

# TIMBER SALE REPORT & APPRAISAL

## Extra Salvage Sale

Grand Mesa, Uncompahgre, and Gunnison National Forests  
Gunnison Ranger District  
May, 2016

Prepared by:  Date: 5/9/2016  
Johanna Nosal- Forester

Approved by:  Date: 5-9-2016  
District Ranger

## SUMMARY OF RECOMMENDATIONS

Net Volume (Appraised and Contract)

*Recent Dead Engelmann*

3,801 CCF

*Older Dead Engelmann Spruce Sawtimber*

0 CCF

**Total: Live and Dead ES and Other Conifer**

**3,801 CCF**

Quadratic Mean DBH (all sawtimber):

11.7 inches

Treatment acres: 165.9 acres

Advertised Rates

Live and Dead ES and Other Conifer: \$26.62/CCF

Specified Road Reconstruction: \$0.00

Deposit for Reconstruction Engineering Services: \$0.00

Road Completion Date: n/a

Required Slash Deposit is \$1.36/CCF

Required Surface Rock Replacement Deposit is \$0.00/CCF

Total cost of KV work: \$100,509

Total KV Collections at advertised rates: \$100,232.37

Essential KV: \$0.00

Contract period is two (2) years.

Termination Date: October 31, 2017

Normal Operating Season: June 1 to October 31

## **DESCRIPTION**

### **A. Location**

The sale area is located off of Colorado State Highway 149 in the Slumgullion Pass area in the Gunnison National Forest. The sale area is approximately 42 air miles southwest of Gunnison, Colorado, in Sections 21-23; T43N; R3W; New Mexico P.M.; Hinsdale County, Colorado. The sale area is approximately 469 acres in size, of which 165.9 acres are within cutting units. Principal access to the sale would be from designated access points off of Highway 149.

### **B. Land Status**

All harvested units are on National Forest Service lands. There are no known encumbrances.

### **C. Basis for Selecting Area**

This area is included in the five-year Timber-Sale Action Plan. The timber sale area is connected to the Highway 149 sale and will serve as an extension of the fuel break created in that sale. The Slumgullion corridor, where the sale is located, was deemed in need of treatment due to spruce bark beetle infestation and tree mortality. The harvest meets current direction in the Grand Mesa, Uncompahgre and Gunnison National Forest Land Management Plan, as well as the Highway 149 South Decision Memo. The Highway 149 South Decision Memo was signed in March of 2016.

### **D. Transportation Routes and Appraisal Points**

Sawtimber will be appraised using Montrose, Colorado as the most advantageous appraisal point.

### **E. Silvicultural Prescription**

The silvicultural prescription for all cutting units is a Stand Clearcut of merchantable dead or dying Engelmann spruce trees over 8.0 inches DBH. Live trees will not be removed except incidental amounts to accommodate logging operations. The use of the Designation by Species and Diameter (C2.3521#) provision was used in the contract to implement the silviculture prescription. In this provision, only dead Engelmann spruce can be removed. Some reserve spruce has been leave tree marked and will not be removed; this is reflected in C2.3521#.

### **F. Unique Circumstances**

Two access points that connect Highway 149 to existing temporary roads will need to be constructed and deconstructed following an engineering package included in this contract (C5.1). Permitted access for these points was obtained by the Forest Service through the Colorado Department of Transportation (C5.113#). These permits expire on 12/31/2017 and the use of these access points will be prohibited after this date.

The purchaser of this timber sale will be required to obtain liability insurance as explained in C5.123#. An Unusual Liability Insurance Adjustment of -\$1.40/ccf was used in this appraisal.

The Categorical Exclusion used for the NEPA documentation of this sale specifies that a maximum of 0.5 miles of new temporary road can be built. The logging plans for this sale reflect this criterion. An Unusual Skid Distance Adjustment of -\$1.27/ccf was used in this appraisal.

A one-time Roll-Back Factor Quality Adjustment was authorized by the Regional Office. This Quality Adjustment is -\$15.00/ccf and follows policy in WO FSH 2409.18; 45.32 (items 3 & 4).

Hauling is prohibited on NFSR 473.0 and this road is a protected improvement, C5.12#, B6.22.

## CONDITIONS OF SALE

### A. Planned Cutting Methods

All units were marked as leave tree with a pink band at a height of 4 to 7 feet on the main bole of each tree, in addition to a pink painted stump mark. Boundaries have been delineated with three pink painted vertical strips (one strip facing the next boundary tree and the middle strip facing into the cutting unit). Trees with three horizontal pink bands are boundary trees that designate a sharp turn in the boundary.

### B. Sale Area Improvement Needs (SAI)

See the KV Plan Narrative for information.

### C. Slash Treatment

Slash must be lopped and scattered. A deposit will be collected to cover the cost of post sale landing slash pile burning conducted by U.S. Forest Service personnel. See the Brush Disposal Treatment Plan FS-2400-62 and Excel spreadsheet for slash disposal details.

### D. Utilization Specs

Standard utilization specs are used in this sale (see "ExtraSalvage\_CruiseDesign.pdf" for specifications). The larger minimum dbh and top diameter were not chosen because timber quality was adequate in the 8-9" diameter range and down to 6" top dib, and silvicultural objectives would not be met if the 9" minimum diameter or 7" top dib were to be used.

### E. Water Quality Protection and Erosion Control

Landings, skid trails, and temporary roads will be re-seeded to stabilize soils. Skid trails are to be laid out to reduce erosion and will require agreement by the timber sale administrator. Skid trails must be at least 100 feet from all live streams except in areas previously identified by U.S. Forest Service personnel. Drainage structures will be required where erosion potential is high.

Temporary roads will be closed by installing or cleaning waterbars, ripping, seeding, and placing logs, rocks, stumps and slash in the roadway. Seed that is used will be certified noxious weed-free seed mixture.

### F. Relevant Mitigation Measures & Design Criteria

Mitigation measures are additional requirements, developed on a site specific basis, along with project design criteria to avoid, minimize, reduce or eliminate adverse effects as a result of implementing the proposed treatments. The mitigation measures and design criteria listed below are found in the Decision Notice for the Highway 149 South Salvage Project.

#### *Cultural Resources*

Cultural resource surveys will occur prior to treatment implementation. All sites within a treatment area will be avoided until State Historic Preservation Office consultation may be completed. Archaeologist will consult with timber personnel with regards to site locations

- responsibility: U.S. Forest Service
- notes: No archeological sites were discovered, B6.24

Discoveries: If any new cultural resource sites are discovered during implementation, treatment activities would stop and the Forest Service archeologist would be contacted immediately. The

archaeologist will evaluate the significance of the cultural resource. If potentially significant, within 48 hours of the discovery, the SHPO will be notified of the discovery and consultation will begin to determine an appropriate mitigation measure. The discovery will be protected from further disturbance until any required mitigation is completed. Operations may resume at the discovery site upon receipt of written instructions and authorization by agency officials.

- responsibility: U.S. Forest Service and timber purchaser
- notes: B6.24, B8.33

Native American human remains: Any operator carrying out treatments must notify the Forest Service, by telephone, with written confirmation, immediately upon the discovery of human remains or funerary items, discovered on federal land. The Forest Service must then immediately notify appropriate tribes of the find. All treatment activities must stop in the vicinity of the discovery that could adversely affect it, until tribal consultation can be completed and a Plan of Action can be approved and implemented

- responsibility: timber purchaser
- notes: B6.24, B8.33

#### *Forest Service Sensitive Plants*

Any Region 2 sensitive plant species new to list or located after contract or permit issuance will be appropriately managed by active coordination between permittee, contractor or purchaser, Contracting Officer, and Forest Service line officer, treatment administrator, and botanist. Surveys will occur prior to implementation; Botanist will communicate with timber staff the location of any sensitive species found

- responsibility: U.S. Forest Service and timber purchaser
- notes: B6.24, B6.62, B8.33

Keep roads and trails out of wetlands and their water influence zones (WIZ). Restore existing disturbed areas that are eroding and contributing sediment to the wetland. No mechanical equipment will be used within 100 feet of the edge of a fen. Treatment activities will avoid wetlands. Mechanical treatment and vehicle use will occur outside of wetlands or their water influence zones. Prevent mineral sediment deposition from occurring in wetlands. Develop an erosion and sediment control plan to avoid or minimize downstream impacts using measures appropriate to the site and the proposed activity. Limit roads and other disturbed sites to the minimum feasible number, width, and total length. Minimize sediment discharge into streams, lakes, & wetlands during construction and stabilize & maintain disturbed sites to control erosion. Maintain sufficient upslope ground cover to prevent sediment movement downward into wetland. Avoid treatment activities and equipment use in wet or moist meadows. Design stream crossings at armored points, or armor them to prevent loss of functions in wet or moist meadows.

- responsibility: U.S. Forest Service and timber purchaser
- notes: No known Sensitive Plant occurrences occur in the project area. Layout of cutting units avoided wetlands and other wet areas. B5.1, B5.2; B5.12; B6.422, B6.61, B6.62, B.6.6, C.2301#, C6.601#

### *Invasive Weeds*

Use standard timber sale contract provision B6.35 to ensure appropriate equipment cleaning. Equipment cleaning should be conducted after working in areas with known infestations, and prior to bringing equipment onto the National Forest. Locate and use weed-free treatment staging areas. Avoid or minimize all types of travel through weed-infested areas. All imported materials (erosion control materials, soil, gravel, etc.) should be from a "weed-free" source or area. Monitoring will occur where imported materials have been placed to ensure no new infestations have been established.

- responsibility: U.S. Forest Service and timber purchaser
- notes: No known invasive weed occurrences occur in the project area. B6.35, C6.602#

Contracts will require timber purchasers and contractors will re-seed disturbed areas (as designated by the Forest Service) with an appropriate certified weed-free native seed mix to avoid introduction of nonnative invasive plants and promote re-vegetation of native species. Where fuel reduction, timber harvest and other resource objectives necessitate ground disturbance and soil exposure, or substantial ground cover and canopy removal, include appropriate re-vegetation or invasive plant management strategies in treatment plan. Where necessary, rehabilitate/restore or treat disturbed areas after management activities and conduct follow up monitoring on these areas susceptible to invasive plant spread. Cover and reduce exposure of bare ground. Slash and burn piles will be located away from known invasive weed populations and will be assessed for restoration and revegetation needs.

- responsibility: U.S. Forest Service and timber purchaser
- notes: B6.422, C6.602#, C6.7#

### *Silviculture*

During any types of harvest in spruce-fir, areas of advanced regeneration will be avoided to the greatest degree practicable while allowing feasible operations.

- responsibility: U.S. Forest Service and timber purchaser
- notes: B2.35, B6.32, C2.301#

### *Slash Piles*

A minimum and maximum fuel loading will be specified in association with harvests and fuel treatments.

- responsibility: U.S. Forest Service and timber purchaser
- notes: C6.42#, C6.7#

To keep impacts to soils (sterilization) to a minimum pile size should be limited as follows. Piles at landings, where soils are impacted by previous yarding and loading, can be up to 50-50' in diameter. Piles in interior areas of treatment units, where soils are less disturbed, should be limited to 10-20' in diameter (100-400 square feet). Attempt to keep total area covered by piles/acre under ~5% (<2,500 square feet/acre covered by piles). When possible do not place green material exceeding 8" in burn piles. Build machine piles in such a manner that keeps them free of topsoil to facilitate more efficient burning and combustion. Piles should be spaced adequately away from leave trees to reduce damage to trees during burning.

- responsibility: U.S. Forest Service and timber purchaser
- notes: C6.7#

### *Transportation System and Haul Routes*

New Access Roads: Where terrain, road length, and other resource risks exist, a "Designed Road" shall be utilized for treatment access. Designed Roads would be surveyed, designed, and administered by the Forest Service engineering department.

- responsibility: U.S. Forest Service and timber purchaser
- notes: The access points off of Highway 149 are considered Designed Roads. C5.1

Temporary roads may be used where a designed road is not needed, as determined by the Forest Service. The location and clearing widths of all Temporary Roads or facilities shall be agreed to in writing (between the Forest Service and the contractor) before construction is started.

Following use for harvest and treatment implementation, both temporary AND designed roads will be decommissioned, which involves re-contouring where significant side slope exists, elimination of ditches and other structures, out-sloping during construction, removal of ruts and berms, effectively blocking the road to normal vehicular traffic where feasible, and construction of drainage features such as cross ditches and water bars.

- responsibility: U.S. Forest Service and timber purchaser
- notes: C5.35#, B6.63

Timber hauling operations will be restricted during wet or thawed conditions, when needed to protect the road surface. When logging occurs over snow or frozen ground, standard Forest Service practices will be followed.

- responsibility: U.S. Forest Service and timber purchaser
- notes: B6.6, C5.36#

Safety signing will be used to alert the public that logging operations are in progress and would meet the requirements of the Manual of Uniform Traffic Control Devices (MUTCD).

- responsibility: U.S. Forest Service and timber purchaser
- notes: B6.33#

Move snow in a manner that will avoid or minimize disturbance of or damage to road surfaces and drainage structures.

- responsibility: U.S. Forest Service and timber purchaser
- notes: C5.36#

Use of private roads, encroachment of public roads and rights-of-way, and other access needs outside Forest Service jurisdiction shall have the proper approval or authorization in place prior to use.

- responsibility: U.S. Forest Service and timber purchaser
- notes: Access points off of Highway 149 are under permits that expire on 12/31/2017, C5.113#. Access points are part of a spec road package. C5.1

### *Water Quality and Soil Productivity*

Maintain the organic ground cover of each activity area so that pedestals, rills, and surface runoff from the activity area are not increased. The amount of organic ground cover needed will vary by different ecological types and should be commensurate with the potential of the site. Restore

the organic ground cover of degraded activity areas within the next plan period, using certified local native plants as practicable; avoid persistent or invasive weeds.

- responsibility: U.S. Forest Service and timber purchaser
- notes: C6.601#, C6.602#, C6.42#, C6.7#

The minimum horizontal width of the Water Influence Zone for various water related features is as follows:

| Feature   | Outside Edge of WIZ  | No Harvest or Mechanical Travel Zone                                      |
|---|--|---|
| Fens and their associated wetlands                            | 100 ft minimum from edge of fen  | 100 ft from edge of fen   |
| Perennial Streams   | 100 ft. from stream bank   | 50 ft from stream bank  |
| Intermittent Streams, Reservoirs and Ponds                    | 50 ft. from bank or high water line  | 25 ft from bank or high water line  |
| Wetlands $\geq$ ¼ acre  | 100 ft. from edge of wetland   | 50 ft from edge of wetland  |
| Springs/Seeps/Wetlands/<br>depression recharge areas < ¼ acre | 50 ft. from the source or edge of associated wetland, whichever is greater | 25 ft from the source or edge of associated wetland, whichever is greater |
| Ephemeral Streams and Swales                                  | 25 ft from the channel or topographic low                                  |   |
| Ditch   | Edge of Right of Way   |   |

Keep heavy equipment out of streams, swales, and lakes, except to cross at designated points, build crossings, or do restoration work, or if protected by at least 1 foot of packed snow or 4 inches of frozen soil. Keep heavy equipment out of streams during fish spawning, incubation, and emergence periods. Ensure at least one-end log suspension in the WIZ. Fell trees in a way that protects vegetation in the WIZ from damage. Keep log landings and skid trails out of the WIZ, including swales. Locate new concentrated-use sites outside the WIZ if practicable and outside riparian areas and wetlands. Armor or reclaim existing sites in the WIZ to prevent detrimental soil and bank erosion. Do not excavate earth material from, or store excavated earth material in, any stream, swale, lake, wetland, or WIZ. Maintain at least 80 percent of potential ground cover within the WIZ. Burn piles may be located within the outer half of WIZs but must not cover more than 15% of the ground.

- responsibility: U.S. Forest Service and timber purchaser
- notes: WIZ's were avoided during unit layout. B.6422, B6.5, C2.301#, C6.411#, C6.42#

Keep ground vehicles out of wetlands. Do not disrupt water supply or drainage patterns into wetlands. Keep roads and trails out of wetlands. Avoid actions that may dewater or reduce water budgets in wetlands. Avoid any loss of rare wetlands such as fens and springs.

- responsibility: U.S. Forest Service and timber purchaser
- notes: Wetlands were avoided during unit layout. B.6422, B6.2, C2.301#, C6.6#

Manage land treatments to limit the sum of severely burned soil and detrimentally compacted, eroded, and displaced soil to no more than 15% of any activity area.

- responsibility: U.S. Forest Service and timber purchaser
- notes: B6.422

With the exception of general road grading, avoid soil-disturbing actions during periods of heavy rain or wet soils. Apply travel restrictions to protect soil and water. Install cross-drains to disperse runoff into filter strips and minimize connected disturbed areas. Make cuts, fills, and road surfaces strongly resistant to erosion between each stream crossing and at least the nearest cross drain. Revegetate using certified local native plants as practicable; avoid persistent or invasive weeds. Use existing roads unless other options will produce less long-term sediment. Reconstruct for long-term soil and drainage stability. Avoid ground skidding on sustained slopes

steeper than 40% and on moderate to severely burned sustained slopes greater than 30%. Conduct logging to disperse runoff as practicable. Locate and construct log landings in such a way to minimize the amount of excavation needed and to reduce the potential for soil erosion. Design landings to have proper drainage. After use, treat landings to disperse runoff and prevent surface erosion and encourage revegetation.

- responsibility: U.S. Forest Service and timber purchaser
- notes: Areas with slopes greater than 40% were excluded from cutting units during layout. B5.12, C5.12#, C6.601#, C6.602#, C6.42#, B6.422, C6.6#, B6.64, B6.65, C2.301#

Design all roads, trails, and other soil disturbances to the minimum standard for their use and to "roll" with the terrain as feasible. Use filter strips, and sediment traps if needed, to keep all sand-sized sediment on the land and disconnect disturbed soil from streams, lakes, and wetlands. Disperse runoff into filter strips.

- responsibility: U.S. Forest Service and timber purchaser
- notes: B6.422, B6.63, B6.65, C6.6#

Do not encroach fills or introduce soil into streams, swales, lakes, or wetlands. Space cross drains according to road grade and soil type as indicated in WQSP – 7B. Do not divert water from one stream to another. Empty cross drains onto stable slopes that disperse runoff into filter strips. On soils that may gully, armor outlets to disperse runoff. Tighten cross-drain spacing so gullies are not created. Where berms must be used, construct and maintain them to protect the road surface, drainage features, and slope integrity while also providing user safety.

- responsibility: U.S. Forest Service and timber purchaser
- notes: B6.422, B6.63, B6.65, B6.5

Skid trail locations will be agreed to by the Forest Service in advance of construction; spacing will be approximately 100 feet apart, allowing for topographic variation and skid trail convergence. Space water bars as appropriate on skid trails according to slope and soil type as indicated below:

- responsibility: U.S. Forest Service and timber purchaser
- notes: B6.422, B6.64, B6.65, C6.42#

| Unified Soil Classification - ASTM D 2487 <sup>1</sup> |  |   |  |  |
|--|--|---|--|--|
| Slope (%)  | ML, SM<br><u>Extremely Erodible</u> Silts & sands with little or no binder (i.e. decomposed granite) | MH, SC, CL<br><u>Highly Erodible</u> Silts & sands with moderate binder | SW, SP, GM, GC<br><u>Moderately Erodible</u> Gravels + fines & sands with little or no fines | GW, GP<br><u>Slightly Erodible</u> Gravels with little or no fines |
| 1-3  | 200  | 300   | 400  | 500  |
| 4-6  | 125  | 200   | 300  | 400  |
| 7-9  | 100  | 150   | 200  | 250  |
| 10-12  | 70   | 100   | 150  | 200  |
| 13-25  | 50   | 50  | 75   | 100  |
| 25+  | 30-50  | 30-50   | 60-75  | 80-100   |

Space cross drains and rolling dips as appropriate on temporary roads according to road grade and soil type as described below:

- responsibility: U.S. Forest Service and timber purchaser
- notes: B6.63, C6.6#

| Unified Soil Classification - ASTM D 2487 <sup>1</sup> |   |   |  |  |
|--|---|---|--|--|
| Slope (%)  | ML, SM<br><u>Extremely Erodible Silts &amp; sands with little or no binder</u><br>(i.e. decomposed granite) | MH, SC, CL<br><u>Highly Erodible Silts &amp; sands with moderate binder</u> | SW, SP, GM, GC<br><u>Moderately Erodible Gravels + fines &amp; sands with little or no fines</u> | GW, GP<br><u>Slightly Erodible Gravels with little or no fines</u> |
| 1-3  | 600   | 1000  | 1000   | 1000   |
| 4-6  | 300   | 540   | 680  | 1000   |
| 7-9  | 200   | 360   | 450  | 670  |
| 10-12  | 150   | 270   | 340  | 510  |
| 13-25  | 120   | 220   | 270  | 410  |

Site-prepare, drain, de-compact soils, revegetate, and close landings, main skid trails, and temporary and intermittent use roads and other disturbed sites within 5 years of the end of sale closure. Provide stable drainage that disperses runoff into filter strips and maintains stable fills. Do this work concurrently. Stockpile topsoil where practicable to be used in site restoration. Revegetate using certified local native plants as practicable; avoid persistent or invasive exotic plants. Remove all temporary stream crossings (including all fill material in the active channel), restore the channel geometry, and revegetate the channel banks using certified local native plants as practicable. Restore cuts and fills to the original slope contours where practicable and as opportunities arise to re-establish subsurface pathways. Use certified local native plants as practicable; avoid persistent or invasive weeds. Obtain storm water (402) discharge permits as required.

- responsibility: U.S. Forest Service and timber purchaser
- notes: B6.64, B6.65, B6.63, C5.41#, C5.35#

Implement suitable measures to close and physically block the road entrance so that unauthorized motorized vehicles cannot access the road. Establish effective ground cover (i.e. erosion control measures and revegetation) on disturbed sites to avoid or minimize accelerated erosion and soil loss. Use applicable practices of BMP Fac-2 (Facility Construction and Storm water Control) for Storm water management and erosion control when obliterating designed roads. Implement suitable measures to re-establish stable slope contours and surface and subsurface hydrologic pathways where necessary to the extent practicable to avoid or minimize adverse effects to soil, water quality, and riparian resources. Remove drainage structures. Re-contour and stabilize cut slopes and fill material when needed. Reshape the channel and streambanks at crossing sites to pass expected flows without scouring or ponding, minimize potential for undercutting or slumping of streambanks, and maintain continuation of channel dimensions and longitudinal profile through the crossing site. Restore or replace streambed materials to a particle size distribution suitable for the site. Restore floodplain function if impaired by treatment operations. Implement suitable measures to promote infiltration of runoff and intercepted flow and desired vegetation growth on the road prism and other compacted areas. Use suitable measures in compliance with local direction to prevent and control invasive weeds.

- responsibility: U.S. Forest Service and timber purchaser
- notes: C5.41#, C5.35#, C6.6#, C6.601#, C6.602#

Restrict roads, landings, skid trails, concentrated-use sites, and similar soil disturbances to designated sites. Operate heavy equipment for land treatments only when soil moisture is below the plastic limit, or protected by at least 1 foot of packed snow or 4 inches of frozen soil.

- responsibility: U.S. Forest Service and timber purchaser
- notes: B5.1, B6.422, B6..6, C6.6#, C6.42#

#### *Wildlife, Fish, and Rare Plants*

At a minimum, in spruce-fir forest types maintain 90 to 225 snags per 100 acres, 10 inches in diameter at breast height (dbh) or greater (where biologically feasible). Snags would be maintained away from structures, roads and trails so that they do not create safety hazards to the public. Where possible, utilize natural sinuosity or drainages for linking groups. Protect standing wildlife trees from damage during site preparation and post-sale activities.

- responsibility: U.S. Forest Service and timber purchaser
- notes: Snags were leave-tree-marked during sale prep activities. B2.3, C2.3521#

Where feasible, maintain a minimum of 10-20 tons per acre of coarse woody debris within harvest units. Where possible in regeneration units, create piles of logs, stumps, or other woody debris to minimize the effects of larger openings. Maintain large diameter downed logs in various stages of decomposition within harvest units (50 linear feet/acre of 10 inches diameter or larger at the large end of lodgepole pine and aspen logs and/or 12 inches diameter or larger for Engelmann spruce and subalpine fir logs).

- responsibility: U.S. Forest Service and timber purchaser
- notes: C6.42#, C6.7#. B2.3

In forested areas where salvage treatments are implemented, strive to maintain forested cover on 60% or more of the perimeter of all natural and created openings, and along at least 60% of each NFS Road (level 5 and below) that has high levels of human use during the time deer and elk would be expected to inhabit an area. Roads with restricted use could provide for less cover. Except where natural openings or parks exist along roads and when applying hazard tree removal activities along roads to meet public safety goals, gaps along roads should not exceed ¼ mile. Cover should be well-distributed across the landscape. Minimum sizes for hiding and thermal cover patches are 2 -5 acres for mule deer, and 30 – 60 acres for elk. District wildlife and timber programs will coordinate closely during the planning and design phase of projects to accomplish these objectives.

- responsibility: U.S. Forest Service
- notes: C2.301#, B2.3

Retain live trees in salvage units, except for trees that need to be removed for operational/safety or silvicultural purposes. Operational/safety or silvicultural purposes include the need to remove live trees if necessary to access dead trees for salvage or to address safety concerns.

- responsibility: U.S. Forest Service and timber purchaser
- notes: B2.3

Skid trails and landings will be located to minimize impacts to advanced regeneration. Skid trails will be placed at least 100 feet apart, except where they converge at landings.

- responsibility: U.S. Forest Service and timber purchaser

- notes: B6.422, C6.42#, C6.6#

Areas supporting live advanced regeneration with >35% Dense Horizontal Cover in blocks greater than 0.3 acres will be avoided to the extent possible during layout [and during harvest operations], while allowing feasible operations..

- responsibility: U.S. Forest Service and timber purchaser
- notes: C2.301#, B2.3, B6.422, B6.32

All operations will conform to the direction in Chapter 10 of the Water Conservation Practices Handbook including managing treatments to limit the sum of severely burned soil and detrimentally compacted, eroded, and displaced soil to no more than 15% of any activity area.

- responsibility: U.S. Forest Service and timber purchaser
- notes: B6.422, C6.42#

If TES species are confirmed present during operations the District wildlife biologist will be consulted and the appropriate standards for the Forest Plan will be applied (timing restrictions, buffer of nest sites, identify no cut area around nest sites, etc.).

- responsibility: U.S. Forest Service and timber purchaser
- notes: B6.42, B8.33

## CRUISE VOLUMES

This sale was laid out, marked, and cruised in the summer of 2015. The sale was sampled using one strata using the Point Count Measure method. Collected field data was entered and processed using the U.S. Forest Service software FSCruiser, version 03.14.2012.

Unseen defect and breakage was included in volume totals (5% for ES recent dead and 10% for ES older dead). This is a scaled sale estimated to have a value of around \$52,000; therefore, the maximum sampling error for the sale as a whole must be  $\pm 30\%$ . This information can be found in Chapter 40 of the Timber Cruising Handbook (2409.12). The combined sampling error for this cruise is 17.8% (report DS1, error for net volume).

### A. Volume Summary:

#### Volume Reported by Individual Tree Species

| Live and Dead Sawtimber      | Gross CCF     | %          | Net CCF       | %          |
|------------------------------|---------------|------------|---------------|------------|
| Engelmann Spruce recent dead | 4639.8        | 98         | 3801.0        | 100        |
| Engelmann Spruce older dead  | 98.2          | 2          | 0             | 0          |
| <b>Total</b>                 | <b>4738.0</b> | <b>100</b> | <b>3801.0</b> | <b>100</b> |

Volume estimates may be slightly different from other report groupings due to the characteristics of number rounding. See appraisal spreadsheet, "Volume&SkidDist" tab for volume and percent determination to account for rounding.

### B. Contract Volume

The volume components of recent dead and older dead Engelmann spruce sawtimber and live true fir were combined into one contract species group.

#### Cruise Volume Reported by Contract Species Groupings

| Contract Species Grouping | Cruise Gross CCF | % of Total Cruise Volume | Cruise Net CCF | % of Total Cruise Volume | Net CCF Rounded (contract volume) | % of Total Volume |
|---------------------------|------------------|--------------------------|----------------|--------------------------|-----------------------------------|-------------------|
| ES & O                    | 4738.0           | 100%                     | 3801.0         | 100%                     | <b>3801</b>                       | <b>100%</b>       |

Contract volumes may be slightly different than other reported volumes due to the characteristics of rounding contained in the TIM project management software. (TIM rounds the sum of raw cutting unit volumes contained within each payment unit.) Contract volume is used to determine payments and is the official volume estimate used in the appraisal and the contract.

### C. Area Determination

Area determination for this sale was conducted using a Global Positioning System (GPS). Procedures used for determining the acreages of harvest units in the timber sale area are in accordance with the standards set forth in Forest Service Handbook Section 2409.12, Chapter 50. GPS data was collected during the 2015 field season. See "ExtraSalvageAreaError.xlsx" for error calculations.

#### Acres by cutting unit

| Cutting Unit | Acres        |
|--------------|--------------|
| 10           | 29.9         |
| 11           | 58.8         |
| 12           | 77.2         |
| <b>Total</b> | <b>165.9</b> |

#### D. Volume Breakdown

##### Cutting Unit Acres and Net Harvest Volume

| Unit         | Cutting Prescription | Acres        | Recent Dead ES ST CCF | Older Dead ES ST CCF | Total CCF   | Net Harvest Volume per Acre CCF |
|--------------|----------------------|--------------|-----------------------|----------------------|-------------|---------------------------------|
| 10           | Stand Clearcut       | 29.9         | 685.0                 | 0                    | 685.0       | 22.9                            |
| 11           | Stand Clearcut       | 58.8         | 1347.2                | 0                    | 1347.2      | 22.9                            |
| 12           | Stand Clearcut       | 77.2         | 1768.7                | 0                    | 1768.7      | 22.9                            |
| <b>Total</b> |                      | <b>165.9</b> | <b>3800.9</b>         | <b>0</b>             | <b>3801</b> |                                 |

380095 CF / 30006 trees = 12.67 CF/tree (ES Recent Dead ST)

0 CF / 1487 trees = 0 CF/tree (ES Older Dead ST)

**3800.9 CCF / 165.9 acres = 22.9 CCF Average Net Volume/Acre (ES Recent Dead ST)**

**0 CCF / 165.9 acres = 0 CCF Average Net Volume/Acre (ES Older Dead ST)**

Quadratic Mean Diameter: 11.8 (ES Recent Dead ST)  
9.5 (ES Older Dead ST)  
**11.7 (Combined)**

Net Board Foot/Cubic Foot Ratio: 4.777 (Combined)

## APPRAISAL

### A. Appraisal Data

Bulletin No. BU230416 for Region 2, Zone 3 (SW Intermountain Zone) effective May 2, 2016 until superseded was used for this timber sale appraisal.

### B. Skid/Yard (Refer to 2400-17)

The skid/yard cost adjustment (formerly called the logging cost adjustment) is now calculated using the TEA234 MS Access-based Appraisal System. It is based on the difference between the appraised sale and Regional average sale diameter and sale volume per acre. (Reference FSH 2409.22, 51.3 and 51.61).

Base Skid/Yard Cost = \$104.71

Sale Skid/Yard Cost = \$103.10

Skid/Yard Cost Adjustment = \$1.61 (line 12, 2400-17)

### C. Haul Cost Calculation (Refer to appraisal spreadsheet, Haul tab)

Sawtimber: Haul to Montrose, Colorado

#### Log Truck Haul Time Estimations

| Road Number              | Class | % Grade | % Volume | Mileage | Weighted Haul Miles | Round Trip Mins/Mile | Time (min)    |
|--------------------------|-------|---------|----------|---------|---------------------|----------------------|---------------|
| State Hwy 149            | 2B1   | 4       | 18.0     | 1.70    | 0.3060              | 4.80                 | 1.47          |
| State Hwy 149            | 2B1   | 1       | 100.0    | 0.80    | 0.8000              | 3.60                 | 2.88          |
| State Hwy 149            | 2C1   | 6       | 100.0    | 2.10    | 2.1000              | 6.20                 | 13.02         |
| State Hwy 149            | 2C1   | -7      | 100.0    | 6.70    | 6.7000              | 4.50                 | 30.15         |
| State Hwy 149            | 2B1   | 0       | 100.0    | 26.20   | 26.2000             | 3.60                 | 94.32         |
| State Hwy 149            | 2B1   | 4       | 100.0    | 8.40    | 8.4000              | 4.80                 | 40.32         |
| State Hwy 149            | 2B1   | -4      | 100.0    | 13.10   | 13.1000             | 3.60                 | 47.16         |
| US Hwy 50                | 1A1   | 2       | 100.0    | 44.90   | 44.9000             | 3.50                 | 157.15        |
| US Hwy 50                | 2B1   | -3      | 100.0    | 10.80   | 10.8000             | 3.60                 | 38.88         |
| Montrose/Mill            | 2A1   | 0       | 100.0    | 2.60    | 2.6000              | 3.20                 | 8.32          |
| Load & Unload Delay Time |       |         |          |         |                     |                      | 80            |
| <b>Total</b>             |       |         |          |         | <b>115.91</b>       |                      | <b>513.67</b> |

\*Round Trip Minutes Per Mile are from FSH 2409.22 Sec. 44.1 Exhibit 1

513.67 Minutes Round Trip Time x \$0.1130/CCF/Minute (FSH 2409.22 Sec. 44.0) =  
**\$58.04/CCF Haul Cost for Sawtimber**

### D. Road Maintenance (Refer to "ExtraSalvage RoadworkAppraisal.xlsx")

Road access to cutting units involves the use of temporary roads off of State Highway 149. The haul route contains no Forest Service system roads, therefore no road maintenance costs will be included in this appraisal, only temporary road work.

1) Pre-haul Maintenance – none

**Total Pre-haul maintenance (with inflation)= \$0.00**

2) Normal Road Maintenance – none

**Total during-haul road maintenance (with inflation): \$0.00**

3) Post-haul Maintenance – none

**Total post-haul road maintenance (with inflation): \$0.00**

4) Surface Rock Replacement

The haul route does not include any roads with surface rock, therefore this deposit will not be required for the Extra Salvage Sale.

$\$0.38 \times 3,801 \text{ ccf} \times 0.0 = \$0.00$

**Total Surface Rock Replacement Cost = \$0.00**

**Cost/CCF = \$0.00/CCF**

5) Dust Abatement

Based on the Environmental Assessment dust abatement during road maintenance is not needed, thus a cost adjustment is not necessary for this timber sale.

6) Road Maintenance Summary

|                                    |                   |
|------------------------------------|-------------------|
| Pre-Haul Maintenance               | \$0.00            |
| During-Haul Maintenance            | \$0.00            |
| Post-Haul Maintenance              | \$0.00            |
| Dust Abatement                     | \$0.00            |
| Snow Removal (NOS)                 | \$0.00            |
| <b>Total</b>                       | <b>\$0.00</b>     |
|                                    | <b>\$0.00/CCF</b> |
| Surface Rock Replacement (deposit) | \$0.00            |

E. Sale Slash Disposal (Refer to Brush Disposal Treatment Plan FS-2400-62)

Required deposits: \$5,185/ 3,801 CCF  
\$1.36/CCF

YUM cost = \$0.00/CCF (YUM will not be required for this sale)

**Total Slash Cost = \$1.36 + \$0.00 = \$1.36/CCF**

F. Temporary Roads (Refer to "ExtraSalvage RoadworkAppraisal.xlsx", temp road tab)

Half a mile (0.5) of new temporary road construction will be needed to complete this sale. This is the maximum amount of new temporary road that is allowed to be built per the Highway 149 South DM. Two sections of existing temporary roads (analyzed under the LaGarita EA) will need to be opened. The access points off of State Highway 149 for these existing temporary roads are engineered segments (C5.1). The costs for these engineered segments are included in

the temporary roadwork appraisal. All temporary roads will be closed using the standards in C5.35#. See Logging Plan Map for approximate locations. All costs and figures are from the *USDA Forest Service Regions 2, 3, 4 Cost Estimating Guide for Road Construction dated March 2013*.

**Total temporary road cost = \$16,782.56**  
**Total temporary road cost per CCF = \$4.42**

**G. Unusual & Quality Adjustments (Refer to appraisal spreadsheet, TS Cost Worksheet tab)**

Due to the constraint of building less than 0.5 miles of temporary road to meet NEPA, average skid distances will be over 1000 feet in this sale and a skid distance unusual adjustment was used in this appraisal. Following direction in FSH 2409.22 Chapter 50 R2 admendment 2409.22-2014-2, the unusual adjustment will be -\$1.27/ccf.

Liability insurance is required to be obtained by the purchaser of this timber sale per C5.123#. An unusual adjustment of -\$1.40/ccf was applied in this appraisal.

A one-time Roll-Back Factor Quality Adjustment was authorized by the Regional Office. This Quality Adjustment is -\$15.00/ccf and follows policy in WO FSH 2409.18; 45.32 (items 3 & 4).

|   |                     |
|---|---------------------|
| Skid distance adjustment:                       | -\$1.27/ccf         |
| Liability insurance adjustment:                 | -\$1.40/ccf         |
| One-time Roll-Back adjustment:                  | -\$15.00/ccf        |
| <b>Total Unusual &amp; Quality Adjustments:</b> | <b>-\$17.67/ccf</b> |

**H. Competition Factor (Bulletin No. BU230416)**

The competition factor for the GMUG, Rio Grande, and San Juan will be set at 10%.

COMPETITION FACTOR by Forest and VALUES based on all species live ADJ BPP.

|      | Bid/Ad | LIVE CCF: |      |      |      |
|------|--------|-----------|------|------|------|
|      |        | LP&DF     | ES   | PP   | TF   |
| GMUG | 1.12   | 0.77      | 1.60 | 0.30 | 0.30 |

**I. Specified Roads**

No specified road construction or reconstruction of Forest Service system roads will occur in this sale. Per C5.1 and C5.113#, two access points that connect existing temporary roads to Highway 149 will need to be constructed and deconstructed and has an engineering package associated with them. The cost of this work has been incorporated into the temporary road portion of the appraisal.

**J. Base Rates (2400-17)**

ES: \$5.00/CCF

**K. Fire Precautionary Period (AT9)**

June 30 to October 31

L. Purchaser's Obligation for Fire (Refer to appraisal spreadsheet, TS Cost Worksheet tab)

|  |                   |
|--|-------------------|
| 2 people x 12 hours x 3 days (\$18.00/hour [AD-C]) | \$1,296.00        |
| Rounded to the next \$100                          | <b>\$1,300.00</b> |

M. Termination Date (AT12)

R2 Supplement No. 2409.18-2006-2, Sec. 53.41 states that sales of this size without specified roads should be 1 to 2 operating seasons. Termination date for this sale will be **October 31, 2017**.

N. Bid Guarantee (Refer to appraisal spreadsheet, TSCost Worksheet tab)

Bid Guarantee: **\$10,200**

O. Performance Bond Calculation (Refer to appraisal spreadsheet, TSCost Worksheet tab)

Bond Based on 10% of Advertised Stumpage Value: **\$11,000**

P. Distribution of Funds

Live & Dead ES and Other Conifer                      \$26.62/CCF x 3,801 CCF =    \$101,182.62

|   |                     |
|---|---------------------|
| Total Sale Value:                       | \$101,182.62        |
| Less Essential KV:                      | <u>(\$0.00)</u>     |
| Remainder available for NFF, KV or SSF: | <b>\$101,182.62</b> |
| Contribution to NFF (\$0.25/CCF):       | <u>(\$950.25)</u>   |
| Remainder available for KV:             | <b>\$100,232.37</b> |