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| **District:**  01 Blackduck | | | **Forest Type:**  102 Red Pine | | | **DFC:**  102 Red Pine | | |
| **EA Name:**  Sand Plains Pine | | | **Sale Name:** 638 Pilot Project | | | **PU#:** | | |
| **Legal Description:**  T.145N., R.30W., Sect. 10-12 | | | | | **Phase:** 02032/6: b11 02057/30+31: c11 | | | |
| **Landscape Ecosystem:**  Dry Pine | | | | | **Management Area:**  General Forest | | | |
| **Location** | **Stand** | **Stand Acres** | **Treatment Acres** | **Year of Origin** | **Ave BA (>5")** | **Ave DBH (>5")** | **Site Index** | **SIO** |
| 02032 | 6 | 16.3 | 16.3 | 1982 | 158 | 9 | 78.6 | Low |
| 02057 | 30 | 19.5 | 19.5 | 1981 | 118 | 9 | 68.4 | Low/Moderate |
| 02057 | 31 | 17.5 | 17.5 | 1984 | 150 | 7 | 67.6 | Moderate |

Prepared By: \_\_\_\_\_ Date: \_\_\_\_\_\_8-17-21\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Approved By: \_****\_\_\_\_ Date: \_\_\_\_\_\_1-25-2022\_\_\_\_\_\_\_\_\_\_\_\_\_

*Certified Silviculturist*

**Current Condition:** All stands are between 37 and 40 years old. All stands are red pine plantations with varying amounts of hardwoods. The terrain is relatively flat. Due to hand-brushing endeavors in recent years, the understory hazel is minimal.

**Tending History:** These stands were entry-level thinned in 2016 to retain live crown ratio, removing approximately 1/3 of the basal area. Brushing of overabundant hazel was done in 2017 and again in 2020. This work was done as a Tribal Forest Protection Act project.

**Directions:** To get to the stands from Cass Lake, travel east on U.S. Highway 2 for approximately 5 miles to Cass County Road 10 (Scenic Highway). Turn left and travel north for 1 mile to USFS Road 2352; project stands are located 0.8 and 2.1 miles east on USFS Road 2352.

DESIRED STAND CONDITION

**Short Term:** Continued aggressive thinning to improve growing conditions for remaining trees. Focus thinning around non-red pine species (notable hardwoods) growing within stand to free up growing space for individual trees and favoring diversity and climate change resistance. Free up growing space for increased understory reinitiation.

**Long Term:** Restore fire as an ecological component. Continue management to restore stand composition more indicative of Dry Pine stands: diversity of species, diameter, vertical structure and spacing. Fire should occur following next thinning, with a third thinning focusing on variable density (gap creation) to occur in about 5-10 years.

HARVEST AND MARKING GUIDES

**Harvest Method:** Commercial Thinning

Commercial thinning is an intermediate silvicultural treatment where individual trees would be removed throughout the stand to provide improved growing conditions for the remaining trees. For thinning on this project, a heavier emphasis would be placed on improving growing conditions for non-red pine species growing within the stand. Future thinning on this project would focus on variable density and gap creation.

**Marking Guides:** Cut primarily red pine. Access corridors were already established over the majority of this stand, but they are still required along travel ways. For access corridors along travel ways, create 14-20 foot-wide corridors every 25 or 50 feet. To preserve diversity, do not create corridors in any hardwood areas; shift corridors to go around hardwoods. As much as possible, follow the irregular shape of the boundary to improve visuals. Avoid long straight corridors, especially if they are visible from travel ways. Note: smaller diameter red pine should still be removed from along travel ways to allow for natural visuals into the stand.

This would be the second thinning of these stands, with the first thinning done in 2016. Remove approximately 1/3 of the basal area of red pine. Generally, thin from below, removing the smaller diameter red pine, trees with poor form and trees with a low crown ratio. Do not cut hardwoods or other non-red pine species. Remove red pine trees adjacent to these species to release them.

Retain all other species other than red pine for diversity. Leave all snags, trees with cavities and trees with broken tops; do not count these trees as part of the 2/3 basal area of red pine to be left. Residual red pine should be trees with good form and vigor, crown ratios >30%, balanced crowns, single top and free from insect/disease.

All harvesting is to be done in a progressive fashion; cutting must begin at the far edges of the sale and progress towards the landings.

**Layout Guides:** While removing smaller diameter red pine from near travel ways, ensure excessive paint is not facing the road.

**Sale Administration:**

* Lop and scatter 30% of the slash throughout all stands, keeping slash about 15 feet from residual trees. 70% of the slash would be piled at landings (1 pile per stand).
* Log landing, decked material and equipment should utilize the existing landings from the thinning done in 2016.

**Season of Operation:** To ensure the stands are ready for a prescribed (Rx) burn, the thinning must be done in spring or early summer; this will allow for scattered slash to properly dry and an Rx burn to be performed in early fall. Harvest activities must be done when conditions are dry.

**Heritage:** Stands 2057/30 and 2057/31 have known heritage sites. Check with heritage staff to ensure survey is up-to-date. All currently known and newly discovered sites will be protected. Proposed activities will not be implemented until necessary surveys have been completed and the Chippewa National Forest has received concurrence from the Leech Lake Band of Ojibwe Tribal Historic Preservation Office to proceed.

**Mitigations:** G-S-3, G-SC-4, LL-DVC-2, LL-DVC-5, LL-DVC-7

**G-S-3** Restrict activity to normal dry period (typically July 1st to Sept. 15th ) or when soil is frozen at a depth of 4 inches or more. G-WS-8 (Limitations Table (2-16)).

**G-SC-4** Scenic Quality – Evidence of temporary activities (such as staking, paint, flagging, equipment maintenance and staging areas) should be minimized or cleaned up immediately following project.

**LL-DVC-2** Protection of Scenic Corridors

Forest Plan guidance for scenic integrity objectives include: D-SC-1, D-SC-2, D-SC-3, O-SC-1, S-SC-1, G-SC-1, G-SC-2, G-SC-3, G-SC-4, G-SC-5, G-SC-6, G-SC-7, G-SC-8, G-SC-9, and G-SC-10.

**LL-DVC-5** Protecting the Cultural Integrity of the Leech Lake Band of Ojibwe

The Forest Service recognizes that this DVC is aligned with the Forest Plan, which contains specific direction in regard to meeting Tribal trust obligations, facilitating the exercise of treaty rights, and incorporating Tribal cultural resources, values, needs, interests, and expectations in forest management activities (Forest Plan D-TR-1, D-TR-3, O-TR-1, O-TR-3, O-TR-4, O-TR-5, S-TR-1, S-TR-3, S-TR-4, S-TR-5, S-TR-7, G-TR-2, and G-TR-3.

**LL-DVC-7** Restore Conifers to Ecological Functioning Systems

Management to benefit and increase conifers is consistent with forest-wide Forest Plan goals and objectives, specifically the desired conditions for vegetation management items (see Forest Plan D-VG-1, D-VG-2, D-VG-3, D-VG-6, O-VG-2, O-VG-7, O-VG-17). In addition, several Landscape Ecosystems have objectives to increase conifer forest types.

POST-HARVEST TREATMENTS

**Stand Establishment:** NA

**Site Preparation:** Any further necessary site preparations following harvest will be done to mitigate for planned Rx burn. This could include removing any ladder fuels and installing a fire ring around the project stands. This would tentatively occur in Summer 2022.

An additional thinning and burn would be planned in about 5-10 years when conditions warrant, potentially in 2027, focusing on variable density thinning and gap creation to promote fruiting shrubs that are currently largely lacking from these stands (notably juneberry, choke cherry and lowbush or velvetleaf blueberry).

**Reforestation:**  NA

**Cultural Operations:** Broadcast burn for fruiting shrub restoration. Following thinning and rx burn in 2027, fruiting shrubs suitable to the site should be planted in gap openings while avoiding areas of expanded blueberry production.

**Fire Use:** Restoration of fire ecology in fire dependent stands. Fire will be introduced to reduce fuel loading and to enhance berry shrub production.

**Rx Burn Management Objectives:**

1. Reduce fuel loadings over 70-80% of the area by consuming 70-100% of the 1-hour and 60-100% of the 10-hour fuels, assuming fuel is dry at time of burn.
2. Continued reduction of hazel brush density within the stands of >50% 2-years post-burn.
3. Acceptable mortality will vary. Across the entirety of each stand, up to 20% mortality (as a stand average) may occur, with localized spots of higher and lower mortality, 2 years post burn.
4. Restore fire to historically fire-dependent ecosystem to enhance berry shrub production.

ACTIVITY SCHEDULE

This 638 Pilot Project represents “Phase 2” of a larger project to restore Native Plant Community in Fire Dependent Pine. “Phase 1” was completed in 2016-2020 with a pine thinning to retain live crown (2016) and two brushing projects to decrease the hazel component within the project area (2017 and 2020). Residual trees have responded favorably to the thinning, exhibiting growth.

“Phase 2” would consist of a second thinning that would occur in spring/summer of 2022 to allow for adequate broadcast fuels for an Rx burn to take place in fall 2022, if NEPA is complete and site conditions are conducive to burning. This thinning will thin from below and remove from other species within the project to promote diversity.

Spring/Summer ’22

* Commercial Thin. Lop and scatter slash across site.

Following the second thinning, residual pine in the stand would average 10-12” DBH and the stands would have adequate space for heat release to allow for a prescribed burn. This Rx burn will coincide with LLBO’s TFPA Fire as well as a Chippewa National Forest Categorical Exclusion (CE) that covers the prescribed burning proposed in this project. This CE is expected to be approved soon, making this project a viable one to have a prescribed burn in fall 2022 (or 2023, depending on site conditions).

Following the Rx burn, native seed (such as aster, prairie rose, blueberry, Canada mayflower, strawberry, dewberry, false lily of the valley, dog bane, fly honeysuckle, pea, wood anemone, meadow rue, bedstraw, bracken fern, solidago (golden rod), blue hyssop, blue bells, grasses) would be dispersed over approximately ½ of the project area (e.g., on 1 side of the road in each payment unit). The seed requires a winter dormant season; we expect the following spring monitoring to begin to elicit results of the seeding. To ascertain true results, a couple of years of monitoring would be warranted.

Fall ’22 (if conditions are suitable)

* Rx Broadcast Burn to reduce fuel loading and hazel and restore fire.
* Native seed dispersal across approximately ½ of the project area following burn (e.g., on one side of the road in each payment unit).

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“Phase 3” of this project, following adequate ground flora and favorable residual tree response (in pine and hardwoods) would consist of a variable-density thinning to create larger openings and begin to plant fruiting shrubs (saplings) adequate for the site conditions within these openings. Following the variable-density thin and before planting any fruiting shrubs, another Rx burn of the project site should occur. The estimated timeline for this phase would be 2027.

Slash piles may be burned in the future after NEPA is complete.

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