

5/5/98

Emily,

I have been asked
to forecast costs for
the cover vegetation.

I have developed
the attached forecast.
I sent a copy to Mark
Please let me know
if you disagree with
this forecast.

Agnie OR

PER ACRE COST ESTIMATE - COVER VEGETATION FOR ST. JOHNS LANDFILL

Primary objective: erosion prevention; secondary objective: open meadow habitat

NATIVE VEGETATION

ESTABLISHMENT COST PER ACRE

Summer

*Test soil (chemistry, texture & seedbank)	233
*Harvest native plant seed	100

Fall

*Apply herbicide to plots	150
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Winter

*Test soil (compaction and depth)	assume 0
*Test soil microflora	assume 0
*Additional application of herbicide	150
* Clean//test native grass seed	167

Spring

*Additional application of herbicide	150
*Order additional seed	167
*Order treatment supplies	250

Summer

*Irrigate to sprout remaining seedbank	1000
*Disc to destroy sprouts and expose more seedbank	33
*Additional application of herbicide	150

Fall

*Additional application of herbicide	150
*Drill seed and apply mycorrhizal treatment	1667

Spring

*Maintain as needed	167
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Summer

*Harvest seed	100
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Consultant cost per acre (inspections, monitoring, evaluation report (assume \$10,000 per 50 acre establishment phase)	200
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Establishment cost per acre using herbicide	4834
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Establishment cost per acre using tillage and no herbicide (assume 3 added discing events: add \$99, subtract \$600)	4333
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Establishment cost per acre using solarization and no herbicide (add \$2600, subtract \$600)	6834
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MAINTENANCE COST PER ACRE PER YEAR

Mowing 1-2 times per year for fire prevention	75 - 150
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Control of invasive and noxious weeds (options)

Hand hoeing once per year	200
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Herbicide spot spraying once per year	63
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High mowing 4 times per year	300
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Maintenance cost per acre per year with hand hoeing	275 - 350
Maintenance cost per acre per year with herbicide spot spraying	138 - 213
Maintenance cost per acre per year with high mowing	375 - 450

ROUGH TURF GRASS

ESTABLISHMENT COST PER ACRE

Test soil (chemistry, texture, and seedbank)	233
Low mow	75
Apply herbicide	150
Seed with disc seeder	150
Fertilize in fall	63
Fertilize in spring	49
Lime, Highcal 90	0 - 90

Establishment cost per acre using herbicide	720 - 810
Establishment cost per acre using 3 discing events(add 99, subtract herbicide@150)	669 - 759

MAINTENANCE COST PER ACRE PER YEAR

Fertilize:	
Fall	63
Spring	47
Lime, Highcal 90	0 - 93
Mow 2 - 4 times per year for fire prevention	150 - 300

Control of invasive and noxious weeds (options)	
Hand hoeing once per year	200
Herbicide spot spray once per year	63
High mowing 4 times per year	300

Maintenance cost per acre per year with hoeing	460 - 703
Maintenance cost per acre per year with herbicide spot spray	323 - 566
Maintenance cost per acre per year with high mowing	560 - 803

ASSUMPTIONS AND NOTES

1. Material and method costs for native plant establishment were taken from Establishment of Native Vegetation at St. Johns Landfill, Project Overview and Phase 1 Work Guidelines and Cost Estimates, Final Draft, February 1998 by Wilson, Brophy, and Wilson. Costs are conservative but assume success in establishing native plants using mycorrhizae inoculation..
2. Costs are for establishment of two native grasses and one legume. There will be added costs for attempting to establish more species of native plants.
3. "Establishment" is defined as making capable of reproducing. This was the consensus of opinion at the Smith and Bybee Lake Technical Advisory Committee Meeting of 3/18/98. Therefore, establishment costs do not include costs for sustaining a native dominant vegetation community on a long term basis in the face of competitive pressure from non-native plants.

4. Solarization cost quoted by Laura Brophy at October 6, 1997 Management Committee meeting as coming from Janell Davis based on the 1994 experiment. Mark Wilson says material alone is about \$700 per acre.
5. According to consultants, invasive and noxious weeds may be controllable by high-mowing (4 times per year), hand hoeing, or spot spraying with herbicide. Hand hoeing at \$200 per acre per year based on Emily Roth estimate.
6. Estimate of mowing cost from Janell Davis (per acre, per mowing). Assumption of one mowing per year for native grass comes from 1992 vegetation plan. As of late April 1998 native grass (Bromus) plots average 3 feet high according to Janell Davis. She believes that Bromus may require as many as two mowings per year. Bromus is relatively unpalatable to sheep so no assumption of mowing by sheep.
7. Turf grass fertilizer cost assumes 24-4-16, 50% slow release.
8. Mowing costs for turf grass: low value assumes twice per year one of which is just before fire risk season; high value assumes four times per year one of which is just before fire season. Janell Davis believes that sheep grazing in spring reduces mowing to two times per year from four times per year..
9. Lime costs assume either no liming needed or once per year depending on soil pH.
10. Turf grass establishment and maintenance costs based on information from representatives of Clark County Public Works Dept., City of Portland Park Bureau, Wilber Ellis fertilizer and lime applicator, and Oregon Department of Transportation.