Appendix B: Vegetation Management Plan

Restoration and Vegetation Management Plan For The Columbia Solar Project Sites
Kittitas County, Washington

October 5, 2017

SWCA Environmental Consultants
Seattle, Washington

RESTORATION AND VEGETATION MANAGEMENT PLAN FOR THE COLUMBIA SOLAR PROJECT SITES KITTITAS COUNTY, WASHINGTON

Camas Solar Project Site: Sections 18 and 19, Township 17 North, Range 19 East
Fumaria Solar Project Site: Section 9, Township 18 North, Range 18 East
Penstemon Solar Project Site: Section 17, Township 17 North, Range 19 East
Typha Solar Project Site: Section 30, Township 18 North, Range 18 East
Urtica Solar Project Site: Section 10, Township 17 North, Range 18 East

Report Prepared for

TUUSSO Energy, LLC

By
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October 5, 2017

Project Number 38727.05

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1 INTRODUCTION

TUUSSO Energy, LLC (TUUSSO), is proposing to construct the five new Columbia Solar Project photovoltaic (PV) facilities around the city of Ellensburg, Kittitas County, Washington. The solar projects are all located on private land that is currently in active agriculture or fallow pastoral land. As part of the development of the project sites, TUUSSO would restore and revegetate all areas disturbed by the project that would not be occupied by impervious surfaces, such as roads and transformers, under the terms of the lease with each landowner and as agreed to with the Washington Energy Facility Site Evaluation Council.

The Restoration and Vegetation Management Plan (Plan) has been prepared to guide revegetation efforts associated with the five Columbia Solar Project sites. Native, low-growing, drought-tolerant seed mixes would be utilized throughout the majority of the solar sites to help re-establish vegetation, with seeding methods, planting plans, and weed control techniques developed specifically for the different areas of the solar sites to meet the project needs. Monitoring of the restoration and revegetation actions would be conducted in the years following seeding and planting to ensure the sites meet goals set forth in this plan and to prevent erosion, including recommended remedial action should initial revegetation efforts prove unsuccessful in certain areas.

This plan describes the current site conditions (Chapter 2) and the procedures for restoration and revegetation of the sites (Chapter 3). Monitoring procedures and success criteria for revegetation are defined in Section 3.5.

2 PROJECT AREA

2.1 Project Description

The major project construction and site management activities associated with the Columbia Solar Project that would have an effect on the management of vegetation are described below.

Site Grading

Grading for each of the five Columbia Solar Projects would be minimal and would be isolated to the all-weather access roads (as needed), inverter pads, and switchyard pads to accommodate interconnection equipment. The all-weather access roads would be relatively flat and would be graded to match existing conditions to minimize earthwork. Inverter pads would be placed throughout each solar project site, each of which would be approximately 15 by 30 feet and 1 to 2 feet thick. Each of these pad areas would be leveled and poured with concrete. The switchyard and inverter pads would require a minimum of 90% relative compaction.

No export of soil is anticipated for any of the five Columbia Solar Project sites. At the conclusion of construction, all disturbed areas surrounding graded areas would be remediated through reseeding with native low cover grass vegetation.

Landscaping

Per the recommendation of the Washington Department of Fish and Wildlife, each of the five Columbia Solar Project sites, except for the Fumaria Solar Project site, would be revegetated with low cover native vegetation. This vegetation would be planted from drought-tolerant seed mixes, adapted to the Kittitas County climate. Each solar project has been designed to minimize disturbed areas by keeping grading to a minimum. The Fumaria Solar Project site has very limited water availability, so TUUSSO plans to leave

the existing grasses on-site, to the extent possible; however, some revegetation would be necessary in areas disturbed by construction activities.

To effectively establish the native vegetation, TUUSSO would undertake mowing, herbicide treatments, tilling, drilling seeds, and irrigation during the first 2 years of operations. Subsequent broadleaf treatments during Years 2 and 3 after construction would be undertaken to prevent broadleaf weeds from competing against the newly planted native vegetation. Formal landscaping is not proposed for any of the solar project sites, as the amount of proposed grading does not warrant a full landscape design. The plantings planned in some areas of the solar project sites outside of the proposed perimeter fencing are described in greater detail later in this plan.

Perimeter Fencing

The five proposed Columbia Solar Project sites would be secured using 6- to 8-foot-high, perimeter, chain-link fencing topped by razor wire surrounding the PV systems and switchyards. The entrance gates for each of the solar sites would be about 8 feet high and 12 feet wide, to allow for fire department and maintenance access. All fencing would be placed at or above grade to ensure drainage flows are unobstructed. In areas of the fence that are visible from public areas, such as roads, tree and shrub plantings are planned along the outside of the fencing to create a visual barrier.

Fire Suppression and Safety

Combustible vegetation on and around each of the five Columbia Solar Project boundaries would be maintained by TUUSSO and the landowner, and each solar project site would include fire breaks around the project boundary, in accordance with state and/or county standards, as applicable.

2.2 Geology and Soils

According to the Natural Resource Conservation Service (NRCS), the Columbia Solar Project sites include 16 different soil map units (Table 1). These soil map units range from somewhat poorly drained to well drained. Only the Weirman-Kayak-Zillah complex soil unit is on the National Hydric Soils list (NRCS 2015), which is a list of soils that can be indicative of saturated, flooded, or ponded areas that could meet the definition of a hydric soil. A major concern during construction would be wind erosion for areas with exposed soil. The Wind Erodibility Index in Table 1 indicates the tons per acre per year that can be expected to be lost to wind erosion based on soil texture and the relationship of dry soil aggregates greater than 0.84 mm to potential erosion rates of 0 to 310 tons/acre/year from a wide, bare field. The average Wind Erodibility Index is: 56 for the Camas Solar Project site, 52 for the Fumaria Solar Project site, 52 for the Penstemon Solar Project site, 65 for the Typha Solar Project site, and 56 for the Urtica Solar Project site. For this reason, TUUSSO plans on watering exposed soils during construction to reduce soil loss through wind erosion and reduce localized air quality issues from airborne dust. Permanent and temporary effects to vegetation from construction would occur primarily on active agriculture and fallow fields.

Table 1. Soil Mapping within Each Columbia Solar Project Site

Map Unit Symbol	Map Unit Name	Percent of Site (%)	Hydric	Wind Erodibility Index (tons/acre/year)
Camas Solar Project Site				
635	Opnish ashy loam, 0%–2% slopes	1.5	No	56
791	Mitta ashy silt loam, drained, 0%–2% slopes	80.3	No	56
838	Nosal ashy silt loam, 0%–2% slopes	18.2	No	56
Fumaria Solar Project Site				
822	Reeser-Reelow-Sketter complex, 2%–5% slopes	94.5	No	48–56
843	Reelow-Reeser-Sketter complex, 2%–10% slopes	5.4	No	48–56
844	Metmill very gravelly ashy loam, 0%–5% slopes	0.1	No	38
Penstemon Solar Project Site				
410	Tanaha ashy loam, 0%–2% slopes	1.2	No	56
589	Nack-Brickmill complex, 0%–5 slopes	32.4	No	48–56
635	Opnish ashy loam, 0%–2% slopes	3.1	No	56
720	Nanum ashy sandy clay loam, 0%–2% slopes	0.5	No	86
789	Deedale clay loam, 0%–2% slopes	33.2	No	48
791	Mitta ashy silt loam, drained, 0%–2% slopes	29.6	No	56
Typha Solar Project Site				
715	Weirman gravelly sandy loam, 0%–2% slopes	34.7	No	56
791	Mitta ashy silt loam, drained, 0%–2% slopes	3.5	No	56
809	Weirman-Kayak-Zillah complex, 0%–2% slopes	49.7	Yes	48–134
838	Nosal ashy silt loam, 0%–2% slopes	12.0	No	56
Urtica Solar Project Site				
481	Nanum ashy loam, 2%–5% slopes	1.5	No	56
601	Brickmill gravelly ashy loam, 0%–2% slopes	30.4	No	56
609	Ackna ashy loam, 0%–2% slopes	52.0	No	56
801	Brysill cobbly ashy loam, 0%–2% slopes	16.2	No	56

Source: NRCS (2015) and (2017a).

2.3 Land Use

Each of the five Columbia Solar Project sites is active or fallow agricultural land, and each site would be substantially converted to use as a new PV solar facility for the approximate 30-year life of the project, and the associated leases with the private property owners. Current uses of each site include:

- Camas Solar Project site – 51.2 acres of active agricultural land, growing alfalfa
- Fumaria Solar Project site – 35.2 acres of fallow agricultural land
- Penstemon Solar Project site – 39.4 acres of active agricultural land, growing Sudangrass
- Typha Solar Project site – 54.3 acres, primarily consisting of fallow agricultural land (formerly irrigated and grazed pasture)

- Urtica Solar Project site - 51.9 acres, primarily consisting of active agricultural land, growing common timothy

2.4 Environmental Conditions

The Columbia Solar Project sites are predominantly active or fallow agricultural fields dominated by non-native grasses and forbs, with some noxious weed species scattered throughout. The Ellensburg area generally experiences only 8.97 inches of rainfall annually and has a growing season of 173 days from April 20 to October 10, according to the closest wetlands climate analysis (WETS) climate station, the Ellensburg National Weather Service (NWS) station (NRCS 2017b).

The noxious weeds present on the Columbia Solar Project sites are categorized as either Class A, B, or C Weeds based on the Washington State Noxious Weed Control Board (Washington State Noxious Weed Board 2017). Listed noxious weeds observed on the Columbia Solar Project sites include spotted knapweed (*Centaurea stoebe*), Canadian thistle (*Cirsium arvense*), yellow nutsedge (*Cyperus esculentus*), Queen Anne's-lace (*Daucus carota*), Fuller's teasel (*Dipsacus fullonum*), hairy cat's-ear (*Hypochaeris radicata*), pale-yellow iris (*Iris pseudacorus*), scotch thistle (*Onopordum acanthium*), reed canary grass (*Phalaris arundinacea*), field sow-thistle (*Sonchus arvensis*), and false mayweed (*Tripleurospermum maritimum*). The prevalence of these species on a scale from 1 (low) to 5 (high) at each of the sites, along with the Washington State Weed Control Board weed classification for each of these species, is listed in Appendix A.

The dominant vegetation at each of the Columbia Solar Project sites are listed below:

Camas Solar Project Site

The Camas Solar Project site primarily consists of actively managed agriculture for growing alfalfa (*Medicago sativa*). Some species of weeds and non-native herbaceous species occur around the edges of the agricultural land and in the interspace between planted alfalfa, including downy cheat grass (*Bromus tectorum*), common dead-nettle (*Lamium amplexicaule*), prickly lettuce (*Lactuca serriola*), garden yellow-rocket (*Barbarea vulgaris*), hairy cat's-ear, and common dandelion (*Taraxacum officinale*), with some native species, such as common panic grass (*Panicum capillare*) and Gorman's desert-parsley (*Lomatium gormanii*). The portion of the study area north of Bull Ditch is dominated by mowed reed canary grass and blue grass (*Poa* spp.).

Fumaria Solar Project Site

The Fumaria Solar Project site is an upland terrace that was previously heavily grazed. Irrigation ditches border the project site on the west and south. The plant community is dominated by weeds and non-native herbaceous species in upland areas, including tall fescue (*Schedonorus arundinaceus*), blue grass, alfalfa, shepherd's-purse (*Capsella bursa-pastoris*), garden yellow-rocket, prickly lettuce, yellow salsify (*Tragopogon dubius*), chicory (*Cichorium intybus*), common dandelion, and downy cheat grass. Portions of the project site have native sagebrush habitat encroaching from the east with the establishment of native species, including bitter-brush (*Purshia tridentata*), big sagebrush (*Artemisia tridentata*), common spring-gold (*Crocidium multicaule*), spring draba (*Draba verna*), yellow bell (*Fritillaria pudica*), Gorman's desert-parsley, and Rainier violet (*Viola trinervata*). In addition, the site has patches of noxious weeds, including hairy cat's-ear, spotted knapweed, Canadian thistle, Fuller's teasel, and reed canary grass.

Penstemon Solar Project Site

The Penstemon Solar Project site primarily consists of actively managed agriculture for growing broom-corn (*Sorghum bicolor*). The majority of the site is currently plowed and un-vegetated, except along Coleman Creek where the riparian vegetation is dominated by reed canary grass, prickly lettuce, common yarrow (*Achillea millefolium*), Canadian thistle, Canadian goldenrod (*Solidago canadensis*), great mullein (*Verbascum thapsus*), garden yellow-rocket, downy cheat grass, black hawthorn (*Crataegus douglasii*), Nootka rose (*Rosa nutkana*), and crack willow (*Salix* X *fragilis*).

Typha Solar Project Site

The Typha Solar Project site consists of irrigated and grazed pasture along the right bank (when facing downstream) of the Yakima River. The site is currently dominated by weeds and non-native herbaceous species in upland areas, including tall fescue, blue grass, remnant planted common timothy (*Phleum pratense*), garden yellow rocket, hairy cat's-ear, common dandelion, and white clover (*Trifolium repens*). In addition, the site has patches of noxious weeds, including Canadian thistle, Scotch thistle, yellow nutsedge, and reed canary grass.

Urtica Solar Project Site

The Urtica Solar Project site primarily consists of actively managed agriculture for growing common timothy hay with a highly manipulated stream (formerly called McCarl Creek) that flows south of two ponds in the western portion of the site and through the northeastern quarter of the project site. In addition, a farm road bisects the project site, crossing the site from east to west and passing over McCarl Creek just east of the ponds. Some species of weeds and non-native herbaceous species occur around the edges of the agricultural land, along the sides of the farm road, and in the interspace between planted timothy, including tall fescue, blue grass, creeping wild rye (*Elymus repens*), colonial bent grass (*Agrostis capillaris*), white clover, hairy cat's-ear, and common dandelion. In addition, there are areas adjacent to McCarl Creek in the northeastern quarter of the project site that are dominated by reed canary grass.

3 RESTORATION AND REVEGETATION

3.1 Site Restoration

All of the Columbia Solar Project sites are relatively flat and would not require grading, except in the areas of the proposed access and interior roads and at the site entrance. The majority of the sites would also have some ground disturbance throughout for installing the solar panels and associated infrastructure. At the completion of construction, areas requiring any intensive restoration and remediation would be identified. These would likely include areas such as the laydown areas that may have experienced unexpected erosion from traffic or vegetation that had been disturbed by construction equipment or on-site stored generating equipment pallets. Any such areas would be restored to pre-construction levels using fill soil from within the site. Revegetation would be conducted as necessary to reduce erosion and establish a native ground cover.

3.2 Revegetation

The Columbia Solar Project sites would be constructed with the existing contours and topography of the land. For those limited areas that were cleared and grubbed, water trucks would be employed to keep dust to a minimum. As the proposed roads were compacted for construction, soil binding agents and/or aggregate would be laid down to control the dust. After construction is complete, interior roads other

than the all-weather access roads would be plowed and re-seeded with a native, low-lying, drought-tolerant plant mix that requires little maintenance and would help control dust.

The following methods are to be used for all areas of temporary ground and/or vegetation disturbance in the upland habitats that require revegetation. No permanent or temporary disturbance to wetland habitats is expected as part of the proposed construction and operation of the Columbia Solar Project sites, except for approximately 0.01 acre of permanent wetland fill during construction of a culvert or land bridge for site access across an existing wetland, TW03, for the Typha Solar Project.

In addition, plantings of trees and saplings would occur along the outside of select portions of the proposed perimeter fence that would surround most of the proposed solar sites to create a visual barrier from roads and neighboring properties. These plantings would occur in conjunction with the rest of the revegetation of the sites. Revegetation throughout the remainder of the sites would be conducted through seeding herbaceous species.

Following seeding and planting, the annual water use on the solar project sites would likely be similar to the current level of water use on the active agriculture sites, which is estimated to be approximately 400 acre-feet of water per acre per year. Each of the Columbia Solar Project sites, except for the Fumaria Solar Project site, has on-site existing water allocations that TUUSSO may be able to use during operation for irrigation purposes. Given the costs of trucking water from a municipal water source to each of the sites, TUUSSO would likely only pursue such a water source for irrigation needs for the Fumaria Solar Project site. Full revegetation of the sites would likely take 3 years.

3.2.1 Site Preparation

During and following the construction associated with the Columbia Solar Project sites, the sites would also be prepared for seeding and planting though the following actions:

Year 1 – Spring

- Mowing (at Fumaria and Typha Solar Project sites only prior to solar structure installation)
- Herbicide treatments (at all sites to control non-native and noxious weeds)
- Disk/till (at all sites)

Year 1 – Fall

- Pre-planting weed control (at all sites)
- Seedbed preparation (at all sites)
- Drill seeding using the upland seed mix (at all sites) and the wetland seed mix (at Typha and Urtica Solar Project sites only).

3.2.2 Seeding

Two different seed mixes are proposed to be used throughout the Columbia Solar sites, an upland seed mix at all five solar sites and a wetland seed mix in wetland areas at the Typha and Urtica solar sites. The two seed mixes include the following herbaceous species:

Uplands: Sandberg blue grass (*Poa sandbergii*), bluebunch fescue (*Festuca idahoensis*), red fescue (*Festuca rubra*), spike bent grass (*Agrostis exarata*), and prairie junegrass (*Koeleria macrantha*).

Wetlands: slender hair grass (*Deschampsia elongata*), fowl manna grass (*Glyceria striata*), spike bent grass, and Baltic rush (*Juncus balticus*).

These seed mixes would be applied using the drill seeding method at about 12 pounds of seed per acre in the fall of Year 1. The proposed seeding and planting lists are provided by BFI Native Seeds LLC in Appendix B.

3.2.3 Tree and Shrub Planting

A portion of the Columbia Solar Project sites would include tree and shrub planting outside of the proposed perimeter fence to create a visual barrier from roads and neighboring properties. This planting would include the following species: woods' rose (*Rosa woodsii*), golden currant (*Ribes aureum*), black hawthorn, red osier dogwood (*Cornus alba*, formerly known as *Cornus sericea*), and mockorange (*Philadelphus lewisii*). These species would be planted in sufficient quantity and density to establish a visual buffer within 5 years. Planting of these species would occur after the perimeter fence is installed.

The proposed seeding and planting lists are provided by BFI Native Seeds LLC in Appendix B.

3.3 Weed Control

During the site preparation, seeding/planting, and site operation, noxious weeds would need to be continuously monitored and managed to reduce their prevalence at the sites and prevent the spread of these weeds to other areas of the site. The prevalence of each noxious weed species on a scale from 1 (low) to 5 (high) at each of the sites, along with the Washington State Weed Control Board weed classification for each of these species, is listed in Appendix A.

Application of herbicides to control noxious weeds should adhere to the types and rates recommended for each particular weed species listed in the *Pacific Northwest Weed Management Handbook* (Prather et al. 2016).

The following management actions would take place in Years 2 and 3, following seeding and planting native vegetation to aid in the control of noxious weeds and non-native species encroachment:

<u>Year 2 – Spring and Summer</u>

- Post-planting broadleaf herbicide treatment (at all sites)

<u>Year 3 – Spring and Summer</u>

- Post-planting broadleaf herbicide treatment (at all sites)

3.4 Operational Vegetation Management

After initial site preparation and seeding and planting of the Columbia Solar Project sites, regular site operations would involve continual vegetation management. TUUSSO would utilize water conservation methods, which may include working with the current landowners to incorporate more efficient irrigation systems, such as drip lines, to water the trees and shrubs forming the visual buffers. The drought-tolerant species that would be seeded on the site would ensure that, once established, they would not require any further watering except in extreme drought conditions. Regular operational vegetation management operational actions would likely involve the following:

- Annual revegetation monitoring for a minimum of 5 years or until the revegetation is deemed successful based on the defined success criteria.
- Herbicide treatments on noxious weeds, as necessary in areas of encroachment.
- Watering shrubs and trees in the visual barriers during drought conditions to prevent plant mortality.

3.5 Monitoring

3.5.1 Procedures

In June or July of the year following each seeding/planting event, and continuing for a minimum of 5 years or until restoration and/or revegetation is deemed successful, a qualified independent botanist or revegetation specialist would examine a representative cross section of the revegetated areas. Care would be taken to survey areas throughout the geographic extent of the solar project sites and around the perimeter fences where shrub and tree planting visual barriers were planted. A minimum of 20% of the revegetated acreage would be examined.

At each survey area, the revegetation investigator would evaluate the following parameters:

- Percent cover for the following three classes: native forbs and grasses, non-native forbs and grasses, and bare ground.
- Planted shrub and tree mortality percent in visual barrier planting areas.
- Degree of erosion due to the construction activities (high, medium, or low).

3.5.2 Success Criteria

For each site other than the Fumaria Solar Project site, the areas of the Columbia Solar Project sites that would not be occupied by impervious surfaces would be deemed successfully revegetated when total cover of all vegetation exceeds 35%, and at least 25% of the ground surface is covered by native species. For the Fumaria Solar Project site, the areas that would not be occupied by impervious surfaces would be deemed successfully revegetated when total cover of all vegetation exceeds 35%. No shrub or tree plantings would occur within the perimeter fences of the solar project sites. The visual barriers established around the outside of the site perimeter fences on some of the solar sites would be considered successful when at least 25% of the shrub and tree saplings survive after Year 2 of revegetation. In the event that success criteria are not met for a site, additional reseeding or replanting of those areas may be necessary.

4 ADAPTIVE MANAGEMENT

Management of the restoration activities and on-going vegetation management would follow adaptive management practices. Therefore, additional amendments to this plan may occur if specific site conditions warrant an alteration to this plan. TUUSSO would coordinate any updates to this plan with any sub-contractors involved in the management of the Columbia Solar Project sites.

5 LITERATURE CITED AND REVIEWED

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APPENDIX A: NOXIOUS WEED PREVALENCE AT EACH COLUMBIA SOLAR PROJECT SITE

TUUSSO Solar Projects
Noxious Weed List
April 3 - 12, 2017

Common Name	Scientific Name	Native / Introduced and Invasive / Noxious[1]	Weed Class[2]	Weed Relative Prevalence at Each Site (1=low, 5=high)				
				Camas	Fumaria	Penstemon	Typha	Urtica
spotted knapweed	*Centaurea stoebe*	noxious	B		1			1
Canadian Thistle	*Cirsium arvense*	invasive, noxious	C	2	1	2	3	1
Chufa (yellow nutsedge)	*Cyperus esculentus*	native, noxious	B		1		1	
Queen Anne's-Lace	*Daucus carota*	non-native	C					1
Fuller's Teasel	*Dipsacus fullonum*	invasive, noxious	C	1	1	1	1	2
Hairy Cat's-Ear	*Hypochaeris radicata*	non-native, noxious	C	3	3	1	3	3
Pale-Yellow Iris	*Iris pseudacorus*	noxious	C	2				
scotch thistle	*Onopordum acanthium*	noxious	B	1			3	1
Reed Canary Grass	*Phalaris arundinacea*	invasive, noxious	C	3	1	2	2	3
Field Sow-Thistle	*Sonchus arvensis*	non-native, noxious	C		1			
False Mayweed	*Tripleurospermum maritimum*	non-native, noxious	C	1			1	

[1]Native per Hitchcock & Cronquist 1973 and http://plants.usda.gov/; Noxious per Washington State Noxious Weed Control Board 2017

[2]Weed classes from Washington State Noxious Weed Control Board 2017 - see below for descriptions

Washington State Weed Class Descriptions	
Class A Weeds	Non-native species whose distribution in Washington is still limited. Preventing new infestations and eradicating existing infestations are the highest priority. **Eradication of all Class A plants is required by law.**
Class B Weeds	Non-native species presently limited to portions of the State. Species are designated for control in regions where they are not yet widespread. Preventing new infestations in these areas is a high priority. In regions where a Class B species is already abundant, control is decided at the local level, with containment as the primary goal. Please contact your Weed District Coordinator to learn which species are designated in your area.
Class C Weeds	Noxious weeds that are typically widespread in WA or are of special interest to the state's agricultural industry. The Class C status allows counties to require control if locally desired. Other counties may choose to provide education or technical consultation.

APPENDIX B: PROPOSED SEEDING AND PLANTING LISTS

PROPOSAL

#: 6192017

1550 Pilgrim Street, Suite A
Moses Lake, WA 98837
www.bfinativeseeds.com

To: Vivek Nayak, Jason Evans and Joy Potter
Tuusso Energy
vivek.nayak@tuusso.com; jason.evans@tuusso.com;
pcg@fairpoint.net

Bid Date: 6/12/2017
Project: Tuusso Solar- Ellensburg
Contract #:

Contract Line Item	Description	Qty.	Units	Price***	Total
1	Mow (Fumaria, Typha) -Spring/March 2018 *(without structures in place)*	85	acres		
2	Spring herbicide treatment (All) -Spring/March 2018*	207	acres		
3	Disc/Till (All)- Spring 2018*	207	acres		
4	Mid summer followup herbicide treatment (All)*	207	acres		
5	Pre-planting Weed Control (All) -Fall 2018*	207	acres		
6	Ringpacker/Seedbed Prep	207	acres		
7	Fall 2018 Seed Mix -12#/acre				
	Upland	193	acres		
	Wetland	14	acres		
10	Drill Seed	207	acres		
11	Spring post-plant broadleaf treatment (All) -2019**	207	acres		
12	Midsummer post-plant broadleaf treatment (All) -2019**	207	acres		
13	Spring post-plant broadleaf treatment (All) -2020**	207	acres		
14	Midsummer post-plant broadleaf treatment (All) -2020**	207	acres		
15	Visual Barrier Plants/Installation -Urtica and Penstemon				
16	Urtica Wetland Restoration				
	*Costs will decrease if task can be accomplished without structures in place				
	**Optional				

TIN: 91-1717470 Benson Farms Inc.

Subtotal	
Tax	
Shipping	
TOTAL	

We look forward to working with you!

Katherine Fitch (509)-201-6093 - kfitch@bfinativeseeds.com
Brandon Price (509) 750-2376

NOTE: TUUSSO has not committed to wetland restoration on the Urtica Solar Project site.
*****Pricing has been redacted.**

Tuusso Solar Project Seed Pricing

SEED

Fumaria
36 acres

Bio-Type	Scientific Name	Common Name		% Comp	Lbs/Acre	Price/Lbs	Price/Acre
Upland							
Entiat/Chelan	*Poa sandbergii*	Sandberg bluegrass		40%	4		
Entiat/Chelan	*Festuca idahoensis*	Idaho fescue		20%	3		
GP	*Festuca rubra*	red fescue		10%	1		
Upper Yakima	*Agrostis exarata*	spike bentgrass		15%	2		
Sinlahekin	*Koeleria macrantha*	prairie junegrass		15%	2		
			Total	**100%**	**12**		
						Total for 36 acres	

Typha
50 acres: 40 acres Upland, 10 acres Wetland

Bio Type	Scientific Name	Common Name		% Comp	Lbs/Acre	Price/Lbs	Price/Acre
Upland							
Entiat/Chelan	*Poa sandbergii*	Sandberg bluegrass		40%	4		
Entiat/Chelan	*Festuca idahoensis*	Idaho fescue		20%	3		
GP	*Festuca rubra*	red fescue		10%	1		
Upper Yakima	*Agrostis exarata*	spike bentgrass		15%	2		
Sinlahekin	*Koeleria macrantha*	prairie junegrass		15%	2		
			Total	**100%**	**12**		
						Total for 40 acres	

Bio Type	Scientific Name	Common Name		% Comp	Lbs/Acre	Price/Lbs	Price/Acre
Shrub/forest wetland mix							
Upper Yakima	*Deschampsia elongata*	slender hairgrass		65%	7.8		
Willamette	*Glyceria striata*	fowl mannagrass		18%	2.2		
Upper Yakima	*Agrostis exarata*	spike bentgrass		10%	1.2		
	Juncus balticus	Baltic rush		7%	0.8		
			Total	**100%**	**12**		
						Total for 10 acres	

Tuusso Solar Project Seed Pricing

Urtica

50 acres: 43 acres upland, 7 arces wetland (in production- Timothy)

Bio Type	Scientific Name	Common Name		% Comp	Lbs/Acre	Price/Lbs	Price/Acre
Upland							
Entiat/Chelan	*Poa sandbergii*	Sandberg bluegrass		40%	4		
Entiat/Chelan	*Festuca idahoensis*	Idaho fescue		20%	3		
GP	*Festuca rubra*	red fescue		10%	1		
Upper Yakima	*Agrostis exarata*	spike bentgrass		15%	2		
Sinlahekin	*Koeleria macrantha*	prairie junegrass		15%	2		
			Total	**100%**	**12**		
						Total for 32 acres	
Shrub/forest wetland mix							
Upper Yakima	*Deschampsia elongata*	slender hairgrass		65%	7.8		
Willamette	*Glyceria striata*	fowl mannagrass		18%	2.2		
Upper Yakima	*Agrostis exarata*	spike bentgrass		10%	1.2		
	Juncus balticus	Baltic rush		7%	0.8		
			Total	**100%**	**12**		
						Total for 7 acres	

Penstemon

37 acres (in production- sudan grass)

Bio Type	Scientific Name	Common Name		% Comp	Lbs/Acre	Price/Lbs	Price/Acre
Upland							
Entiat/Chelan	*Poa sandbergii*	Sandberg bluegrass		40%	4		
Entiat/Chelan	*Festuca idahoensis*	Idaho fescue		20%	3		
GP	*Festuca rubra*	red fescue		10%	1		
Upper Yakima	*Agrostis exarata*	spike bentgrass		15%	2		
Sinlahekin	*Koeleria macrantha*	prairie junegrass		15%	2		
			Total	**100%**	**12**		
						Total for 37 acres	

Tuusso Solar Project Seed Pricing

Camas

37 acres (in production- alfalfa)

Bio Type	Scientific Name	Common Name	% Comp	Lbs/Acre	Price/Lbs	Price/Acre
Upland						
Entiat/Chelan	*Poa sandbergii*	Sandberg bluegrass	40%	4		
Entiat/Chelan	*Festuca idahoensis*	Idaho fescue	20%	3		
GP	*Festuca rubra*	red fescue	10%	1		
Upper Yakima	*Agrostis exarata*	spike bentgrass	15%	2		
Sinlahekin	*Koeleria macrantha*	prairie junegrass	15%	2		
		Total	**100%**	**12**		
					Total for 37 acres	

Tuusso Solar Project View Shed Plants

Urtica and Penstemon View Shed Plants and Installation Price List

2200 linear feet

Item No.	Scientific Name	Common Name	Type	Units	Price Per Unit	Price
1	*Rosa woodsii*	Wood's rose	225	tallpots		
2	*Ribes aureum*	golden currant	100	tallpots		
3	*Crataegus douglassii*	Douglas' hawthorne	80	tallpots		
4	*Cornus sericea*	Red-osier dogwood	100	tallpots		
5	*Philadelphis lewisii*	mock orange	225	tallpots		
6	Plant Installation		730	plant		
					TOTAL	

Tuusso Solar Urtica Wetland Project

Urtica Wetland Plants and Installation Price List

Urtica 7 acres wetland, 1600 linear feet of watersedge

Item No.	Scientific Name	Common Name	Type	Units	Price Per Unit	Price
	Trees					
1	*Crataegus douglassii*	Douglas' hawthorne	18"-36" bare root	**40**		
2	*Populus balsamifera ssp. trichocarpa*	Black cottonwood	18"-36" bare root	**400**		
4	*Prunus virginiana*	Chokecherry	40 ci container	**50**		
7	*Prunus emarginata*	Bitter cherry	40 ci container	**60**		
	Shrubs					
8	*Ribes aureum*	Golden currant	18"+ bare root	**100**		
9	*Ribes cereum*	Wax currant	18"-36" bare root	**50**		
10	*Rosa woodsii*	Wood's rose	12"-18" bare root	**950**		
11	*Symphoricarpos albus*	Snowberry	12"-18" bare root	**150**		
12	*Salix exigua*	Coyote willow	24"-36" live stake	**1250**		
16	*Cornus sericea*	Red-osier dogwood	12"-18" bare root	**800**		
17	*Salix scouleriana*	Scouler's willow	40 ci container	**200**		
18	Plant Installation		**Total**	**4050**		
	Materials					
19	Tree Pro - Weed Mats (36" x 36"), with staples			**2,800**		
					Sub-Total	