporary laborers	253.00
Supplies for crews, transporting supplies, moving camp, etc.	140.00
Total Field Expenses	$974.00
Cost per Acre	$0.0353
<u>Office Expenses</u>	
Forest Officers's salary and expenses	$310.00
Clerical work (computing, drafting, typewriting, etc.)	194.00
Total Office Expenses	$504.00
Cost per Acre	$0.0185
Total Expense of Examination	$1478.00
Total Cost per Acre	$0.0538

The following tables give a summary of the stand and volumes:

<u>Summary of stand per acre</u>

Yellow pine to cut	Block I	Block II	Block III
12 to 20 inches in diameter	3.5	4.0	2.3

22 to 30 inches in diameter	6.1	5.8	4.9
32 to 40 inches in diameter	1.1	.8	.9
Over 40 inches in diameter	.1	.1	.1
Total to cut	10.6	10.7	8.2
Yellow pine to leave			
Saplings	7.8	8.3	8.5
Poles	7.6	8.6	7.8
Immature trees over 12 inches in diameter	5.7	5.0	5.9
Total to leave	21.1	21.9	22.2
Larch to cut	2.3	1.4	2.6
Douglas fir to cut	2.1	1.8	3.2
White fir to cut	1.3	.6	2.7
Total to cut	16.5	14.5	16.7
Summary of volume. Board feet per acre			
Yellow pine to cut	9,560	8,600	7,550
Yellow pine to leave	1,950	1,630	2,220
Total yellow pine	11,510	10,230	9,770
Larch to cut	1,320	800	1,220
Douglas fir to cut	780	810	1,450
White fir to cut	70	40	150
Total to cut	11730	10250	10,370
Total volume. Board Feet			
Yellow pine to cut	60,180,400	47,594,000	36,747,200
Yellow pine to leave	12,291,200	8,983,300	10,774,800
Total pine	72,471,600	56,342,700	47,522,000
Larch to cut	8,296,100	4,436,000	5,931,300
Douglas fir to cut	4,900,000	4,460,200	7,032,600
White fir to cut	428,300	211,500	743,700
Total to cut	73,804,800	56,467,100	50,454,800
Grand total	180,726,700 feet B.M.		

The following tables give for each Block by forties an estimate of the number of yellow pine trees of different diameter classes which should be cut, the number of saplings, poles and immature trees of that species which should be retained, and the number of merchantable trees of other species, also an estimate of the total volume in each case. There is also given a statement as to the density of seedlings upon each forty. The term "scant" is used if the estimated number is less than 500 seedlings per acre; "Med." when the number ranges from 500 to 3,000; "Num." when the number ranges from 3,000 to 8,000 and "dense" when it is over 8,000. The term "sapling" is applied to yellow pine trees over 8 feet in height and less than four inches in diameter. The term "pole" is applied to yellow pine trees between 4 and 12 inches in diameter.

(Signed) W.T. ANDREWS,
Lumberman.

(Signed) MELVIN L. MERRITT,
Forest Assistant

SUMPTER, OREGON,
Dec. 19, 1910.

Approved

(Signed) HENRY IRELAND
Forest Supervisor.

Block 1 – Squaw Creek Unit (insufficient time was available to type the data for each 40-acre tract, so only the totals and averages are shown at the end of the table)

			WESTERN YELLOW PINE												ASSOCIATED SPECIES						
			TO BE CUT						TO BE LEFT						LARCH		DOUGLAS FIR		WHITE FIR		
			NUMBER OF TREES						NUMBER OF TREES												
No. of 40-acre tract	Merchantable area	Unmerchantable area	12 to 20 in.	22 to 30 in.	32 to 40 in.	Over 40 in.	Total	Volume	Seedlings	Saplings	Poles	12 in. and over	Volume	Total volume yellow pine	No. of merchantable trees	Merchantable volume	No. of merchantable trees	Merchantable volume	No. of trees	Merchantable volume	Total volume all species to be cut
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			WESTERN YELLOW PINE												ASSOCIATED SPECIES						
			TO BE CUT						TO BE LEFT						LARCH		DOUGLAS FIR		WHITE FIR		
			NUMBER OF TREES						NUMBER OF TREES												
No. of 40-acre tract	Merchantable area	Unmerchantable area	12 to 20 in.	22 to 30 in.	32 to 40 in.	Over 40 in.	Total	Volume	Seedlings	Saplings	Poles	12 in. and over	Volume	Total volume yellow pine	No. of merchantable trees	Merchantable volume	No. of merchantable trees	Merchantable volume	No. of trees	Merchantable volume	Total volume all species to be cut
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			WESTERN YELLOW PINE												ASSOCIATED SPECIES						
			TO BE CUT						TO BE LEFT						LARCH		DOUGLAS FIR		WHITE FIR		
			NUMBER OF TREES						NUMBER OF TREES												
No. of 40-acre tract	Merchantable area	Unmerchantable area	12 to 20 in.	22 to 30 in.	32 to 40 in.	Over 40 in.	Total	Volume	Seedlings	Saplings	Poles	12 in. and over	Volume	Total volume yellow pine	No. of merchantable trees	Merchantable volume	No. of merchantable trees	Merchantable volume	No. of trees	Merchantable volume	Total volume all species to be cut
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			WESTERN YELLOW PINE												ASSOCIATED SPECIES						
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			NUMBER OF TREES						NUMBER OF TREES												
No. of 40-acre tract	Merchantable area	Unmerchantable area	12 to 20 in.	22 to 30 in.	32 to 40 in.	Over 40 in.	Total	Volume	Seedlings	Saplings	Poles	12 in. and over	Volume	Total volume yellow pine	No. of merchantable trees	Merchantable volume	No. of merchantable trees	Merchantable volume	No. of trees	Merchantable volume	Total volume all species to be cut
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			WESTERN YELLOW PINE												ASSOCIATED SPECIES						
			TO BE CUT						TO BE LEFT						LARCH		DOUGLAS FIR		WHITE FIR		
			NUMBER OF TREES						NUMBER OF TREES												
No. of 40-acre tract	Merchantable area	Unmerchantable area	12 to 20 in.	22 to 30 in.	32 to 40 in.	Over 40 in.	Total	Volume	Seedlings	Saplings	Poles	12 in. and over	Volume	Total volume yellow pine	No. of merchantable trees	Merchantable volume	No. of merchantable trees	Merchantable volume	No. of trees	Merchantable volume	Total volume all species to be cut
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			WESTERN YELLOW PINE												ASSOCIATED SPECIES						
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			NUMBER OF TREES						NUMBER OF TREES												
No. of 40-acre tract	Merchantable area	Unmerchantable area	12 to 20 in.	22 to 30 in.	32 to 40 in.	Over 40 in.	Total	Volume	Seedlings	Saplings	Poles	12 in. and over	Volume	Total volume yellow pine	No. of merchantable trees	Merchantable volume	No. of merchantable trees	Merchantable volume	No. of trees	Merchantable volume	Total volume all species to be cut
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			WESTERN YELLOW PINE												ASSOCIATED SPECIES						
			TO BE CUT						TO BE LEFT						LARCH		DOUGLAS FIR		WHITE FIR		
			NUMBER OF TREES						NUMBER OF TREES												
No. of 40-acre tract	Merchantable area	Unmerchantable area	12 to 20 in.	22 to 30 in.	32 to 40 in.	Over 40 in.	Total	Volume	Seedlings	Saplings	Poles	12 in. and over	Volume	Total volume yellow pine	No. of merchantable trees	Merchantable volume	No. of merchantable trees	Merchantable volume	No. of trees	Merchantable volume	Total volume all species to be cut
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Total	6,297	3,111	21,717	38,511	7,023	505	67,756	60,180,400		49,628	48,091	36,032	12,291,200	72,471,600	14,488	8,296,100	13,623	4,900,000	8,326	428,300	73,804,800
Average per acre*			3.5	6.1	1.1	.1	10.8	9,560		7.8	7.6	5.7	1,950	11,510	2.3	1,320	2.1	780	1.3	70	11,730

2,369 = Unmerchantable area not included in numbered forties
5,480 = Total unmerchantable area in Block 1.

			WESTERN YELLOW PINE												ASSOCIATED SPECIES						
			TO BE CUT						TO BE LEFT						LARCH		DOUGLAS FIR		WHITE FIR		
			NUMBER OF TREES						NUMBER OF TREES												
No. of 40-acre tract	Merchantable area	Unmerchantable area	12 to 20 in.	22 to 30 in.	32 to 40 in.	Over 40 in.	Total	Volume	Seedlings	Saplings	Poles	12 in. and over	Volume	Total volume yellow pine	No. of merchantable trees	Merchantable volume	No. of merchantable trees	Merchantable volume	No. of trees	Merchantable volume	Total volume all species to be cut

* Computed for merchantable area only.

Block 2 – Idaho Creek Unit (insufficient time was available to type the data for each 40-acre tract, so only the totals and averages are shown at the end of the table)

			WESTERN YELLOW PINE												ASSOCIATED SPECIES						
			TO BE CUT						TO BE LEFT						LARCH		DOUGLAS FIR		WHITE FIR		
			NUMBER OF TREES						NUMBER OF TREES												
No. of 40-acre tract	Merchantable area	Unmerchantable area	12 to 20 in.	22 to 30 in.	32 to 40 in.	Over 40 in.	Total	Volume	Seedlings	Saplings	Poles	12 in. and over	Volume	Total volume yellow pine	No. of merchantable trees	Merchantable volume	No. of merchantable trees	Merchantable volume	No. of trees	Merchantable volume	Total volume all species to be cut
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			WESTERN YELLOW PINE												ASSOCIATED SPECIES						
			TO BE CUT						TO BE LEFT						LARCH		DOUGLAS FIR		WHITE FIR		
			NUMBER OF TREES						NUMBER OF TREES												
No. of 40-acre tract	Merchantable area	Unmerchantable area	12 to 20 in.	22 to 30 in.	32 to 40 in.	Over 40 in.	Total	Volume	Seedlings	Saplings	Poles	12 in. and over	Volume	Total volume yellow pine	No. of merchantable trees	Merchantable volume	No. of merchantable trees	Merchantable volume	No. of trees	Merchantable volume	Total volume all species to be cut
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			WESTERN YELLOW PINE												ASSOCIATED SPECIES						
			TO BE CUT						TO BE LEFT						LARCH		DOUGLAS FIR		WHITE FIR		
			NUMBER OF TREES						NUMBER OF TREES												
No. of 40-acre tract	Merchantable area	Unmerchantable area	12 to 20 in.	22 to 30 in.	32 to 40 in.	Over 40 in.	Total	Volume	Seedlings	Saplings	Poles	12 in. and over	Volume	Total volume yellow pine	No. of merchantable trees	Merchantable volume	No. of merchantable trees	Merchantable volume	No. of trees	Merchantable volume	Total volume all species to be cut
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			WESTERN YELLOW PINE												ASSOCIATED SPECIES						
			TO BE CUT						TO BE LEFT						LARCH		DOUGLAS FIR		WHITE FIR		
			NUMBER OF TREES						NUMBER OF TREES												
No. of 40-acre tract	Merchantable area	Unmerchantable area	12 to 20 in.	22 to 30 in.	32 to 40 in.	Over 40 in.	Total	Volume	Seedlings	Saplings	Poles	12 in. and over	Volume	Total volume yellow pine	No. of merchantable trees	Merchantable volume	No. of merchantable trees	Merchantable volume	No. of trees	Merchantable volume	Total volume all species to be cut
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			WESTERN YELLOW PINE												ASSOCIATED SPECIES						
			TO BE CUT						TO BE LEFT						LARCH		DOUGLAS FIR		WHITE FIR		
			NUMBER OF TREES						NUMBER OF TREES												
No. of 40-acre tract	Merchantable area	Unmerchantable area	12 to 20 in.	22 to 30 in.	32 to 40 in.	Over 40 in.	Total	Volume	Seedlings	Saplings	Poles	12 in. and over	Volume	Total volume yellow pine	No. of merchantable trees	Merchantable volume	No. of merchantable trees	Merchantable volume	No. of trees	Merchantable volume	Total volume all species to be cut
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	WESTERN YELLOW PINE														ASSOCIATED SPECIES						
			TO BE CUT						TO BE LEFT						LARCH		DOUGLAS FIR		WHITE FIR		
			NUMBER OF TREES						NUMBER OF TREES												
No. of 40-acre tract	Merchantable area	Unmerchantable area	12 to 20 in.	22 to 30 in.	32 to 40 in.	Over 40 in.	Total	Volume	Seedlings	Saplings	Poles	12 in. and over	Volume	Total volume yellow pine	No. of merchantable trees	Merchantable volume	No. of merchantable trees	Merchantable volume	No. of trees	Merchantable volume	Total volume all species to be cut
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Total	5,510	2,535	21,493	31,559	4,609	370	59,355	47,359,400		44,699	46,780	28,073	8,983,300	56,342,700	7,774	4,436,000	10,116	4,460,200	3,455	211,500	56,467,100
Average			4.0 *	5.8 *	.8 *	.1 *	10.7	8,600		8.3 *	8.6 *	5.0	1,630	10,230	1.4 *	800	1.8 *	810	.6 *	40	10,250

			WESTERN YELLOW PINE												ASSOCIATED SPECIES						
			TO BE CUT						TO BE LEFT						LARCH		DOUGLAS FIR		WHITE FIR		
			NUMBER OF TREES						NUMBER OF TREES												
No. of 40-acre tract	Merchantable area	Unmerchantable area	12 to 20 in.	22 to 30 in.	32 to 40 in.	Over 40 in.	Total	Volume	Seedlings	Saplings	Poles	12 in. and over	Volume	Total volume yellow pine	No. of merchantable trees	Merchantable volume	No. of merchantable trees	Merchantable volume	No. of trees	Merchantable volume	Total volume all species to be cut
per acre																					
		1,374	- Unmerchantable area not included in numbered forties																		
		3,909	- Total unmerchantable area in Block 2																		

* Computed for total merchantable area less merchantable area on forties numbered 621-642 inclusive

‘ No estimate of the quantity of larch, Douglas fir, or white fir is made for these forties. The quantity, however, is small.

Block 3 – Summit Creek Unit (insufficient time was available to type the data for each 40-acre tract, so only the totals and averages are shown at the end of the table)

			WESTERN YELLOW PINE												ASSOCIATED SPECIES						
			TO BE CUT						TO BE LEFT						LARCH		DOUGLAS FIR		WHITE FIR		
			NUMBER OF TREES						NUMBER OF TREES												
No. of 40-acre tract	Merchantable area	Unmerchantable area	12 to 20 in.	22 to 30 in.	32 to 40 in.	Over 40 in.	Total	Volume	Seedlings	Saplings	Poles	12 in. and over	Volume	Total volume yellow pine	No. of merchantable trees	Merchantable volume	No. of merchantable trees	Merchantable volume	No. of trees	Merchantable volume	Total volume all species to be cut
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			WESTERN YELLOW PINE												ASSOCIATED SPECIES						
			TO BE CUT						TO BE LEFT						LARCH		DOUGLAS FIR		WHITE FIR		
			NUMBER OF TREES						NUMBER OF TREES												
No. of 40-acre tract	Merchantable area	Unmerchantable area	12 to 20 in.	22 to 30 in.	32 to 40 in.	Over 40 in.	Total	Volume	Seedlings	Saplings	Poles	12 in. and over	Volume	Total volume yellow pine	No. of merchantable trees	Merchantable volume	No. of merchantable trees	Merchantable volume	No. of trees	Merchantable volume	Total volume all species to be cut
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			WESTERN YELLOW PINE												ASSOCIATED SPECIES						
			TO BE CUT						TO BE LEFT						LARCH		DOUGLAS FIR		WHITE FIR		
			NUMBER OF TREES						NUMBER OF TREES												
No. of 40-acre tract	Merchantable area	Unmerchantable area	12 to 20 in.	22 to 30 in.	32 to 40 in.	Over 40 in.	Total	Volume	Seedlings	Saplings	Poles	12 in. and over	Volume	Total volume yellow pine	No. of merchantable trees	Merchantable volume	No. of merchantable trees	Merchantable volume	No. of trees	Merchantable volume	Total volume all species to be cut
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			WESTERN YELLOW PINE												ASSOCIATED SPECIES						
			TO BE CUT						TO BE LEFT						LARCH		DOUGLAS FIR		WHITE FIR		
			NUMBER OF TREES						NUMBER OF TREES												
No. of 40-acre tract	Merchantable area	Unmerchantable area	12 to 20 in.	22 to 30 in.	32 to 40 in.	Over 40 in.	Total	Volume	Seedlings	Saplings	Poles	12 in. and over	Volume	Total volume yellow pine	No. of merchantable trees	Merchantable volume	No. of merchantable trees	Merchantable volume	No. of trees	Merchantable volume	Total volume all species to be cut
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			NUMBER OF TREES						NUMBER OF TREES												
No. of 40-acre tract	Merchantable area	Unmerchantable area	12 to 20 in.	22 to 30 in.	32 to 40 in.	Over 40 in.	Total	Volume	Seedlings	Saplings	Poles	12 in. and over	Volume	Total volume yellow pine	No. of merchantable trees	Merchantable volume	No. of merchantable trees	Merchantable volume	No. of trees	Merchantable volume	Total volume all species to be cut
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			WESTERN YELLOW PINE												ASSOCIATED SPECIES						
			TO BE CUT						TO BE LEFT						LARCH		DOUGLAS FIR		WHITE FIR		
			NUMBER OF TREES						NUMBER OF TREES												
No. of 40-acre tract	Merchantable area	Unmerchantable area	12 to 20 in.	22 to 30 in.	32 to 40 in.	Over 40 in.	Total	Volume	Seedlings	Saplings	Poles	12 in. and over	Volume	Total volume yellow pine	No. of merchantable trees	Merchantable volume	No. of merchantable trees	Merchantable volume	No. of trees	Merchantable volume	Total volume all species to be cut
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581																					
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Total	4,864	1,682	10,894	23,042	4,238	284	38,458	36,747,200		39,892	36,474	27,456	10,774,800	47,522,000	12,178	5,931,300	15,161	7,032,600	12,872	743,700	50,454,800
Average per acre			2.3 *	4.9 *	.9 *	.1 *	8.2 *	7,550		8.5 *	7.8 *	5.9 *	2,220	9,770	2.6 *	1,220	3.2 *	1,450	2.7 *	150	10,370

80-A. Private land and land not included in sale
1,762 Total unmerchantable area in Block 3

* Computed for total merchantable area less merchantable area of forties numbered 195 to 202 inclusive.