

1. APPRAISAL REPORT SUMMARY



FIGURE 3 - Aerial photo with subject Phase 2A outlined in red.

The image and caption above are excerpted from the appraisal report under review. The appraisal report was submitted pursuant to a USDA Forest Service contract for appraisal services. The contractor/appraiser is Charles Horan, MAI of Horan & Company, Sitka, Alaska. The total document size is 439 pages and the report date is March 24, 2020. The effective date of value is February 7, 2020.

The appraisal report begins with a cover/title page, letter of transmittal, table of contents, signed certification, and an executive summary. The certification states that the appraisal conforms to the requirements of the Uniform Standards of Professional Appraisal Practice (USPAP) and the Uniform Appraisal Standards for Federal Land Acquisitions (UASFLA or “yellow book”). Maps are shown to assist the reader in understanding the location and configuration of the subject parcel. Photos of the subject property and adjacent areas are shown later in the appraisal report. The report then presents a synopsis of the Alaska Mental Health Trust Land Exchange Act of 2017, (“the Act”), and explains the Phases of the land exchange.

The report explains that Phase 1 of the exchange has been completed. Phase 2 will include an exchange of Federal land and non-Federal land, but this will be done in two steps: Phase 2A and Phase 2B. Phase 2A includes 1,513.63 acres of Federal land consisting of portions of West Naukati and Central Naukati, as shown in the Exchange Map 8 prepared in association with the Act. Phase 2A also includes 3,200.04 acres of non-Federal land identified as parcel K-4A Gravina Mid at Ketchikan, as shown in the Exchange Map 1. The effective date of appraisal of all of the Phase 2 lands will be the same: February 7, 2020. The equalization process will occur at the end of the Phase 2B appraisal process, according to the provisions of the Act.

The appraisal report under review states that the purpose of the appraisal is to conclude an opinion of Market Value as defined at 36 CFR 254, Subpart A, 254.2.

Identification of the Subject Parcel:

The subject property is forest land on Prince of Wales Island in southeast Alaska. The property is legally situated in Ketchikan, Alaska's First Judicial Recording District, described in reference to Copper River Meridian, T. 69 S. R. 79 E. Sec. 1: Lot 1; Sec. 2: Lot 1; containing 944.01 acres, and T. 69 S., R. 80 E. Sec. 6: Lot 1, containing 569.62 acres, aggregating a total of **1,513.63 acres** as shown on the original survey officially filed on April 3, 2018 with Bureau of Land Management. The size of 1,513.63 acres is provided in a Land Description Verification (LDV) prepared by Registered Land Surveyor George Bisset and which is shown in the appraisal report at page 101. The LDV is the controlling document, and it details the legal description, acreage and the source surveys which are its basis.

Client:

The appraiser's client is the USDA Forest Service, represented by the assigned agency review appraiser.

Intended Users:

Intended users of the appraisal include the USDA Forest Service, the Alaska Mental Health Trust, and their authorized representatives.

Intended Use:

The intended use of the appraisal is to provide a credible, reliable, accurate and properly supported opinion of market value as a basis for conducting the land exchange as directed in the Act.



Definition of Market Value:

The appraisal report recites the definition and the source of the market value definition from 36 CFR 254, Subpart A, §254.2. A jurisdictional exception from USPAP is cited, as the opinion of market value is not linked to a specific exposure time which would otherwise be required by USPAP.

Owner contact, Inspection and Effective Date:

The owner of the property which is the subject of this appraisal is the United States of America and it is managed by the USDA Forest Service. The appraiser Charles Horan and the appraiser's forester, Clare Doig, met with USDA Forest Service personnel, in person and by telephone. The landowner's representatives were offered the opportunity to accompany the appraiser's inspection. Land Specialist Hillary Woods accompanied the appraisers' re-inspection on February 7, 2020. The report states an effective date of value of February 7, 2020, which coincides with the last date of the appraiser's inspection of the Phase 2 parcels.

Property Rights Appraised – Ownership Interest:

The estate appraised is the "as-is" fee interest, as encumbered by existing easements, encroachments and restrictions, consisting primarily of the following:

1. Forest Service 20 Road, also known as Forest Highway 43, also now known as the Prince of Wales Road, a 300 foot wide right-of-way operated under a reciprocal agreement between the United States of America and the State of Alaska due to expire in May of 2060 as depicted in Ketchikan Recording District in Document 2010-001736-0, dated May 28, 20102.
2. A right-of-way thereon for ditches or canals constructed by the authority of the United States. A Forest Service inspection report did not note any on the property.
3. National Forest System Roads (NFSR) Right-of-Ways; 2000646, 2000648, 2000650 and 2000661 which are sixty-six (66) feet in width, with no known expiration dates.

Title exceptions are further described, and the appraisal report states that their impact on value is nominal and is reflected in the final opinion of value.

Scope of Appraisal:

The scope of the work used to develop the appraisal is summarized in the appraisal report. It identifies the report as an appraisal report (as distinct from a restricted appraisal report). The report identifies the titled interest, as described above. It states that the identification of the character and description of the property is based on onsite inspection, topographical maps, aerial photos, maps furnished by the client and Trust Land Office and other public sources.

The timber resources on the site were inventoried by Forest Service timber cruisers using private industry standards. This verified the species, volume, and grade of timber in designated areas. The timber cruises were reviewed and the timber resource appraised by Clare Doig, ACF, CF,



President of Forest and Land Management, Inc. to develop a supported opinion of its stumpage (standing timber) value. Charles Horan performed an ongoing review of the timber appraisal process, and accepted the standing timber value. This value also considers the title exemptions and restrictions affecting the subject.

The stumpage value is the contributory value of economically merchantable timber, as it stands in the forest, as it contributes to the total value of the real estate. The standing timber or stumpage value is determined using Conversion Return Analysis, which considers the potential revenue from the sale of timber minus the costs of production. Market participants evaluate the timber production of properties by estimating the volume, species, and quality of timber determining the gross potential sales value. They then deduct all costs including all applicable operating costs, road construction, felling and bucking, yarding and loading, hauling, sortyard, scaling, dock fee, yard rental, insurance, interest, marketing, and profit. The resulting net income is referred to as the conversion return and results in the net timber value.

The underlying land value or the amount purchasers would pay in addition to the timber for the total fee estate is developed using a sales comparison approach. The contributory value of the underlying cutover land is added to estimate the whole property value as timberland. Cutover land could have some residual pre-merchantable reproduction or second growth timber. This type of land includes non-merchantable timberland, buffer strips of trees along creeks, streams, protected habitats and other sensitive areas, roadways, wetlands and non-timbered remainder areas of the site. The direct sales comparison approach and interviews with timberland purchasers is used to estimate the contributory value of the cutover land, which is then added to the standing timber value, to conclude the value of the subject for timber production. Contributory values, as opposed to the stand-alone values, are used in order to avoid a prohibited “summation” which would otherwise violate the Unit Rule of UASFLA.

The Income Approach is considered to the extent that the subject is timber land. Market participants evaluate timber production properties using the methodology presented in this appraisal. Underlying land value is developed using a sales comparison and timber is evaluated using an income approach. These components are then analyzed and reconciled to produce the opinion of market value.

The sales comparison approach was also used as a separate approach to the total property value. Sales were identified based on inquiries made to local assessment departments, search of the multiple listing services available in Southeast Alaska, interviews with realtors and other appraisers in the region, and Horan and Company’s over-30-year inventory of regional property sales. Sales of properties of the subject size are rare, and the search extended beyond the southeast region. The appraiser drew upon experience throughout the state to consider the larger body of data to determine the impact of certain characteristics on the property, such as remote



location and size. Information was confirmed by contact with the buyer, seller, or other parties knowledgeable of the details of each sale and the physical characteristics of the site.

The subject is in a remote location, where there are few substitutable alternative properties and limited market activity. Due to the paucity of private market data, a reliable estimate of market value would be impossible without the use of some government purchases. Several of the sales relied on were acquisitions by government agencies or conservation groups, who held the land for eventual transfer to these agencies. These transactions were verified to the extent possible, based on the extraordinary verification of sales required by UASFLA. Due to the significant decrease in export timber selling values and the lack of fee simple sales in recent years the appraiser expanded his research to include purchases by investors outside of the state of Alaska into more active markets. The following is a partial list of knowledgeable market observers interviewed to confirm overall market response to the current market situation in other more active markets.

- Kirk, Dahlstrom, Viking Lumber, timber and land purchaser
- Eric Nichols, Alcan timber, timber and land purchaser.
- Vic Musselman, Musselman Appraisal and Forestry, LLC, timberland appraiser
- Sam Romanaggi, MAI, Atterbury and Associates, timberland appraiser
- Jeff Jenkins, Atterbury and Associates, timberland appraiser
- Marlow Dill, ARA, Appraisal Group of Central Oregon, timberland and ranch appraiser
- Glen Crouch, timberland and farm appraiser

The report states that Cost Approach is not applicable to this appraisal and was not utilized. The Cost Approach typically uses the cost of creating a substitute property, minus depreciation, as a basis for value. It is generally only useful for properties with constructed improvements.

Statement of Assumptions and Limiting Conditions:

The appraisal is made subject to one “Hypothetical Condition” identified in the appraisal report as follows:

“The appraiser assumes that the lands and interests are in private ownership, zoned consistent with similar privately owned properties in the area, and are available for sale on the open market. As this is contrary to what exists as of the effective date of appraisal, it is noted as a hypothetical condition. The hypothetical conditions may have affected the assignment results.”

Use of this hypothetical condition is consistent with the requirements of USPAP, UASFLA and Federal regulations relating to land exchanges. The appraisal report also specifies 12 general assumptions and limiting conditions which are ordinary and typical of real estate appraisals generally. No extraordinary assumptions are stated.



Analysis of the Market:

The appraisal report contains a detailed analysis and explanation of the subject's market influences. It first describes the Southeast Alaska area and its demographic and economic characteristics. Regarding the remote land market, the report states, "*The outlook for this market would be for little perception of change.*" This is followed by a description of the coastal Alaska timber markets. This section noted export timber market disruptions due to tariffs, an oversupply in Europe, and the effects of the Corona Virus on manufacturing and on economies. This is followed by a detailed description of Prince of Wales Island and its demographic and economic characteristics.

The appraisal report presents the following conclusions about the area's market:

"The prospects for future growth on Prince of Wales are stable to slow. Even as some commercial and residential site values have increased, the cost to put in roads and utility infrastructure has risen significantly. The return on raw land is minimal. On the other hand, there are very few opportunities to acquire large tracts of land, such as the subject. The land is predominantly owned by government entities or the ANCSA corporations, who generally do not sell. The best indicators of acre value for this type of land would be scattered throughout this region, and other coastal Alaska communities. As rare as the sales of large tracts are within the region the sales of land for timber development are even rarer. Most timber harvesting is done on a contract basis for the land owner, usually a government or institution who retains ownership of the land. The limited number of fee simple land sales which have occurred are over a long period of time and usually old patented mining claim sites. Older sales of this type of property for non-timber use or mixed use would be applicable in the current analysis due to the lack of quantifiable significant market change for this unique type of property over the last 20 years or so."

"A check with southeast and statewide multiple listing services revealed no sales or listings for timber properties. Typically, market participants seek these out by contacting landowners they believe may have timber on their property. Recent sale transfers of fee simple estates of timberland on Prince of Wales or anywhere throughout Alaska for significant tracts that would compete with the subject simply do not exist. As indicated in the regional timber market analysis and the scope of appraisal, timber purchases are primarily made based on the perceived volume, species, and quality of the timber on land owned by institutional owners, purchased on a pay as you cut basis."

Property Description:

The appraisal report utilizes the legislative map annotated with the border of the subject parcel, to assist the reader in understanding the location and configuration of the subject Federal parcel Naukati Phase 2A.



The appraisal report explains that Phase 1 of the legislated land exchange has been conveyed. Phase 2 includes the subject in addition to other parcels, some of which are adjacent parcels at Naukati. The appraisal explains that the subject Federal Naukati 2A parcel with 1,513.63 acres consists of portions of the West Naukati and Central Naukati parcels defined in the legislation. The report states that the “larger parcel” (as that term is defined and used in UASFLA) is the entire 8,418 acres of Federal lands at Naukati in Phase 2 of the Act.

Legal Description:

The appraisal report summarizes the legal description as follows:

Copper River Meridian, Alaska: .

T. 69 S. R. 79 E: Sec. 1: Lot 1, Sec. 2: Lot 1.

Containing 944.01 acres as shown on the original survey officially filed on April 3, 2018 with Bureau of Land Management.

T. 69 S., R. 80 E. Sec. 6: Lot 1.

Containing 569.62 acres as shown on the original survey officially filed on April 3, 2018 with Bureau of Land Management.

Aggregating a total of 1,513.63 acres.

The appraisal report references the Land Description Verification (LDV) in the addenda which was prepared by Registered Land Surveyor George Bisset. (**Note:** A “Federal Land Status Report” dated August 7, 2019 and shown in the Addendum of the appraisal report erroneously states “Lot 2” in Section 2, whereas the correct identification is “Lot 1” as shown in the LDV cited above. The LDV is the official and controlling document.)

The appraisal report notes that the fee simple interest to be conveyed is subject to certain encumbrances outlined in the Federal Land Status Report which is included in the Addenda. The report states that these do not limit the highest and best use of the property and they do not affect the market value of the property.

The subject parcel land area is identified as 1,513.63 acres based on the LDV, and it is described as approximately 3 miles wide east-west and 1 mile north-south. The shape is described as blocky and well compacted. The included maps show that the western edge is irregular waterfront including Dargun Point.

Present use of the subject property is described as “*Vacant, Timber Land.*”

The subject property is traversed north-south by the paved two-way Prince of Wales Road for about 1.15 miles. The reciprocal right of way grant document is included in the addenda of the appraisal report. This road is estimated to occupy about 5.6 acres. There are also four Forest Service roads traversing about 3.4 miles of the subject property.



The subject property's landscape is gently rolling hills from sea level to about 400' elevation. The property is incised by a long narrow unnamed lake which nearly bisects the property, with about 2 miles of shoreline. The western edge of the site has an irregular coastline with about 2.5 miles of saltwater coastline including a protected cove inside Dargun Point. The property contains several small karst pockets in the southeast corner and southwest corner. Karsts are formed by dissolution of subsurface limestone rock forming caves, sinkholes, underground rivers and springs. There are several streams on the subject property containing anadromous fish, and these are shown on various maps in the report.

Soils are gravelly and coarse silty loams in glacial till, typically found under forest vegetation. A wetland and flood plain survey is shown in the addenda of the appraisal report, describing the legislative West Naukati and Central Naukati units as 90% uplands. The subject's timber appraisal shown in the addenda describes riparian areas, ponds, muskegs and streams setbacks as 101 acres, implying 93% upland.

Timber includes a mix of Western Hemlock, Sitka Spruce, Western Red Cedar and Alaska Yellow Cedar trees. Other vegetation includes typical muskeg vegetation, salmonberry, and blueberry bushes, as well as salal, ferns and devil's club. The timber characteristics of the site are not homogeneous but fragmented across the parcel. An inventory of the timber is included in the timber appraisal and cruise attached in the addenda of the appraisal report under review. The cruise areas total about 600 acres and are about 40% of the site. The remaining 914 acres is predominantly young growth timber, much of which has been thinned in the past 20 years or so.

The subject property is remote and public utilities are generally not available, except that there is power in communication lines along Prince of Wales Road.

A mineral potential report is included in the addenda of the appraisal report under review, stating that the subject property has low potential for locatable minerals. It concludes that no reservation of Federal minerals is warranted for the Federal lands proposed for exchange. The appraiser concludes that the value of the property for other use significantly outweighs the mineral potential. Another addenda item is a memorandum confirming no existing water rights on the subject property.

The report states that there are no improvements, hazardous materials, or fixtures except one bridge on Forest Service Road 200648 where it crosses an anadromous fish stream.

The appraisal report presents the Use History of the subject property, stating that the property has been managed for timber extraction and reforestation. Timber harvesting on various areas on the property started in 1940 and 1950 along the western shore. Larger scale timber harvesting began



about 1985 for Dargun Point area, 1990 for the eastern portion of the site, and mid 1990's to 2001 for the central portion of the site. Road building preceded this activity. Significant areas have been treated by pre-commercial thinning.

The subject property has not been sold or transferred in recent history. It has been in continuous ownership of the United States. The subject property is not located within a municipality that assesses or taxes real estate, nor designates zoning. Development of the timber resource is subject to the State of Alaska Forest Resources Practices Act. Wastewater disposal is regulated by Alaska State Dept. of Environmental Conservation. Wetlands are subject to laws and regulations administered by U.S. Army Corps of Engineers.

There are 12 low-level aerial photos presented in this section of the appraisal report, and a map showing the location and direction of view for each of those. Six of these photos show the subject Naukati 2A parcel, and six others show portions of the nearby and adjacent larger parcel. Another 9 photos include one aerial photo and eight photos taken on the ground.

Larger Parcel Determination:

The appraisal report explains the determination of the "larger parcel" as that term is defined and used in UASFLA ("yellow book"). The prescribed criteria are applied and the conclusion is presented that the larger parcel is 8,418 acres comprised of all Phase 2 Federal Naukati parcels as described within the Act. The subject 1,513.63 acres parcel is a portion of that larger parcel. The appraisal report under review presents the final market value of the subject property, which is its contributory value within the larger parcel.

Highest and Best Use:

One of the foundations of any appraisal is the determination of the subject property's highest and best use. The appraisal report under review utilizes the definition under 36 CFR 254, Subpart A, 254.2 as follows:

"Highest and best use means an appraiser's supported opinion of the most probable and legal use of a property, based on market evidence, as of the date of valuation."

The appraisal report notes that Highest and Best Use is determined using four tests, which are addressed in detail: legally permissible, physically possible, financially feasible, and maximally productive (highest value).

A wide variety of legally permissible uses are noted, and there is no zoning or other particularly burdensome limitation. The property would be available for a wide variety of legally permissible uses typical of rural and remote areas of Southeast Alaska, including resource extraction, and commercial and private recreation.



Regarding physically possible uses, the subject has good road access, and logging road development. This access makes onsite development easier for recreation or resource extraction. The gently rolling topography does not represent a significant restraint.

Potentially feasible uses include timber harvesting or other resource extraction, recreational subdivisions, commercial recreation such as lodges and hunting preserves, private recreation, and speculative holding for unspecified uses. There are no known valuable mineral resources, and speculative purchases for mineral potential would be less than \$500 per acre. Small lots are slow to sell and pricing has been flat for the past decade, and lots other than waterfront have very low prices. Holding and controlling large tracts as part of a diversified storehouse of wealth with interim uses such as for personal or commercial recreation, lodges or retreats is considered in more detail.

Maximally productive use would be that use which results in the highest value. Two alternatives are considered in detail: recreation and speculative use or timber production use. The potential recreation-speculative use is analyzed (as described in detail in the following sections) and indicates a value for the subject property at \$1,665,000. The timber production use is analyzed (as described in detail in the following sections) and indicates a value for the subject property at \$1,370,000. These conclusions demonstrate that the maximally-productive use is not as a timber-producing property, as this value is less than the concluded recreation-speculation use value. Based on this analysis, the appraisal report concludes that the highest and best use is for recreation and speculative use. The concluded use is an economic use that is supported by the analysis presented.

Sales Comparison Approach for Recreation-Speculation Use

Due to the relatively long growing cycle, rugged terrain, and high operating costs, the sale of recently harvested or cutover land for future forestation is rare. Usually, sizable tracts of land that have been cut are purchased for personal recreation or in consideration of the uniqueness of the land and to hold and control large tracts. In the case of the Naukati larger-parcel holding of 8,418 acres, about a third of the land has been identified as having potential merchantable timber. The balance is cutover land not suitable for timber production. The values paid for non-timber uses that would compete with the subject are analyzed using the Sales Comparison Approach.

Using the Sales Comparison Approach, sales of comparable properties are analyzed and utilized as a basis to arrive at an indication of the value of the subject property. Sales were described and analyzed using overall sales price per acre as the unit of comparison, although total sales price was also described for each sale. Typically, differences between the comparable sales and the subject property are identified, and adjustments are applied to account for those differences



which may affect market value. The most relevant comparable sales are selected based upon the factors that they should be recent, similar to the subject, and reasonably nearby.

Four comparable sales were selected as the most reflective of the market for properties similar to the subject. These sales are summarized in the following table which is an excerpt from the appraisal report under review:

TABLE 4.2 – Most Helpful Comps Considered Bracketing the Subject on a Price Per Acre Basis					
Comp Number	Comp Location	Sales Date	Sales Price	Acre Size	Acre Price
1-(#1932)	Mt. Verstovia and Gavan Hill, Sitka	4/2003	\$1,395,000	1,043	\$1,337
2-(#5111)	El Capitan Passage, Prince of Wales Is.	8/2012	\$1,250,000	1,227	\$1,019
3-(#10430)	Cube Cove, Admiralty Island	9/2016	\$18,312,200	22,890	\$800
4-(#3815)	Gustavus Flats	11/2004	\$3,191,430	4,059	\$786
Subject Exchange Parcels at Naukati		2/2020	Solve	8,418	Solve

The acreages in the table above are rounded to the nearest acre.

Consideration was given to transaction characteristics and property characteristics which may have an influence on market value. These comparable sales were described in the body of the appraisal report, with topographic maps illustrating their locations. Very detailed descriptions of property characteristics and the characteristics of these transactions were described with multi-page write-ups in the Addendum of the appraisal report. These detailed write-ups included detailed descriptions, photos, topographic maps, drawings, and deeds. All comparable sales were visited in person by the appraiser, and transactions were personally verified by the appraiser.

The comparable sales described above are deemed to be the most similar, recent and proximate to the subject property, and most representative of the market for such property. Comparable sales numbers 1, 3, and 4 sold to government and underwent the extraordinary verification required by UASFLA to assure that they are typically motivated and reflective of open market transactions.

Adequate market data did not exist to support dollar or percentage amount adjustments. Because of the limited market data, quantitative adjustments for differences between the sales and the subjects would be unreliable. The comparable sales were compared to the subject property using qualitative ratings of Inferior, Similar or Superior for each significant element affecting market value. These were used to develop an overall rating for each comparable transaction.



Seven characteristics were analyzed and rated. “Conditions of Sale” refers to the specific terms which might affect the sales price. All of the analyzed sales were determined to be equivalent to cash, negotiated transactions, where buyers and sellers were acting in their own best interests, well informed and not unduly motivated. All of the analyzed sales were rated as similar for Conditions of Sale. “Market Conditions” refers to fluctuations in market values over time, and all of the sales analyzed were rated as similar in this relatively flat, low activity market. “Titled Interest” refers to the property rights conveyed, and differences due to easements and other restrictions. “Location/appeal” refers to a property’s desirability due to its strategic location with appeal due its view shed and location within a community and relative proximity to utilities, or undesirability in remote locations. “Size” reflects the general principle by which larger properties sell at lower rates per acre than smaller properties, known as diminishing marginal utility. This was demonstrated by a detailed analysis presented in the addendum of the appraisal report. “Access” is an important market driving characteristic, reflecting differences in connections to roads, types of connections (trail, gravel, paved), and legal rights for access such as easements. “Topography, development constraints, and use potential” captures the influence on values due to differences affecting the potential uses of each property and refers to the advantage of the potential for development and/or economic uses, considering the influences of topography, extent of roadways, wetlands, and remoteness.

Numerical adjustment indications are applied for each of the differences analyzed. If a comparable sale is rated as Similar, a zero rating is applied for that characteristic. If a comparable’s characteristic is Superior, a minus rating of -1, or -2 is given, depending on the magnitude of the difference from the subject property. If a comparable’s characteristic is Inferior, a plus rating of +1, or +2 is given, depending on the magnitude of the difference from the subject property. This provides a weighting of qualitative factors, since not all qualitative attributes have an equal influence on values. If the comparable property is superior to the subject, the ranking factor is negative. (As the indicated value for the subject property would be less than the sale price of the comparable.) If the comparable property is inferior to the subject, the ranking factor is positive. A summation of these factors results in an overall indication of whether the comparable is inferior or superior to the subject, and the magnitude of the difference. Relating this to the sales price per acre of each comparable shows that the market value of the subject should be higher or lower than that sale price per acre. In this way, each comparable sale provides a separate indication regarding the market value of the subject property. Finally, each of these indications are reconciled to a final conclusion of market value.

Comparable sale #1 is 1,043.38 acres sold in April 2003 for \$1,395,000 or \$1,337 per acre. It consists of two parcels which are part of the backdrop to Sitka, Alaska. It was a purchase by the US Forest Service from the Alaska Mental Health Trust Authority with the purchase price based on an appraisal and considered to be market value. The Mt. Verstovia parcel was approximately 935 acres valued at \$1,350 per acre, and the Gavan Hill parcel was approximately 109 acres



valued at \$1,200 per acre. The property has a small amount of low lying lands suitable for near term development, adjacent to existing development. Its timber resource was evaluated, but was not found to be its highest and best use. In a qualitative analysis of price per acre, relative to the subject Naukati Phase 2A parcel, it was considered to have similar conditions of sale, similar market conditions, similar titled interest, significantly superior location/appeal, smaller size indicating a downward adjustment, inferior access, and inferior in regards to topography, development constraints, and use potential. Overall, it was rated as superior to the subject by a magnitude of -1.

Comparable sale #2 is 1,226.65 acres sold in August 2012 for \$1,250,000 or \$1,019 per acre. It consists of a semi-remote area of northern Prince of Wales Island, with road access but many miles from the nearest community. It is on the north side of El Capitan Passage and lies immediately west of El Capitan Peak. It is hilly and bisected by streams, and it was logged about 30 years prior to purchase, with no remaining timber resource value at the time of purchase. Buyer motivation included acquisition of access that this property provided to their other holdings nearby. In a qualitative analysis of price per acre, relative to the subject Naukati Phase 2A parcel, it was considered to have similar conditions of sale, similar market conditions, similar titled interest, similar location/appeal, smaller size indicating a downward adjustment, inferior access, and similar in regards to topography, development constraints, and use potential. Overall, it was rated as similar to the subject.

Comparable sale #3 is 22,890.27 acres sold in September 2016 for \$18,312,200 or \$800 per acre. It is located at Cube Cove and a large adjacent area on Admiralty Island. The sale price was paid in four installments. Title was subject to various easements including 14 trail easements and four site easements to the Forest Service. The subsurface estate was not included in the sale. The property includes salt water frontage at Cube Cove, three separate river/creek drainages, 3 lakes suitable for float planes, elevations up to 1,500 feet, and is a significant inholding within a National Monument. It was logged over 18 years beginning in 1984. In a qualitative analysis of price per acre, relative to the subject Naukati Phase 2A parcel, it was considered to have superior conditions of sale, similar market conditions, inferior titled interest, superior location/appeal, larger size indicating an upward adjustment, inferior access, and inferior in regards to topography, development constraints, and use potential. Overall, it was rated as inferior to the subject by a magnitude of +2.

Comparable sale #4 is 4,059.43 acres sold in November 2004 for \$3,191,430 or \$786 per acre. It is an area known as Gustavus Flats, and consists of 7 parcels on the north side of Icy Straights, lying east and west of the community of Gustavus. This was a simultaneous transaction in which the Alaska Mental Health Trust sold 2,620.34 acres to The Nature Conservancy and sold 1,439.09 acres to Alaska Fish & Game. In a qualitative analysis of price per acre, relative to the subject Naukati Phase 2A parcel, it was considered to have similar conditions of sale, similar



market conditions, similar titled interest, similar location/appeal, similar size with no adjustment, inferior access, and inferior in regards to topography, development constraints, and use potential. Overall, it was rated as inferior to the subject by a magnitude of +2.

The qualitative analysis described above results in the ratings for the Naukati Phase 2A parcel shown in the appraisal report as follows:

TABLE 4.4 - Ranking Grid Naukati Federal Lands				
Comp	Location	Size	Rating	Acre Value
Comp 1	Mt Verstovia	1,043 AC	Superior -1	\$1,337/AC
Comp 2	El Capitan, POW	1,267 AC	Similar	\$1,019/AC
Subject	Naukati area Parcels	8418 AC	Similar	Solve
Comp 3	Cube Cove	22,890 AC	Inferior +2	\$800/AC
Comp 4	Gustavus Flats	4,059 AC	Inferior +2	\$786/AC

The appraisal report states that there are no direct comparables to the subject but that its value is broadly bracketed by these comparable sales. This table is arrayed by price per acre for the sales comparables, with a line for the subject indicating where it would lie within the data array. The value indication for the subject parcel lies within the range of \$786 per acre to \$1,337 per acre. The most similar rated comparable is Comp 2 at \$1,019 per acre, which is given the most weight. The appraiser concludes that, based on the available data the suggested acre value is rounded to \$1,100 per acre. Based on this rate, the appraiser's opinion of the contributory market value of the subject 1,513.63-acre Federal Naukati Phase 2A parcel is rounded to **\$1,665,000**.

Timberland Value:

The timber value, also called "stumpage" value, is the value of economically merchantable timber, as it stands in the forest, as it contributes to the total property value of the real estate. After considering the stumpage value, the market is analyzed to determine the additive contributory value of the underlying "cutover" land to estimate the whole property's value as timberland. Buyers of timber production properties such as the subject would typically pay a price related to the stumpage value, and some additional consideration for the fee ownership of the land.

The timber resource on the subject property was inventoried by Forest Service timber cruisers, using private industry specifications. These specifications were developed by the appraiser's Forester Clare Doig, ACF, CF, of Forest and Land Management, Inc. The cruise verified the species, volume, and grade of timber in designated areas. Based on statistical sampling, it developed a timber inventory, which in turn was used as a basis by Mr. Doig to appraise the stumpage or standing timber on the property. The report of that timber appraisal is included in



the addendum of the real estate appraisal report, and the decision to rely upon it was made by the real estate appraiser, Charles Horan, MAI. The real estate appraisal report summarizes the contents and processes contained in Mr. Doig's timber appraisal.

The following are reported significant observations of relevant characteristics for the timber valuation:

- The history of the 1,514 acre subject site shows that about 777 acres (52%) have been harvested over the last 35 years or so.
- About 600 acres have been identified as old growth, potentially merchantable timber. The balance of the site is either muskeg, non-vegetated, or identified as not operable for timber resource.
- There are 584 acres of net merchantable timber yielding 13,375 MBF (thousand board feet). (The timber report shows merchantable timber alternately at 13,374 MBF or 13,375 MBF. This difference is due to rounding in the calculations and is not significant.)
- The following summary of the stumpage value calculation which is detailed in Figure 3.5 of Mr. Doig's timber appraisal.

Summary stumpage a value calculation	13,375 MBF	\$/MBF
Gross sales	\$9,728,948	\$727.45
Less Log production and delivery cost	<u>\$7,393,863</u>	\$552.85
Conversion return-net revenue	\$2,335,085	\$174.60
Profit and Risk	<u>\$1,337,410</u>	\$100.00
Indicated stumpage value	\$997,675	\$74.60

The table above and the image on the following page are excerpts from the real estate appraisal report. Mr. Doig also performed a market sales analysis as a check against the conversion return value. This focused on recent sales reflecting current market conditions from April 2018 to October 2019. That analysis produced an indicated range of rates from \$50 to \$92 per MBF after adjustments for differences. Mr. Doig reconciles to a value conclusion of \$80.00/MBF after considering both approaches, for a total timber value conclusion of \$1,070,000. Based on his review of the Forest & Land Management, Inc. timber appraisal, Mr. Horan accepted the value of the stumpage at \$1,070,000 as of February 7, 2020.



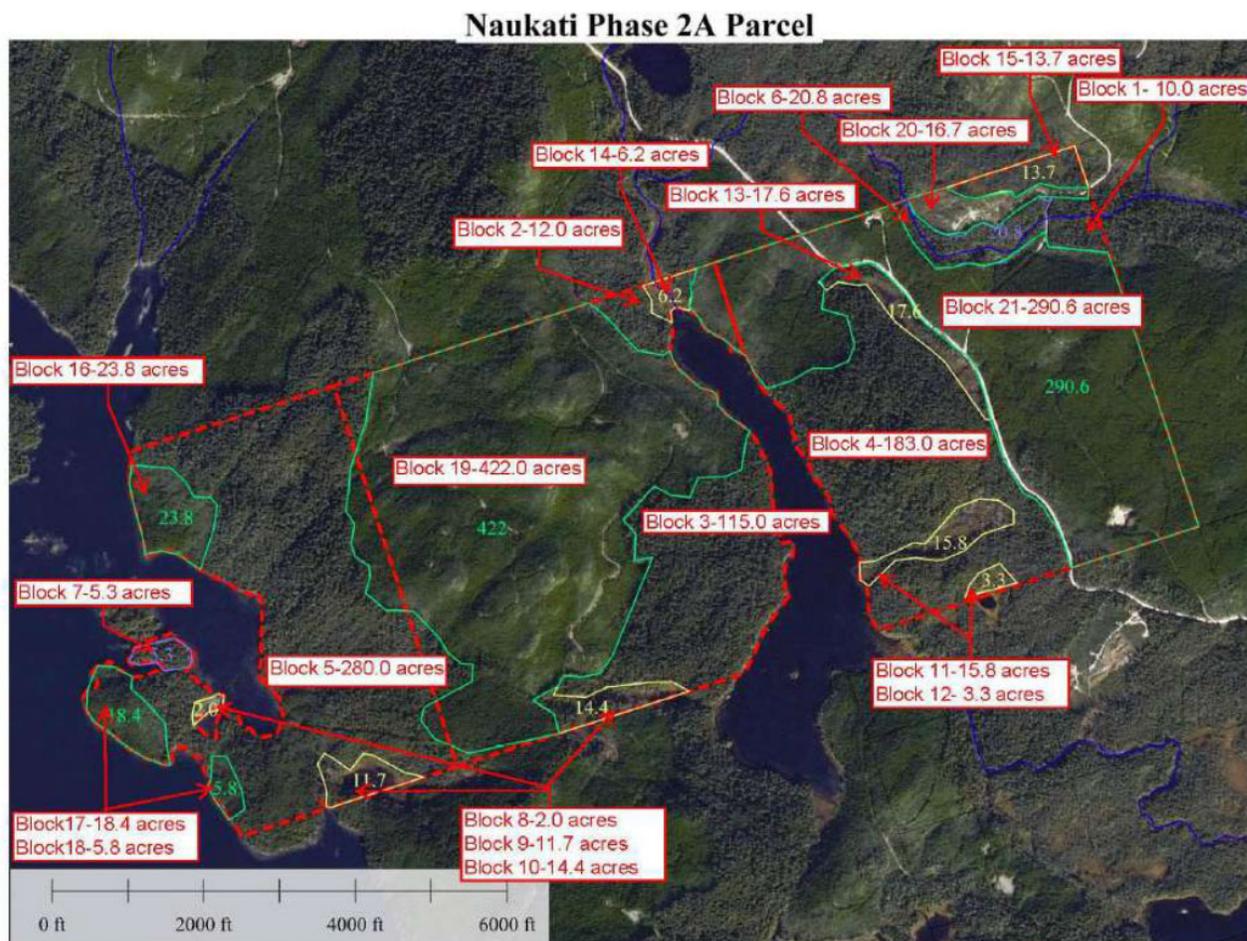


FIGURE 4.6 - Summary of operable timber areas, Source: Forest & Land Management

Mr. Horan comments that, “*The timber appraisal does a good job in describing the economic background of this market and makes the point that there are a large number of uncontrollable risks that a purchaser takes in the cash purchase of standing timber. These include the risk of market changes, information risk relative to the cruise estimate and operating costs, operational risks of actually extracting and delivering the timber resource to the point of shipment as planned, as well as timing and financial risks. These are described in the appraisal, and were further discussed with the timber appraiser. The information and the cruise risk appear to be adequately addressed in the appraisal.*”

The sales revenue for the various log sorts appear to be reasonable based on interviews with sellers of timber from the immediate area. These included sales of specific species and grades that were shipped from the KIDCO Sort Yard in Klawock within a week of the appraisal date. Interviews confirmed the precipitous market decline experienced in the last two years. An exhibit with a report from Forest Economic Advisors, LLC confirms that the market peaked in the first and second quarter of 2018, then dropped steeply, and this was confirmed by interviews with timberland appraisers in the lower 48. Road building and timber production costs reflect



the experience of operators in the region and appear to have increased about 5% to 6% over the last two years. These forces significantly reduce the quantity of timber that can be sold at prices in excess of the delivered cost. Operators within the market have renegotiated prices set a year ago and/or have ceased some operations due to this critical feasibility limitation.

The margin for profit and risk is \$100 per MBF. Mr. Doig has relatively good data on selling values and costs. His background research suggests that market participants do not expect the market to rebound soon. Mr. Doig's profit and risk at \$100 per MBF is about 14% of the average selling value of \$727/MBF reported in the timber appraisal. This is at the high end of the range indicated by most traders in the timber market but appears to be reasonable for this situation given the relative risks.

Using this market driven criteria, and assuming a one-year operation, Mr. Doig calculated the value of the merchantable timber on 584 acres. The logging plan extends additional roads off of existing roads, and appears to be a reasonable, most-likely development. This hypothetical harvest yields a timber value of \$997,675, or \$74.60/MBF for 13,374 MBF.

The balance of the site, approximately 930 acres, is non-timber land, riparian areas, reproduction or clear-cut. There is no economic timber value in these areas. The clear cuts are too young for market participants to calculate a net present value. It was observed that second growth harvests a few years ago had consisted of trees about 75 years old. There is no longer a market for this type of timber. The market would not begin to put economic value on second growth until it was within 10 years of maturities.

Mr. Horan reviewed and discussed with Mr. Doig the comparison sales cited in his timber appraisal. They concur that there are no directly comparable transactions, but that the data brackets the value of subject timber as appraised with a range of \$50.00/MBF to \$92.00/MBF after adjustments. The upper end of this range appeared to be based on the best data. Mr. Doig concludes a value of \$80.00/MBF after considering both approaches. Based on his review of the Forest & Land Management, Inc. timber appraisal, Mr. Horan accepted the value of the stumpage at \$1,070,000 as of February 7, 2020.

Sales Comparison Approach to Contributory Value of Cutover Land:

Using the Sales Comparison Approach, sales of comparable properties are analyzed and utilized as a basis to arrive at an indication of the contributory value of the subject's underlying land component for valuation of the subject property as timberland. Sales were described and analyzed using overall sales price per acre as the unit of comparison, although total sales price was also described for each sale. Differences between the comparable sales and the subject property are identified, and adjustments are applied to account for those differences which may affect market value.

Cutover or residual timberland, as used in the analysis, refers to land which has a highest and best use as timberland, which has been harvested of all merchantable timber. As found in the



market, cutover land could have some residual merchantable reproduction or second growth timber. This type of land would include non-merchantable old growth, buffer strips of trees along creeks and streams, protected habitats, roadways, and other sensitive areas, wetlands, and non-timbered remainder areas of the site.

In active timber markets and in other regions where private-non institutional fee simple land is available, outright purchases of fee simple land for timber can often occur. Normally, motivated buyers and sellers would calculate what the stumpage may be worth, and then add an increment of value for the land. In Alaska, it is difficult to estimate the land component value, because timberland sales are rare. More often, timber rights are sold without land. The land in Alaska is rough and difficult to work, which drastically increases the risk of timber operations. Further, the rotation time is longer in Alaska, and few timber tracts are purchased with the idea of reforestation of the cutover land. Timber purchasers in Southeast Alaska assign greater risk to timberland for the following reasons:

- Lack of access and proximity to timber users, sawmills, pulp mills, etc;
- Extreme high operation risks due to remote locations;
- Relatively slow growing conditions, and
- Inferior soil quality as related to other forest regions.

Due to the limited market sales data from which to analyze the appropriate allocations, the appraiser and the appraiser's Forester considered a long history of observation in the "lower 48" especially the Pacific Northwest. A comprehensive study discerned trends which may be applied to the Alaska coastal timberland market. The following conclusions are presented in the appraisal report:

"In active markets, a typical timber sale will have a component of stumpage and cutover land value. The cutover land value is assigned based on anticipated productivity as future timber land. There is no such thing as a "pure" comparable sale for cutover land associated with large timber parcels. Restrictions on the size of clear-cuts make it unlikely that there will be a parcel in this size range with either all bare land or one age class of reproduction. While it is appropriate to try to compare site class (productive potential) of the property, it is also important to compare the typical rotation age at which harvest will take place, as that determines the term of an investment in timber. A substantial adjustment would be necessary to equate typical remote property, not connected by highways to ports, mills, or community infrastructure, with property in the continental United States." The conclusions suggest a generalized price per acre for cutover land of the poorest soil classes, which compete with conditions in coastal Alaska, for parcels over 1,000 acres at \$40/acre to \$400/acre, with a midpoint of \$220 per acre.



Cutover Land - Sales

Although sales are infrequent, the limited experience for timberland sales in coastal Alaska shows the following range of values allocated to the cutover land portion of transactions over time. The following table of comparable sales is excerpted from the appraisal report. The unit of comparison is price per acre.

Comp (Rec #)	Location	Date	Acre Volume	Sales Price Timber Value Land Value (Percent of Fee)	AC Price Price/MBF	Allocated acre price cutover land
Comp 5 (#10584)	Mud Bay, Ketchikan	1/2013	19.69 AC 622 MBF	\$140,000 \$140,000 \$0 (0%)	\$7110/AC 225/MBF	\$0/AC
Comp 6 (#2730)	Mountain Point, Ketchikan	01/2003	145.27 AC 2,200 MBF	\$175,000 \$160,500 \$14,500 (8.3%)	\$1,205/AC \$73/MBF	\$100/AC
Comp 7 (#1397)	Seal Cove, Gravina Island	3/1993	190.4 AC 1000 MBF	\$347,000 \$327,500 \$19,500 (5.6%)	\$1823/AC \$347/MBF	\$102/AC
Comp 8 (#10401)	Thorsheim Creek, Afognak	8/2017	1953 AC 25,174 MBF	\$6,300,000 \$5,800,000 \$500,000 (7.9%)	\$3,226 /AC \$230.40 /MBF	\$256/AC
Comp 9 (#6183)	Stevenstown & IT Mines, Kasaan Peninsula	12/1998	291.85 AC 1,825 MBF	\$750,000 \$625,000 \$125,000 (16.7%)	\$2,570/AC \$342/MBF	\$428.32/AC

The property characteristics and the characteristics of these transactions were described with detailed write-ups in the Addendum of the appraisal report. This included extraordinary verifications, when required by UASFLA. The detailed write-ups included detailed descriptions, photos, topographic maps, drawings, and deeds. All comparable sales were visited in person by the appraiser and the appraiser’s forester, and transactions were personally verified by the appraiser.

Comparable sale #5 is 19.69 acres sold in January 2013 for \$140,000 or \$7,110 per acre. It had 622 MBF of timber valued at \$225/MBF accounting for the entire sales price and leaving an allocation to the cutover land at \$0. The timber value allocation was supported by an adjacent sale. It appears that the sale was slightly below market values generally. It was purchased for its timber and harvested together with an adjacent 35 acres. Relative to subject parcel Naukati Phase 2A, it was considered to have inferior conditions of sale, superior location, superior effect of parcel size and it is rated overall as inferior.



Comparable sale #6 is 145.27 acres sold in January 2003 for \$175,000 or \$1,205 per acre. It had 2,200 MBF of timber valued at \$73/MBF leaving an allocation to the cutover land at \$100 per acre. It was logged partially clear cut and partially by helicopter. Relative to subject parcel Naukati Phase 2A, it was considered to have inferior conditions of sale, superior effect of parcel size, inferior access, and it is rated overall as inferior.

Comparable sale #7 is 190.4 acres sold in March 1993 for \$347,000 or \$1,823 per acre. It had 1,000 MBF of timber valued at \$347/MBF leaving an allocation to the cutover land at \$102 per acre. It was an assemblage of mineral patents with about 45 acres suitable for logging, which has been done. Relative to subject parcel Naukati Phase 2A, it was considered to have an inferior location, superior effect of parcel size, inferior access, and it is rated overall as inferior.

Comparable sale #8 is 1,953 acres sold in August 2017 for \$6,300,000 or \$3,226 per acre. It had 25,174 MBF of timber valued at \$230.40/MBF leaving an allocation to the cutover land at \$256 per acre. It is remote, about 40 miles north of Kodiak. It has a logging road about 2 miles away and otherwise is accessible by boat or float plane with 4.62 miles of ocean frontage with pocket beaches. Relative to subject parcel Naukati Phase 2A, it was considered to have superior conditions of sale, inferior access, and the price was based on a superior use, and it is rated overall as superior.

Comparable sale #9 is 291.85 acres sold in December 1998 for \$750,000 or \$2,570 per acre. It had 1,825 MBF of timber valued at \$342/MBF leaving an allocation to the cutover land at \$428.32 per acre. It is mineral patents purchased by the surrounding landowner. Relative to subject parcel Naukati Phase 2A, it was considered to have superior conditions of sale, superior effect of parcel size, and it is rated overall as superior.

The comparable sales described above are deemed to be the most similar, recent and proximate to the subject property, and most representative of the market for cutover timber land. Adequate market data did not exist to support dollar or percentage amount adjustments. Because of the limited market data, quantitative adjustments for differences between the sales and the subjects would be unreliable. The comparable sales were analyzed using a qualitative analysis. If the comparable property is superior to the subject, the adjustment factor is negative. (As the indicated value for the subject property would be less than the sale price of the comparable.) If the comparable property is inferior to the subject, the adjustment factor is positive. A summation of these adjustments results in an overall indication of whether the comparable is inferior or superior to the subject. Relating this to the sales price per acre of each comparable shows that the market value of the subject should be higher or lower than that allocated sale price per acre. In this way, each comparable sale provides a separate indication regarding the market value of the subject property. Finally, each of these indications are reconciled to a final conclusion of market value.

Consideration was given to transaction characteristics and property characteristics which may have an influence on market value. Adjustments for conditions of sale were applied for atypical



motivations or transaction elements. Market conditions were rated as similar, reflecting the appraiser’s determination that the market was relatively flat over the time period of these sales. Property rights were rated as similar, as variations in easements or other minor issues were not felt to impact the sales prices. Location characteristics varied significantly. Sizes of the parcels varied, and smaller parcels typically sell at higher prices per acre than larger parcels. Access varied significantly. “Paid based on Alternate Use” captures the influence on values due to differences in the potential for sale of cutover land for an alternative use. These comparisons were tabulated and an overall ranking was determined for each comparable.

The qualitative analysis described above results in the ratings for parcel Naukati Phase 2A shown in the appraisal report as follows:

Character	Subject	Comp 5 (#10584) Mud Bay		Comp 6 (#2730) Mtn Point		Comp 7 (#1397) Seal Cove		Comp 8 (#10401) Thorsheim		Comp 9 (#6183) Kasaan Pen.	
		Inf	+	Inf	+	Sim	o	Sup	-	Sup	-
Total Price	Solve	\$140,000		\$175,000		\$347,000		\$6,300,000		\$750,000	
Cutover Allocation	Solve	\$0		\$14,500		\$19,500		\$500,000		\$125,000	
Cutover Acre Price	Solve	\$0/AC		\$100/AC		\$102/AC		\$256/AC		\$428/AC	
Conditions of Sale	Typical	Inf	+	Inf	+	Sim	o	Sup	-	Sup	-
Market Conditions	02/2020	1/13	o	1/03	o	3/93	o	8/17	o	12/98	o
Property Rights	Fee Less Minor Res.	Sim	o	Sim	o	Sim	o	Surface	o	Sim	o
Location	Rural	Sup	-	Sim	o	Inf	+	Sim	o	Sim	o
Size (AC)	8,418 AC	19	-	145	-	190	-	1953	-	292	-
Access	Forest Rd	Sim	o	Inf	+	Inf	+	Inf	+	Sim	o
Paid based on Alternate Use	Continued Forestry	No	o	No	o	No	o	Yes	-	No	o
Overall Comparison	Solve	Inferior		Inferior		Inferior		Superior		Superior	
Indicated Value of Subject	Solve	More than \$0/AC		More than \$100/AC		More than \$102/AC		Less than \$256/AC		Less than \$428/AC	

If an attribute of the comp is superior a “-” rating is assigned.

If an attribute of the comp is inferior a “+” rating is assigned.

The allocation for the cutover land component indicates prices from \$0/Ac to \$428/AC, with a mid-point of \$214/AC. The report states that the subject is bracketed by comp 6 at \$100/AC, and comp 8 at \$256/AC, with a mid-point of \$178/AC. Transactions of fee simple land for timber sales are infrequent, and allocations are rarely made, so the market variability is not surprising. The appraiser weighted the fact that the subject has 750 acres of old growth trees and some second growth has been enhanced through thinning, favoring the upper end of the range.



The appraiser concludes to the contributory value of the residual cutover land at **\$200 per acre** for the subject property.

The contributory cutover land value is calculated as 1,514 acres at \$200 per acre = \$302,726 rounded to **\$300,000**.

Value Conclusion as Timberland

The value of the subject property as timberland is the sum of the contributory value of the timber resource as developed by the appraiser's Forester at \$1,070,000 plus the contributory value of the underlying "cutover" land as developed above at \$300,000. The appraisal report states,

"It is my opinion that the value of the subject as timberland is \$1,370,000. However, this use does not represent the greatest return and is therefore not the highest and best use of the subject property and does not represent its market value."

The appraisal report also contains the following statement:

"By utilizing the contributory values, as opposed to the stand-alone values, this process is NOT a prohibited "summation" which might otherwise violate the Unit Rule of UASFLA."

VALUE CONCLUSION

In reconciling the final opinion of the market value of the subject property, the appraiser considers the quality and quantity of data and the market value indications. The appraisal report under review concludes as follows:

"The subject was analyzed and evaluated for its timber resource which it historically had been used for and is anticipated to be used. Due to steep declines in timber prices over the last two years the timber resource only contributes \$1,070,000 (\$80.00/MBF). Adding the contributory value of the cutover land at \$300,000 the total value for its timberland use is \$1,370,000.

Market sales indicates this type of land would also appeal to recreation and speculative investors. At this use the land value is estimated at \$1100/AC indicating \$1,665,000. This is the highest and best use value of this allocated portion of the Phase 2 Naukati Parcels.

It is my opinion, the market value of the Federal Naukati Phase 2A parcels, as of February 7, 2020 is \$1,665,000.

This value conclusion represents the contributory value of the subject 1,513.63 acres, as a component of the larger parcel which is 8,418 acres. "



Appraisal Report Addendum:

The Addendum of the appraisal report contains the following items:

- 1) Statement of Work. This Appraisal Instructions and Statement of Work document was the basis of contracting for the appraisal reported here and for the other appraisals related to the exchange.
- 2) Phase 2A Contract Amendment. This provides for contract modification to utilize the revised methodology in which Phase 2 of the land exchange is divided into Phase 2A and Phase 2B.
- 3) Land Description Verification (LDV). This consists of one USFS Land Description Verification form dated 11/5/2019 prepared by Registered Land Surveyor George Bisset. The LDV is the controlling document regarding size and location and legal description, and it details the source surveys which are its basis.
- 4) Wetland and Floodplain Summary Report. This report describes the wetlands and floodplains within the subject parcel.
- 5) Water Rights. This item is a Memorandum from the State of Alaska Dept. of Natural Resources detailing the fact that the only water right within the identified area has been relinquished.
- 6) Mineral Potential Report. This document evaluates the mineral resources within the subject parcels, and includes maps.
- 7) Road Use Agreement Document 2010-001736-0. This is a right-of-way easement agreement between the United States Forest Service and the State of Alaska Dept. of Transportation.
- 8) Prince of Wales Road Easement 2015. This is a right-of-way easement agreement between the United States Forest Service and the State of Alaska Dept. of Transportation.
- 9) Federal Land Status Report dated August 7, 2019. This document describes the legal description, land status, encumbrances, land laws and pending land selections and claim, various specialist reports, rights conveyed or permitted, improvements, Forest Plan compliance, NEPA analysis, and associated matters for the subject Federal parcel.
- 10) Final Surveys. These are two surveys signed March 27, 2018 and officially filed April 3, 2018 covering the area containing the subject property.



11) Timber Appraisal. This is the work product of the appraiser's forester Clare Doig presenting his analysis and conclusions regarding the timber resource on the subject property, Naukati Phase 2A. It includes aerial mapping, timber cruise layout, data, and the software output reports from the timber cruise. This is the supporting data for the appraiser's conclusion of the amount of the timber value contribution on the subject property.

12) Size Impact on Acre Price Study. This is the report of a Study conducted by Charles Horan, MAI, dated February 2020. It analyzes the impact of parcel size on per-acre sales prices.

13) Comparable Sales. In this section the appraiser presents maps of the locations of the comparable sales analyzed in detail. It includes detailed write-ups of each sale with detailed descriptions, photos, topographic maps, drawings, and deeds. The sales write-ups meet or exceed the documentation standards required by UASFLA.

14) Appraiser Qualifications. This shows a synopsis of the appraiser's qualifications, designations, certifications, education and experience. The final item in the appraisal report is a copy of the appraiser's Certified General Appraiser License issued by the State of Alaska, which is current and valid for the type of real estate appraisal services performed.

(End of appraisal summary.)

