

PRESCRIPTION 1: MIXED FOREST EDGE PLANTING LIST						
QTY	Botanical Name	Common Name	HT (cm)	Root	Spacing	Mix %
Deciduous Trees						
48	<i>Acer saccharum</i>	Sugar Maple	40-60cm	2 GAL	3m O.C.	25%
48	<i>Betula papyrifera</i>	Paper Birch	40-60cm	2 GAL	3m O.C.	25%
Coniferous Trees						
96	<i>Thuja occidentalis</i>	Eastern White Cedar	40-60cm	2 GAL	3m O.C.	50%
Shrubs						
71	<i>Cornus alternifolia</i>	Pagoda Dogwood		2 GAL	1m O.C.	35%
71	<i>Crataegus punctata</i>	Dotted Hawthorn		2 GAL	1m O.C.	35%
61	<i>Sambucus pubens</i>	Scarlet Elderberry		2 GAL	1m O.C.	30%
GROUND COVER						
Total Area (ha)			0.1502	QTY	2.25kg	
St. Williams - Roadside & Forest Edge Seed Mix at application rate of 15 kg/ha						
COVER CROP - To Be Applied with St. Williams - Roadside & Forest Edge Seed Mix						
Total Area (ha)			0.1502	QTY	3.76kg	
Avena sativa Common Oats (100%) at application rate of 25 kg/ha						

PRESCRIPTION 2: MEADOW THICKET PLANTING LIST						
QTY	Botanical Name	Common Name	HT (cm)	Root	Spacing	Mix %
Deciduous Trees						
33	<i>Populus balsamifera</i>	Balsam Poplar	40-60cm	2 GAL	3m O.C.	20%
41	<i>Populus tremuloides</i>	Trembling Aspen	40-60cm	2 GAL	3m O.C.	25%
33	<i>Salix amygdaloides</i>	Peachleaf Willow	40-60cm	2 GAL	3m O.C.	20%
Coniferous Trees						
58	<i>Thuja occidentalis</i>	Eastern White Cedar	40-60cm	2 GAL	3m O.C.	35%
Shrubs						
44	<i>Aronia melanocarpa</i>	Black Chokeberry		2 GAL	1m O.C.	25%
44	<i>Cornus amomum</i>	Silky Dogwood		2 GAL	1m O.C.	25%
44	<i>Sambucus canadensis</i>	Common Elderberry		2 GAL	1m O.C.	25%
44	<i>Viburnum lentago</i>	Nannyberry		2 GAL	1m O.C.	25%
GROUND COVER						
Total Area (ha)			0.129	QTY	1.94kg	
St. Williams - Water's Edge Seed Mix at application rate of 15 kg/ha						
COVER CROP - To Be Applied with St. Williams - Water's Edge Seed Mix						
Total Area (ha)			0.129	QTY	3.23kg	
Avena sativa Common Oats (100%) at application rate of 25 kg/ha						

PRESCRIPTION 3: WET MEADOW PLANTING LIST						
QTY	Botanical Name	Common Name	HT (cm)	Root	Spacing	Mix %
Deciduous Trees						
52	<i>Acer rubrum</i>	Red Maple	40-60cm	2 GAL	5m O.C.	40%
39	<i>Betula alleghariensis</i>	Swamp Birch	40-60cm	2 GAL	5m O.C.	30%
39	<i>Populus tremuloides</i>	Trembling Aspen	40-60cm	2 GAL	5m O.C.	30%
Shrubs						
34	<i>Cornus stolonifera</i>	Red-Osier Dogwood		2 GAL	1m O.C.	25%
34	<i>Salix bebbiana</i>	Bebb's Willow		2 GAL	1m O.C.	25%
34	<i>Sambucus canadensis</i>	Common Elderberry		2 GAL	1m O.C.	25%
34	<i>Spiraea alba</i>	White Meadowsweet		2 GAL	1m O.C.	25%
GROUND COVER						
Total Area (ha)			0.101	QTY	1.52kg	
St. Williams - Water's Edge Seed Mix at application rate of 15 kg/ha						
COVER CROP - To Be Applied with St. Williams - Water's Edge Seed Mix						
Total Area (ha)			0.101	QTY	2.53kg	
Avena sativa Common Oats (100%) at application rate of 25 kg/ha						

PRESCRIPTION 4: DECIDUOUS FOREST EDGE PLANTING LIST						
QTY	Botanical Name	Common Name	HT (cm)	Root	Spacing	Mix %
Deciduous Trees						
122	<i>Acer saccharum</i>	Sugar Maple	40-60cm	2 GAL	3m O.C.	30%
122	<i>Populus tremuloides</i>	Trembling Aspen	40-60cm	2 GAL	3m O.C.	30%
81	<i>Prunus serotina</i>	Black Cherry	40-60cm	2 GAL	3m O.C.	20%
81	<i>Tilia americana</i>	Basswood	40-60cm	2 GAL	3m O.C.	20%
Shrubs						
226	<i>Amelanchier arborea</i>	Downy Serviceberry		2 GAL	1m O.C.	40%
141	<i>Cornus alternifolia</i>	Pagoda Dogwood		2 GAL	1m O.C.	25%
113	<i>Prunus virginiana</i>	Chokecherry		2 GAL	1m O.C.	20%
85	<i>Sambucus racemosa</i>	Red Elderberry		2 GAL	1m O.C.	15%
GROUND COVER						
Total Area (ha)			0.329	QTY	4.94kg	
St. Williams - Roadside & Forest Edge Seed Mix at application rate of 15 kg/ha						
COVER CROP - To Be Applied with St. Williams - Roadside & Forest Edge Seed Mix						
Total Area (ha)			0.329	QTY	8.23kg	
Avena sativa Common Oats (100%) at application rate of 25 kg/ha						

PRESCRIPTION 5: MIXED FOREST 2 PLANTING LIST						
QTY	Botanical Name	Common Name	HT (cm)	Root	Spacing	Mix %
Deciduous Trees						
52	<i>Acer saccharum</i>	Sugar Maple	40-60cm	2 GAL	3m O.C.	20%
52	<i>Prunus serotina</i>	Black Cherry	40-60cm	2 GAL	3m O.C.	20%
52	<i>Ostrya virginiana</i>	Ironwood	40-60cm	2 GAL	3m O.C.	20%
Coniferous Trees						
52	<i>Pinus strobus</i>	Eastern White Pine	40-60cm	2 GAL	3m O.C.	20%
52	<i>Thuja occidentalis</i>	Eastern White Cedar	40-60cm	2 GAL	3m O.C.	20%
Shrubs						
124	<i>Amelanchier laevis</i>	Allegheny Serviceberry		2 GAL	1m O.C.	45%
41	<i>Diervilla lonicera</i>	Bush Honeysuckle		2 GAL	1m O.C.	15%
55	<i>Prunus virginiana</i>	Chokecherry		2 GAL	1m O.C.	20%
55	<i>Rubus odoratus</i>	Purple Flowering Raspberry		2 GAL	1m O.C.	20%
GROUND COVER						
Total Area (ha)			0.203	QTY	3.05kg	
St. Williams - Roadside & Forest Edge Seed Mix at application rate of 15 kg/ha						
COVER CROP - To Be Applied with St. Williams - Roadside & Forest Edge Seed Mix						
Total Area (ha)			0.203	QTY	5.08kg	
Avena sativa Common Oats (100%) at application rate of 25 kg/ha						

ST. WILLIAMS WATER'S EDGE SEED MIX

- TO BE APPLIED AT A RATE OF 15 KG/HA OR 150G/100M2 FOR SMALLER AREAS
- TO BE SOWN WITH A NURSE CROP OF COMMON OATS (AVENA SATIVA) AT A RATE OF 25KG/HA OR 250G/100M2 FOR SMALLER AREAS
- SEE SEEDING PROTOCOL ON PAGE LC-2
- TO BE SOURCED FROM:
ST. WILLIAMS NURSEY & ECOLOGY CENTRE
HTTPS://STWILLIAMSNURSERY.COM/
885 NORFOLK COUNTY HIGHWAY 24 WEST
ST. WILLIAMS, ONTARIO
NOE 1P0

PRESCRIPTION 6: PLANTATION WOODLAND PLANTING LIST						
QTY	Botanical Name	Common Name	HT (cm)	Root	Spacing	Mix %
Deciduous Trees						
139	<i>Acer saccharum</i>	Sugar Maple	40-60cm	2 GAL	3m O.C.	20%
139	<i>Prunus serotina</i>	Black Cherry	40-60cm	2 GAL	3m O.C.	20%
139	<i>Quercus rubra</i>	Red Oak	40-60cm	2 GAL	3m O.C.	20%
Coniferous Trees						
272	<i>Pinus strobus</i>	Eastern White Pine	40-60cm	2 GAL	3m O.C.	40%
Shrubs						
222	<i>Cornus alternifolia</i>	Pagoda Dogwood		2 GAL	1m O.C.	30%
148	<i>Diervilla lonicera</i>	Bush Honeysuckle		2 GAL	1m O.C.	20%
222	<i>Rosa blanda</i>	Smooth Rose		2 GAL	1m O.C.	30%
148	<i>Sambucus racemosa</i>	Red Elderberry		2 GAL	1m O.C.	20%
GROUND COVER						
Total Area (ha)			0.545	QTY	8.17kg	
St. Williams - Roadside & Forest Edge Seed Mix at application rate of 15 kg/ha						
COVER CROP - To Be Applied with St. Williams - Roadside & Forest Edge Seed Mix						
Total Area (ha)			0.545	QTY	13.61kg	
Avena sativa Common Oats (100%) at application rate of 25 kg/ha						

PRESCRIPTION 7: MOIST SHRUBS ON GRADING PLANTING LIST						
QTY	Botanical Name	Common Name	HT (cm)	Root	Spacing	Mix %
Deciduous Trees						
46	<i>Populus balsamifera</i>	Balsam Poplar	40-60cm	2 GAL	3m O.C.	20%
58	<i>Populus tremuloides</i>	Trembling Aspen	40-60cm	2 GAL	3m O.C.	25%
46	<i>Salix amygdaloides</i>	Peachleaf Willow	40-60cm	2 GAL	3m O.C.	20%
Coniferous Trees						
81	<i>Thuja occidentalis</i>	Eastern White Cedar	40-60cm	2 GAL	3m O.C.	35%
Shrubs						
62	<i>Cornus stolonifera</i>	Red-Osier Dogwood		2 GAL	1m O.C.	25%
62	<i>Ribes americanum</i>	Wild Black Currant		2 GAL	1m O.C.	25%
62	<i>Salix petiolaris</i>	Meadow Willow		2 GAL	1m O.C.	25%
62	<i>Viburnum lentago</i>	Nannyberry		2 GAL	1m O.C.	25%
GROUND COVER						
Total Area (ha)			0.182	QTY	2.73kg	
St. Williams - Base Restoration Seed Mix at application rate of 15 kg/ha						
COVER CROP - To Be Applied with St. Williams - Base Restoration Seed Mix						
Total Area (ha)			0.182	QTY	4.54kg	
Avena sativa Common Oats (100%) at application rate of 25 kg/ha						

PRESCRIPTION 8: MOIST MEADOW WITH SPARSE SHRUB PLANTING LIST						
QTY	Botanical Name	Common Name	HT (cm)	Root	Spacing	Mix %
Shrubs						
11	<i>Cornus stolonifera</i>	Red-Osier Dogwood		2 GAL	5m O.C.	30%
11	<i>Salix bebbiana</i>	Bebb's Willow		2 GAL	5m O.C.	30%
7	<i>Sambucus canadensis</i>	Common Elderberry		2 GAL	5m O.C.	20%
7	<i>Viburnum lentago</i>	Nannyberry		2 GAL	5m O.C.	20%
GROUND COVER						
Total Area (ha)			0.007	QTY	1.05kg	
St. Williams - Water's Edge Seed Mix at application rate of 15 kg/ha						
COVER CROP - To Be Applied with St. Williams - Water's Edge Seed Mix						
Total Area (ha)			0.007	QTY	1.75kg	
Avena sativa Common Oats (100%) at application rate of 25 kg/ha						

PRESCRIPTION 9: TREED SWAMP EDGE PLANTING LIST						
QTY	Botanical Name	Common Name	HT (cm)	Root	Spacing	Mix %
Deciduous Trees						
52	<i>Acer saccharinum</i>	Silver Maple	40-60cm	2 GAL	3m O.C.	35%
30	<i>Populus balsamifera</i>	Balsam Poplar	40-60cm	2 GAL	3m O.C.	20%
30	<i>Populus tremuloides</i>	Trembling Aspen	40-60cm	2 GAL	3m O.C.	20%
Coniferous Trees						
37	<i>Larix laricina</i>	Tamarack	40-60cm	2 GAL	3m O.C.	25%
Shrubs						
40	<i>Aronia melanocarpa</i>	Black Chokeberry		2 GAL	1m O.C.	25%
48	<i>Cornus stolonifera</i>	Red-Osier Dogwood		2 GAL	1m O.C.	30%
24	<i>Rhus typhina</i>	Staghorn Sumac		2 GAL	1m O.C.	15%
48	<i>Sambucus canadensis</i>	Common Elderberry		2 GAL	1m O.C.	30%
GROUND COVER						
Total Area (ha)			0.117	QTY	1.76kg	
St. Williams - Base Restoration Seed Mix at application rate of 15 kg/ha						
COVER CROP - To Be Applied with St. Williams - Base Restoration Seed Mix						
Total Area (ha)			0.117	QTY	2.93kg	
Avena sativa Common Oats (100%) at application rate of 25 kg/ha						

INVASIVE SPECIES REMOVAL:

BUCKTHORN REMOVAL: MATURE, FRUIT-BEARING BUCKTHORN (3+ CM DBH) WITHIN 5 METERS OF THE PLANTING AREAS WILL BE REMOVED. THIS INCLUDES 5 METERS INTO THE DRIPLINE OF ADJACENT WOODLANDS. BUCKTHORN IS TO BE TREATED BY BEING CUT BACK AND APPROP

SEEDING PROTOCOL

Contractor is to follow seeding protocol outlined below. If changes to the protocol are advised, the contractor must discuss proposed changes with RJ Burnside ecologist and have them approved.

Scope of Work

1. Supply all materials, labour and equipment necessary for site preparation and seeding of all areas, as indicated on the landscape drawings. Seeding consists of the application of the specified nurse crop and permanent seed mixtures onto designated areas indicated on the Drawings.
2. Re-seeding and preparation of soil surface for seeded areas deemed unacceptable following inspection, is part of the scope of work under this section, at no increase to the contract amount.

Scheduling

1. There are critical timing windows for application of Seed.
 - a. All seeding must be done during weather conditions that are favourable to seed germination and establishment. The contractor shall adhere to the manufacturer's/supplier's recommendations.
 - b. Between October 1st and November 30th is ideal. See Seed Application section.

Materials

Seed Mixes

1. The contractor shall supply and pay for all seed mixes, including custom blends and substitutions as may be directed by Burnside. The seed mixes applicable to this Contract are, as noted on the landscape drawings.
2. The specified seed mix is available through St. Williams Nursey & Ecology Centre (Norfolk County, ON). All specified Seed Mixes shall be source identified and have originated in Seed Zone 34 or an adjacent Seed Zone.
3. Prior to use, all seed shall be stored in dry cool locations. Seeds shall not be subject to temperatures less than 0 degrees Celsius or greater than 25 degrees Celsius. Native seed types shall be stored according to conditions specified by supplier or in the absence of supplier instruction between 16 and 20 degrees Celsius. Manufacturer's/supplier's recommendations.

Water

1. Water shall be free of any contaminants or impurities that would adversely affect the germination and growth of vegetation.

SEEDING PROTOCOL
NTS



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Clean Equipment Protocol

Contractor shall follow Clean Equipment Protocol:

1. Inspect vehicles and machinery before and after entering sites or conducting work
2. Before leaving the site, inspect the vehicle thoroughly inside and out for where dirt, plant material and seeds may be lodged or stuck to interior and exterior surfaces.
3. Remove and clean any guards, covers or plates that are easy to remove.
4. Pay attention to the underside of the vehicle, radiators, spare tires, foot wells and bumper bars.
5. If clods of dirt, seed or other plant material are found, remove immediately and discard where the contamination occurred or in the garbage.
6. Safely locate the vehicle and equipment away from any hazards, ensure engine is off and the vehicle or equipment is immobilized.
7. Clean the vehicle/equipment in an appropriate area where contamination and seed spread is not possible (or limited). The site should be:
 - a. Mud free, gravel covered hard surface, or, if this is not available, a well maintained grassy area.
 - b. Gently sloping to assist in draining water and material away from the vehicle or equipment.
 - c. Care should be taken to ensure that localized erosion will not be created.
 - d. At least 30m away from any watercourse, water body and natural vegetation.
 - e. Large enough to allow for adequate movement of larger vehicles and equipment.

Execution

Site Preparation

1. Immediately following the completion of the graded slopes, topsoil and seed mix will be applied to stabilize slopes and prevent erosion.
2. If weeds are present in the area to be seeded, apply a non-selective, non-persistent herbicide such as glyphosate as per label. Addition of a surfactant and/or addition of 2,4-D to the mix often results in a more complete kill, especially with unwanted broad-leaved species. Recommended herbicide rates are 2.0 quarts/acre of glyphosate and 1.0 - 2.0 quarts/acre 2,4-D.
Note: This application rate may not be strong enough to combat aggressive weeds such as Dog Strangling Vine, Canada Thistle or Reed Canary Grass. Spot spray treatment with higher application rates may be required to remove these species.
3. Wait at least 72 hours after herbicide treatment before applying 150mm of topsoil to all areas to be seeded.
4. Obtain the approval of the Project Manager of the finished topsoil surface before proceeding with seeding.

SEEDING PROTOCOL
Continued
NTS



RJB LS.1.1

Seed Application

1. Late fall application is ideal. Sowing between October 1st and November 30th is best, when soil temperatures are below 5°C, as there is little risk of premature germination of grass and the soil should still be workable. Apply seed shortly after the completion of grading is vital for erosion control. If waiting till fall is not feasible, winter or spring application is possible, so long as the ground is clear of any snow cover.
2. St. Williams Seed Mixes is to be applied at a rate of 15kg/ha.
3. Apply with Nurse Crop of Common Oats at a rate of 25 kg/ha.
4. Follow a two-step application of:
 - a. 500lbs per acre of hydraulic mulch with seed
 - b. Follow with 1,000lbs per acre of hydromulch overtop.
5. At application rates greater than 1,500 lb/ac of cellulose or paper fiber mulch seed germination and seedling establishment are decreased. If specialized bonded fiber matrixes (BFM) or high performance growth media (HPGM) are used, they can be applied in step 2 at the recommended application rate, which can be as high as 4,500 lb/ac.
6. Centrifugal pumps for agitation and delivery can have a higher potential to damage seeds than systems with paddles and rubber-coated gear pumps. To reduce damage from agitators, add seeds to the slurry tank immediately before application. Do not agitate mix with seed for longer than 20 minutes - this will damage the native seed and reduce germination
7. Use less pressure or lower pressure nozzles, such as fan nozzles, to help reduce seed damage.
8. Fertilizer is unnecessary.

Clean-Up

1. At the completion of the seed and cover operation, materials applied to areas or objects other than those designated to grow grass shall be removed. Clean water shall be used to immediately wash seed and cover materials from the foliage of trees, shrubs, or other susceptible plant growth.

Maintenance

1. Mowing is needed in order to suppress grass and weed growth that will shade delicate native seedlings.
2. Plan for late spring mow to knock back cool-season grasses and annual weeds. For the first spring maintenance, mow to a height of 4-6" .
3. Mow or weed whack once more during the summer to a height of 6-8" when the grass becomes knee high.
4. Monitor the site for persistent invasive species. Spot treat with herbicide to remove.

SEEDING PROTOCOL
Continued
NTS



RJB LS.1.2

Inspection

Seed Performance Measure

1. All seeded areas will be inspected by the Project Manager using the Seeding and Cover Quality Assurance Visual Inspection Field Guide to ensure compliance with this specification at 30, 60, and 90 Day periods following the seeding and cover operation, and at the end of the Second Full Growing Season (end of August).
2. For dormant seeding, the 30 Day Inspection will take place one month after the start of the spring growing season. No inspections will be made during the winter dormant period or when site conditions prohibit a visual field inspection. The timing intervals between inspections will be suspended during an assumed winter dormant period from November 1 to April 30 inclusive.
At the **30 Day** inspection of the seeded earth areas:
 - i. The applied cover shall be visually intact and shall form a uniform cohesive mat;
At the **60 Day** inspection within the seeded earth areas:
 - ii. Germination of the specified permanent seed species shall be visually evident in an evenly dispersed uniform cover ;
 - iii. There shall not be any significant bare areas, both in terms of quantity and size ;
 - iv. Non-seeded, non-specified vegetation shall not exceed 20% of the seeded earth area.

Even is not necessarily good and bare should apply to compost material or woody debris, native species that appear after completion should be welcomed.

- At the **90 Day** inspection within the seeded earth areas:
- i. For the Native Seed Mix, germination of the specified permanent seed species shall be visually evident in an evenly dispersed uniform cover;
 - ii. There shall not be any significant bare areas, both in terms of quantity and size, some minor variation for the native seed is anticipated and shall be reviewed by the Contract Manager;
 - iii. Non-native vegetation in the Native Seed area shall be removed, either chemically or manually after full dormancy of the native crop is achieved at the end of the first and second growing season.

At the **Second Full Growing Season Inspection** (end of August 1):

- i. A survivability percentage shall be required in excess of 75% of sown species;
- ii. Bare soil shall constitute less than 25% of the total with no individual bare area larger than 10 sq. m.
- iii. This required survival rate does not apply to the seeded areas directly under the bridge. It is understood that shade and lack of rain reaching the soil will result in much lower germination and establishment success.

SEEDING PROTOCOL
Continued
NTS



RJB LS.1.3

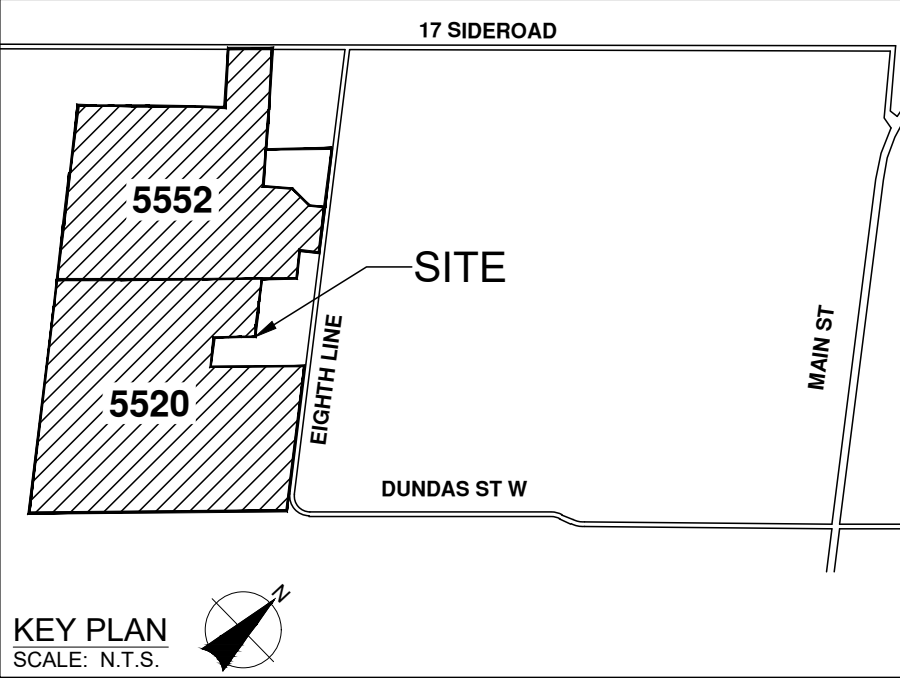
Failure to Meet Performance Measure

1. If the completed work does not meet the performance measures of the 30 Day inspection, the Project Manager shall document the failed areas, notify the Contractor of those areas, and re-inspect at the 60 Day inspection.
2. If the completed work does not meet the performance measures of the 60 Day inspection, the Project Manager shall notify the Contractor in writing of the failed areas. The Contractor shall re-apply the specified material according to this specification within 14 Days of receiving the notification. The Project Manager will re-inspect the seeded earth area at the 90 Day inspection. If the completed work does not meet the performance measures of the 90 Day inspection, the Project Manager shall notify the Contractor in writing of the failed areas. The Contractor shall re-apply the specified material according to this specification within 14 Days of receiving the notification. The Project Manager will re-inspect the seeded earth area 30 Days after re-application of material. Re-seeded areas of native plants should be carried out with timing that will ensure success – i.e. the next best sowing period (e.g. fall after 1 Nov.)
3. If the completed work does not meet the performance measures of the Second Full Growing Season Inspection, the Project Manager shall notify the Contractor in writing of the failed areas. The Contractor shall re-apply the specified material according to this specification within 14 Days of receiving the notification. The Project Manager will re-inspect the seeded earth area 30 Days after re-application of material.
4. Inspections and re-application of material shall continue, as outlined in the 90 Day and Second Growing Season Inspection paragraphs above, until the seeded earth area has been accepted
5. In the event that re-application is needed the Contractor shall maintain the site and control erosion until conditions permit application or re-application of seed and cover.

SEEDING PROTOCOL
Continued
NTS



RJB LS.1.4

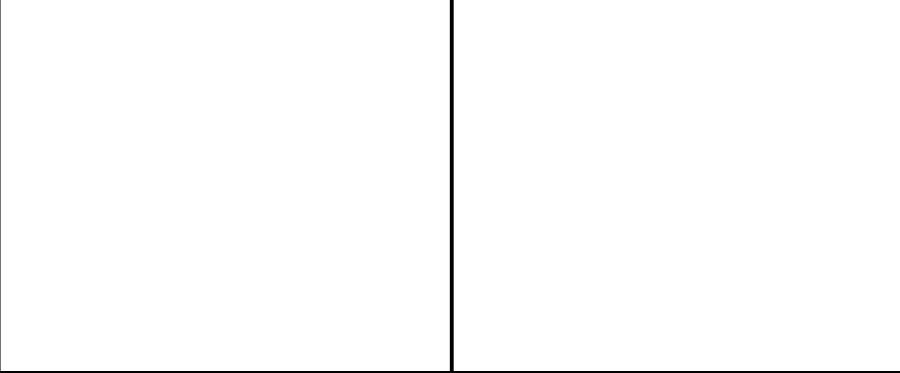


KEY PLAN
SCALE: N.T.S.

- Notes
1. This drawing is the exclusive property of R. J. Burnside & Associates Limited. The reproduction of any part without prior written consent of this office is strictly prohibited.
 2. The contractor shall verify all dimensions, levels, and datums on site and report any discrepancies or omissions to this office prior to construction.
 3. This drawing is to be read and understood in conjunction with all other plans and documents applicable to this project.

NOT FOR CONSTRUCTION

No.	Issue / Revision	Date	Auth.
1	REVISED PER UPDATED GRADING	2025.02.14	AB



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Drawing Title
**ERIN
5520 EIGHTH LINE & 5552 EIGHTH LINE**
Seeding Protocol Notes

Drawn HC	Checked LA	Designed LA	Checked HC	Date 24/06/19	Drawing No.
Project No. 300052075	Contract No. CONTRACT NO.	Revision No. 1	Scale NOT TO SCALE		LC-2