City of Cambridge

Purchasing Department

Michele A. Kincaid
Acting Purchasing Agent

TO: All Bidders

FROM: City of Cambridge

DATE: March 11, 2014

RE: File No. 6322 –Kingsley Park Phase 1 Improvements Project
Addendum NO. 2

Addendum is comprised of the following:

- Questions and answers
- Revised Bid Package Pages 13 & 14 only
- Revised Plant Schedule
- Revised Section 02950 Planting Soils

The following questions were submitted and answered:

Q: Section 02954 Plantings: The plant schedule does not match the plant count on the bid form. Please verify the plant count on the bid form is correct. If the bid form is correct then please revise the count on the plant schedule as the prices differ for the various plants being proposed.

A: The plant schedule and bid form have been reviewed and the quantities have been revised in this Addendum. Planting size revisions are also reflected in both the Bid form and plant schedule. Please see revised 02954 Upland Planting bid form and plant schedule (attached.

Q: Bid Item 2800.5 Overlook Bench: Bid Quantity is 2 each. Are you looking for 2 benches 72" long or several 72" long benches to make up the length on plan sheet C-105? Can the overall length of proposed bench be given to bidders as the plans don't appear to scale in 72" increments?

A: There are two (2) overlook benches shown on the plans. These are shown on Details 4 and 5 of C-105. Each bench is comprised of four (4) 72" length bench sections. The overall total arc length of each of the two benches is twenty-four feet (24') measured at the centerline of the bench.

Q: 02950 Planting Soil: Item 2100.10 has us stripping 105 cy of topsoil. Item 2950.2 has us manufacturing 1,020 cy of planting soil. Are we responsible for importing topsoil to make up the difference between items 2100.10 and 2950.2 (approximately 915 cy)?

A: Yes, additional planting soil will be imported in order to meet the proposed grades as shown on Sheet C-104, Grading and Drainage Plan.

Q: 02950 Planting Soil: Under what line item is the placement and spread to be carried?

A: Placing, spreading and fine grading of planting soils will be covered under the revised Bid Item 02950.2, formerly called Manufacturing, Modifying and Screening Planting Soils. The revised Bid Item 02950.2 will be called Planting Soils and is detailed in the attached revised Spec Section 02950, Planting Soils. The measurement and payment for Item 2950.2 – Planting Soils has been revised in this Addendum to include the placement and fine grading of all planting soils. Bid Item No. 2950.2 – Planting Soils has been revised and added to the sections 00300 and 02952 in this Addendum. The units and quantity remain the same as the original bid item.

Q: Have the onsite soils been tested for contaminants? If not, are bidders to assume that excavated material to be removed from site is NOT contaminated?

A: Bidders are to assume there are no contaminated soils to be excavated and/or removed from the site as part of this project.

Q: What is "SAND AND GRANITE MATRIX"? What kind/type of stones are needed for swale?

A: The "sand and granite matrix" as shown on Detail 8-Water Quality Swale/Detail Sheet C-106 is labeled incorrectly. Replace "granite" with "gravel". Specification 02120, Earth Excavation, Backfill, Fill and Grading, section 2.09B references the material and gradations for sand and gravel. The ratio of sand to gravel for the infill matrix is 1:1 by volume.

All other details remain the same.

Michele A Kincaid

MICHELE A. KINCAID
ACTING PURCHASING AGENT

Item #	Spec. Section Ref.	Estimated Quantity	Units	Description of the Work and Unit Price Bid Written in Words and Numbers	Amount
2950.1	02950	5	Each	Sampling and Testing of Planting Soils _____Dollars ($_____) Per Each	$_____
2950.2	02950	1,020	Cubic Yard	Planting Soils _____Dollars ($_____) Per Cubic Yard	$_____
2950.3	02950	50	Cubic Yard	Amend Existing Soil _____Dollars ($_____) Per Cubic Yard	$_____
2952.1	02952	2350	Square Yard	Turf Seed Mix _____Dollars ($_____) Per Square Yard	$_____
2952.2	02952	2690	Square Yard	Woodland Seed Mix _____Dollars ($_____) Per Square Yard	$_____
2952.3	02952	85	Square Yard	Woodland Slope Seed Mix _____Dollars ($_____) Per Square Yard	$_____

Bidder's Name _____

Item #	Spec. Section Ref.	Estimated Quantity	Units	Description of the Work and Unit Price Bid Written in Words and Numbers	Amount
2952.4	02952	255	Square Yard	Erosion Control Blanket _____Dollars ($_____) Per Square Yard	$_____
2954.1	02954	27	Each	Deciduous Tree (1.5" cal. cont.) _____Dollars ($_____) Per Each	$_____
2954.2	02954	20	Each	Deciduous Tree (2.5" cal. B&B) _____Dollars ($_____) Per Each	$_____
2954.3	02954	27	Each	Deciduous Tree (3" cal. B&B) _____Dollars ($_____) Per Each	$_____
2954.4	02954	88	Each	Deciduous and Understory Tree (5' ht. cont.) _____Dollars ($_____) Per Each	$_____
2954.5	02954	69	Each	Deciduous and Understory Tree (7' ht. B&B.) _____Dollars ($_____) Per Each	$_____

Bidder's Name _____

PLANT SCHEDULE

QTY.	SYM.	SCIENTIFIC NAME	COMMON NAME	SIZE
CANOPY TREES				
7	AS	*Acer saccharum*	sugar maple	3" cal. B&B
12	AS2	*Acer saccharum*	sugar maple	1.5" cal. cont.
3	CO	*Carya ovata*	shagbark hickory	5' ht. cont.
10	CO2	*Carya ovata*	shagbark hickory	2.5" cal. B&B
8	FG	*Fagus grandifolia*	beech	3" cal. B&B
13	FG2	*Fagus grandifolia*	beech	5' ht. cont.
3	QC	*Quercus coccinea*	scarlet oak	3" cal. B&B
1	QC2	*Quercus coccinea*	scarlet oak	1.5" cal. cont.
10	QV	*Quercus velutina*	black oak	7' ht. B&B.
10	QA	*Quercus alba*	white oak	2.5" cal. B&B
9	QR	*Quercus rubra*	northern red oak	3" cal. B&B
14	QR2	*Quercus rubra*	northern red oak	1.5" cal. cont.
11	TA	*Tilia americana*	American linden	7' ht. B&B
EVERGREEN				
10	AB	*Abies balsamea*	balsam fir	6' ht. B&B
6	PG	*Picea glauca*	white spruce	8' ht. B&B
15	PG2	*Picea glauca*	white spruce	4' ht. cont.
27	PR	*Picea rubens*	red spruce	4' ht. cont.
12	PS	*Pinus strobus*	white pine	8' ht. B&B
24	PS2	*Pinus strobus*	white pine	4' ht. cont.
UNDERSTORY				
10	ACS	*Amelanchier canadensis*	serviceberry	8' ht. B&B
9	ACS2	*Amelanchier canadensis*	serviceberry	5' ht. cont.
11	BA	*Betula alleghenlensis*	yellow birch	7' ht. B&B
10	BP	*Betula papyrifera*	paper birch	8' ht. B&B
6	BG	*Betula papulifolia*	gray birch	7' ht. B&B
11	CC	*Carpinus caroliniana*	musclewood	7' ht. B&B
4	CCR	*Cercis canadensis*	Eastern red bud	8' ht. B&B
7	CA	*Cornus alternifolia*	pagoda dogwood	5' ht. cont.
11	CF	*Cornus florida*	flowering dogwood	5' ht. cont.
30	HV	*Hamamelis virginiana*	common witchhazel	5' ht. cont.
4	OV	*Ostrya virginiana*	ironwood	7' ht. B&B
16	PSC	*Prunus serotina*	black cherry	7' ht. B&B
15	SA	*Sorbus americana*	American mountain ash	5' ht. cont.
SHRUBS				
75	CR	*Cornus racemosa*	gray dogwood	4' ht. cont.
80	CAM	*Corylus americana*	American hazelnut	4' ht. cont.
12	IG	*Ilex glabra*	inkberry	3' ht. cont.
15	JC	*Juniperus communis*	common juniper	24" ht. cont.
57	LB	*Lindera benzoin*	Spicebush	3' ht. cont.
10	RM	*Rhododendron maximum*	rosebay rhododendron	5' ht. B&B
20	RM2	*Rhododendron maximum*	rosebay rhododendron	3' ht. cont.
83	RA	*Rhus aromatica Gro Low*	low grow fragrant sumac	24" cont.
30	SL	*Spirea latifolia*	meadowsweet	3' ht. cont.
30	SY	*Symphoricarpos albus*	Snowberry	3' ht. cont.
63	VA	*Vaccinium angustifolium*	lowbush blueberry	24" cont.
41	VD	*Viburnum dentatum*	arrowwood viburnum	4' ht. cont.
53	VD2	*Viburnum dentatum*	arrowwood viburnum	3' ht. cont.
44	VL	*Viburnum lentago*	nannyberry	4' ht. cont.
FERNS, GRASSES AND PERENNIALS				
125	pab	*Pteridium aquilinum*	bracken fern	1 gal. cont.
175	os	*Onoclea sensibilis*	sensitive fern	1 gal. cont.
125	sab	*Schoenoplectus acutus*	hard stem bulrush	1 gal. cont.
125	pa	*Polystichum acrostichoides*	christmas fern	1 gal. cont.
300	ag	*Andropogon gerardii*	big bluestem	1 gal. cont.
175	as	*Adiantum spp*	maidenhair fern	1 gal. cont.
310	pvs	*Panicum virgatum*	switchgrass	1 gal. cont.
125	or	*Osmunda regalis*	royal fern	1 gal. cont.
250	cc	*Cornus canadensis*	buncherry	2" plug
175	lu	*Lupinus spp*	lupine	2" plug
175	ad	*Aster divericatus*	white wood aster	1 gal. cont.
GROUNDCOVER CELLS				
700	ac	*Asarum canadense*	Canadian wild ginger	bare root
660	ad	*Aster divericatus*	white wood aster	2" plug
1050	cc	*Cornus canadensis*	buncherry	2" plug
975	dp	*Dennstaedtia punctilobula*	hayscented fern	2" plug
700	mr	*Mitchella repens*	partridgeberry	bare root
1025	pa	*Polystichum acrostichoides*	christmas fern	2" plug
975	pab	*Pteridium aquilinum*	bracken fern	2" plug
INFILTRATION BASIN PLUGS				
100	ai	*Asclepias incarnata*	swamp milkweed	2" plug
200	an	*Aster novae-angliae*	New England aster	2" plug
400	cl	*Carex lupulina*	hop sedge	2" plug
200	li	*Lobelia inflata*	indian tobacco	2" plug
750	pv	*Panicum virgatum*	switchgrass	2" plug
200	vh	*Verbena hastata*	blue vervain	2" plug

SECTION 02950

PLANTING SOILS

2950.1	**SAMPLING AND TESTING OF PLANTING SOILS**	**EACH**
2950.2	**PLANTING SOILS**	**CUBIC YARD**
2950.3	**AMEND EXISTING SOIL**	**CUBIC YARD**

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. The General Documents, as listed on the Table of Contents, and applicable parts of Division 1, GENERAL REQUIREMENTS, shall be included in and made a part of this Section.

B. Examine all Drawings and all other Sections of the Specifications for requirements therein affecting the work of this trade.

1.02 SUMMARY

A. The work of this Section consists of providing all labor, equipment, materials, incidental work, and construction methods necessary to supply and place planting soils as indicated on the Contract Documents and specifications and shall include but not be limited to the following:

1. Sampling and testing of stockpiled topsoil (existing).
2. Manufacturing of Planting Soils, as necessary, to meet project requirements.
3. Sampling, testing, amending, screening, placing, spreading and fine grading of planting soils as required by this Section 02950, PLANTING SOILS.
4. Hiring an independent soil-testing firm at the Contractor's expense to verify compliance with these Specifications.

1.03 RELATED WORK

A. The following items of related work are specified and included in other Sections of the Specifications:

1. Section 01568 EROSION AND SEDIMENT CONTROL
2. Section 02100, SITE PREPARATION
3. Section 02120, EARTH EXCAVATION, BACKFILL, FILL AND GRADING
4. Section 02952, RESTORATION SEEDING
5. Section 02954, PLANTING

1.04 REFERENCES

A. ASTM: American Society for Testing and Materials
D 2977, Standard Test Method for Particle Size Range of Peat Materials and Horticultural Practices

B. US EPA: United States Environmental Protection Agency
Test Methods for Evaluating Solid Waste, Physical/Chemical Methods. SW-846. 3rd Edition.

C. TMECC: Test Methods for the Examination of Compost and Composting Sampling and Test Methods
Jointly published by the USDA and USCC (2002 publishing as part of the USDA National Resource Conservation Technical Bulletin Series)

D. US Composting Council Seal of Testing Assurance Program Documents

1.05 SAMPLING, TESTING, AND SUBMITTALS

A. At least **30 days prior to ordering materials**, the Contractor shall submit to the Owner's Representative samples, certifications, manufacturer's product data and certified test results for materials as specified below for approval. No materials shall be ordered or delivered until the required submittals have been reviewed and approved by the Owner's Representative. Delivered materials shall closely match the approved samples. Approval shall not constitute final acceptance. The Owner's Representative reserves the right to reject, on or after delivery, any material that does not meet these Specifications. Submit the following in accordance with Section 01300 – SUBMITTALS:

1. Existing Topsoil: Sample and test the stockpiled soils. The Contractor shall sample the soils of the construction site in the following manner:

a. The Contractor shall provide **one cubic foot representative sample per each 100 cubic yard on-site stockpile of existing topsoil** for testing. All stockpile sampling shall be per ASTM D 75 and Appendixes for securing samples from stockpiles.

b. Stockpiles shall be as described in Section 02120, EARTH, EXCAVATION BACKFILL, FILL AND GRADING and labeled in the field with a numbering system referenced in all soil samples and test results.

c. Preparation of Samples: Contractor shall take one cup of soil from each representative sample and dry it at room temperature (do not dry samples in an oven or on a stove or radiator). Once soil is dry, place soil in sandwich size zip-type plastic bag and close it tightly. Label each sample on outside of bag, identifying sample by reference number. Provide an approved site plan showing locations of stockpiles cross-referenced to soil samples and test results.

2. Common fill and topsoil: Sample and test the proposed soils. Testing for proposed materials shall be at the Contractor's expense. The Contractor shall

sample the soils of the construction site in the following manner:

a. Preparation of Samples: Contractor shall take one cup of soil from each representative sample and dry it at room temperature (do not dry samples in an oven or on a stove or radiator). Once soil is dry, place soil in sandwich size zip-type plastic bag and close it tightly. Label each sample on outside of bag, identifying sample by reference number.

B. Contractor shall deliver all samples to testing laboratories via overnight courier and shall have the testing report sent directly to the Owner's Representative. Perform all tests for gradation, organic content, soil chemistry and pH by UMASS Soil and Plant Tissue Laboratory, West Experiment Station, North Pleasant Street, University of Massachusetts, Amherst, MA 01003, (413) 545-2311, or another professional testing laboratory approved by the Owner's Representative. Testing reports shall include the following tests and recommendations. Contractor shall deliver samples to testing laboratories and shall have the testing report sent directly to the Owner's Representative from the Soil and Plant Tissue Laboratory. Testing reports shall include the following tests and recommendations.

1. Mechanical gradation (sieve analysis) shall be performed and compared to the USDA Soil Classification System. Sieve analysis shall be by combined hydrometer and wet sieving using sodium hexametaphosphate as a dispersant in compliance with ASTM D 422 after destruction of organic matter by H_2O_2. To facilitate review and approval of sieve analysis, provide a computer generated gradation curve from UMASS Soil & Plant Tissue Laboratory.

2. Percent of organics shall be determined by the loss on ignition of oven-dried samples. Test samples minus #10 material shall be oven-dried to a constant weight at a temperature of 450 degrees Fahrenheit.

3. Chemical analysis shall be undertaken for Nitrate Nitrogen, Ammonium Nitrogen, Phosphorus, Potassium, Calcium, Magnesium, extractable Aluminum, Lead, Zinc, Cadmium, Copper, Soluble Salts, pH, and buffer pH. A Conductivity Meter shall be used to measure Soluble Salts in 1:2 soil/water (v/v). Except where otherwise noted, nutrient tests shall be for available nutrients.

4. Soil analysis tests shall show recommendations for soil additives to correct soils deficiencies as necessary, and for additives necessary to accomplish planting work as specified.

5. Leaf Mulch: Submit a one cubic foot sample and supplier's certification of contents.

6. Limestone: Submit supplier's certification that the limestone being supplied conforms to these Specifications.

7. Acidulant: Submit supplier's certification that the acidulant being supplied conforms to these Specifications.

8. Gypsum: Submit manufacturer's product data and one (1) pound sample.

9. All additives needed to amend the existing soils in order to meet these specifications.

1.06 EXAMINATION OF CONDITIONS

A. The Contractor and any Sub-Contractor responsible for the execution of the Work of this section, PLANTING SOILS, shall review and confirm in writing that the existing elevations are correct prior to proceeding with the spreading of the planting soil.

B. Carefully review the requirements of this section, PLANTING SOILS, to understand the requirements of testing, compaction, slope, and absence of debris on the existing soils prior to spreading of the planting soils.

C. The Contractor shall be solely responsible for judging the full extent of work requirements involved.

1.07 DEFINITIONS

A. Planting Soils to include Amended Existing Soil and Wetland Planting Soil. Wetland Planting Soil for use in vernal pool habitat and Amended Existing Soil for use in all other planted areas as indicated on the Drawings. The following definitions shall apply to the work of this Section.

B. The following size distributions of mineral particles by diameter and sieve size shall apply to the following conventional names of soil types:

Conventional Name	Retained on U.S. Sieve No.	Diameter (mm)
Very coarse sand	#18	1 - 2
Coarse sand	#35	0.5 - 1
Medium sand	#60	0.25 - 0.5
Fine sand	#140	0.10 - 0.25
Very fine sand	#270	0.05 - 0.10
Silt	by hydrometer	0.002 - 0.05
Clay	by hydrometer	Less than 0.002

C. Loamy sands shall conform to USDA Soil Taxonomy definitions and as follows: Soil material that contains at the upper limit 85 to 90 percent sand, and the percentage of silt plus 1.5 times the percentage of clay is not less than 15; at the lower limit the soil material contains not less than 70 to 85 percent sand, and the percentage of silt plus twice the percentage of clay does not exceed 30 percent.

1. Loamy coarse sand: 25 percent or more very coarse and coarse sand, and less than 50 percent any other one grade of sand.
2. Loamy sand: 25 percent or more very coarse, coarse, and medium sand, and less than 50 percent fine or very fine sand.
3. Loamy fine sand: 50 percent or more fine sand or less than 25 percent very coarse, coarse, and medium sand and less than 50 percent very fine sand.
4. Loamy very fine sand: 50 percent or more very fine sand.

D. Sandy Loam shall conform to USDA Soil Taxonomy definitions and as follows: Soil material that contains either 20 percent clay or less, and the percentage of silt plus twice the percentage of clay exceeds 30 percent, and 52 percent or more sand; or less than 7 percent clay, less than 50 percent silt, and between 43 percent and 52 percent sand.

1. Coarse sandy loam: 25 percent or more very coarse and coarse sand and less than 50 percent any other grade of sand.
2. Sandy loam: 30 percent or more very coarse, coarse and medium sand, but less than 25 percent very coarse sand, and less than 30 percent very fine or fine sand.
3. Fine sandy loam: 30 percent or more fine sand and less than 30 percent very fine sand or between 15 and 30 percent very coarse, coarse, and medium sand.

1.08 QUALITY ASSURANCE AND QUALITY CONTROL

A. Contractor shall use only employees qualified by education and experience to perform each of the individual tasks (i.e. earthwork, wetland planting soils, and maintenance) within the wetland areas. Education, experience, and certification or license by appropriate organizations will be reviewed to evaluated competence.

B. All costs related to testing or replacement of non-conforming materials shall be paid for by the Contractor at no additional cost to the Owner, and the costs thereof will be deducted by the Owner.

C. Contractor shall attend a pre-construction meeting with the City of Cambridge Conservation Commission or their Administrator to ensure that the Order of Conditions is understood by the Contractor.

D. The Contractor shall maintain a copy of the Order of Conditions at the Site for reference.

E. All work shall conform to the Drawings and Specifications, except as modified by the Owner's Representative, and shall comply with applicable codes and regulations.

1.09 COORDINATION AND CONSTRUCTION SEQUENCE

A. Contractor shall refer to Section 01010, SUMMARY OF WORK, for overall coordination and sequencing.

PART 2 - PRODUCTS

2.01 PLANTING SOILS - GENERAL

A. The Contractor shall excavate and stockpile all soil material from areas that will be disturbed by grading operations, and subsequently replace this material on site as specified, provided, installed and paid for under this Section 02950, PLANTING SOILS, and as directed by the Owner's Representative. Planting soils shall comply with the following specifications.

1. On-site Soils, excavated, stockpiled and paid for under the work of the Section

02100, SITE PREPARATION, of this Specification and meeting the requirements of this Section.

2.02 PLANTING SOIL

A. Planting Soil shall be one of the following sandy loams: "course sandy loam", "sandy loam", and "fine sandy loam"; as determined by mechanical analysis (ASTM D 422) and based on the "USDA Classification System" as defined in this Section.

B. It shall be free of stones greater than one and one-quarter inches, lumps, plants and their roots, debris, and other extraneous matter as determined by the Owner's Representative. Upland Planting Soil shall have the following grain size distribution for material passing the #10 sieve:

Millimeter	Percent Passing by Weight	
	Maximum	Minimum
2	-------	100
1	80	100
0.5	67	87
0.25	48	78
0.10	30	68
0.05	22	55
0.002	2	7

C. Maximum size shall be one and one quarter inches largest dimension. The maximum retained on the #10 sieve shall be 25% by weight of the total sample. It is anticipated that stripped, on-site subsoils will require screening to meet these requirements.

D. Organic content and pH for specific planting use shall be as follows:

1. Areas planted with fairway sod and Stream C Bank seed mixes:
   a. pH: 5.5 through 6.5 for non-acid loving plants
   b. pH: 4.5 through 5.5 for *Ericaceae* and other acid-loving plants
   c. Organic Content 4.0 - 6.0 percent as determined by the loss on ignition of oven-dried samples passing #10 sieve (Muffle furnace temperature: 450 +/- 10 degrees C for 8 hours)

2.03 SOIL ADDITIVES

A. General: Soil additives shall be used to counteract soil deficiencies as recommended by the soils analysis as specified herein.

B. Acidulant for adjustment of Planting Soils pH shall be commercial grade flours of sulfur, ferrous sulfate, or aluminum sulfate that are unadulterated. Acidulants shall be delivered in unopened containers with the name of the manufacturer, material, analysis and net weight appearing on each container.

C. Ground limestone for adjustment of Planting Soils pH shall contain not less than 85 percent of total carbonates and shall be ground to such fineness that 40 percent will pass through 100 mesh sieve and 95 percent will pass through a 20 mesh sieve.

Contractor shall be aware of Planting Soil pH and the amount of lime needed to adjust pH to meet the requirements of the testing lab recommendations.

2.04 AMMENDED EXISTING SOIL

A. Amended Existing Soil shall be existing site soils amended with compost that meet the criteria specified in Table 1 of this specification section. Only compost products that meet all applicable state and federal regulations pertaining to its production and distribution may be used in this application. Approved compost products must meet related state and federal chemical contaminant (e.g., heavy metals, pesticides, etc.) and pathogen limits pertaining to the feedstocks (source materials) from which it is derived.

B. The compost shall be composed of nutrient-rich, organic feedstocks that are derived from food and gelatin-producing processes. These nitrogenous materials shall be mixed with bulking agents such as leaves and ground wood that are windrowed, turned, and composted to produce a productive soil amendment.

C. The compost shall contain no biosolids.

D. Compost shall meet all US Composting Council, TMECC, ASTM and US EPA Standards for compost materials.

Table 1 – Compost Parameters

Parameter	Value
pH	7.1
Moisture Content	40% - 50%
Particle Size	1/2" minus
C:N Ratio	15:1
Organic Matter (dry weight)	45%
Bulk Density (lbs./cu yd)	1100
Soluble Salts (mmhos/cm)	4.0
Nutrient	% Dry Basis
Total Nitrogen	1.7
Phosphorus	0.8
Potassium	0.5
Calcium	3.5
Magnesium	0.4
	Notes: *All values are based on representative averages.

E. It shall be free of stones greater than one and one-quarter inches, lumps, plants and their roots, debris, and other extraneous matter as determined by the Owner's Representative.

F. Organic content and pH for specific planting use shall be as follows:

1. Areas planted with plants and restoration seed mixes:
   a. pH: 5.5 through 6.5 for non-acid loving plants
   b. pH: 4.5 through 5.5 for *Ericaceae* and other acid-loving plants
   d. Organic Content 4.0 - 6.0 percent as determined by the loss on ignition of oven-dried samples passing #10 sieve (Muffle furnace temperature: 450 +/- 10 degrees C for 8 hours)

2.05 EROSION CONTROL

A. Erosion Control methods include straw wattles, straw mulch, erosion control blanket, and compost filter socks as required in Sections 01568 – EROSION AND SEDIMENT CONTROL, 02952 - RESTORATION SEEDING, and 02954 - PLANTING.

PART 3 - EXECUTION

3.01 PLANTING SOIL

A. Excavated native soil shall be stockpiled and amended with compost for use as Planting Soil per this Specification Section – PLANTING SOILS prior to be being placed in areas designated on the Contract Drawings.

B. Place Planting Soil on subgrades free of mud, frost, snow, or ice.

3.02 FILLING AND COMPACTION

A. Subsoil or ordinary borrow shall have been excavated and filled as required by the Contract Documents and specified and paid for under Division 2 Section 02120, EARTH EXCAVATION, BACKFILL, FILL AND GRADING, of this Specification. Do not damage the work previously installed. Maintain all required angles of repose of materials adjacent to the loam as shown on the Contract Documents. Do not over excavate compacted subgrades of adjacent pavement or structures during loaming operations.

B. Confirm that the subgrade is at the proper elevation and that no further earthwork is required to bring the subgrade to proper elevations. Subgrade elevations shall slope parallel to the finished grade and or toward the subsurface drain lines as shown on the Contract Documents. Provide a written report to the Owner and the Engineer that the subgrade has been placed to the required elevations and that the subgrade drains water at the rates specified under the required percolation tests specified, performed and paid for under this Division 2 Section, PLANTING SOILS. Perform no work of placing and spreading soils until elevations have been confirmed and written report has been accepted by the Landscape Architect.

C. Clear the subgrade of all construction debris, trash, rubble and any foreign material. In the event that fuels, oils, concrete washout or other material harmful to plants have been spilled into the subgrade material, excavate the soil

sufficiently to remove the harmful material. Such construction debris, trash, rubble and foreign material shall be removed from the site and disposed of in a legal manner. Fill any over excavation with approved fill and compact to the required subgrade compaction levels.

D. Do not proceed with the installation of Planting Soils until all utility work in the area has been installed.

E. Protect adjacent walls, walks and utilities from damage or staining by the Planting Soils. Use 0.5-inch plywood and or plastic sheeting as directed to cover existing concrete, metal and masonry work and other items as directed during the progress of the work. Clean up all trash and any soil or dirt spilled on any paved surface at the end of each working day.

3.03 FINE GRADING

A. Immediately prior to dumping and spreading Planting Soils, the area shall be cleaned of all stones greater than 2 inches and all debris or rubbish. Such material shall be removed from the site, not raked to the edges and buried. Notify the Owner's Representative that the area has been cleaned and request his/her attendance on site to review and approve surface conditions prior to spreading stockpiled Amended Existing Soil and Planting Soils.

B. The existing soil shall be scarified to a four (4) inch depth for bonding of amendments and existing soils.

C. No soil shall be handled, planted, or seeded in any way if it is in a wet or frozen condition. A moist condition is desirable.

D. Contractor shall install Planting Soil as backfill for planting holes and to a minimum thickness of six (6") inches and graded to the elevations and slopes shown.

E. Select equipment and otherwise phase the installation of the planting soils to ensure that wheeled equipment does not travel over existing soils. Movement of tracked equipment over said soils will be reviewed and considered for approval by the Owner's Representative. If it is determined by the Owner's Representative that wheeled equipment must travel over exiting soils, provide a written description of sequencing of work that ensures that compacted soil is loosened and uncompacted as the work progresses.

F. Disturbed areas outside the limit of planting work shall be graded smooth and spread with a minimum of 6 inches of Planting Soil to the finished grade.

3.04 ACCEPTANCE

A. Confirm that the final grade of the Planting Soils are at the proper finish grade elevations. Adjust grade as required to meet the contours and spot elevations noted on the Plans. Request the presence of the Owner's Representative to inspect final grade. Do not proceed with the remaining work of this Contract until the Owner's Representative has given his/her written approval of the final grade.

PART 4 – COMPENSATION

Item 2950.1 – Sampling and testing of planting soils

METHOD OF MEASUREMENT:

Measurement for payment for this item is based on each sample for sampling and testing the planting soils for all locations as noted on the drawings.

BASIS OF PAYMENT:

Under the Unit Price for this item, the Contractor shall furnish all labor, equipment, materials, incidental work, and construction methods necessary to sample and test the planting soils as indicated on the drawings. This includes hiring an independent soil-testing firm at the Contractor's expense to verify compliance with these Specifications.

Item 2950.2 – Planting soils

METHOD OF MEASUREMENT:

The unit price bid for Planting Soil will be measured in units of cubic yards, complete in place, required to establish finish grades for the planting areas, in accordance with the Contract Drawings, and as directed by the Engineer.

BASIS OF PAYMENT:

The unit price for Planting Soil shall be full compensation for all labor, tools, equipment, materials, transport and all incidental labor and materials necessary to complete the work as specified herein, at the direction of the Engineer, and as shown and detailed on the Contract Drawings.

Item 2950.3 – Amend existing soil

METHOD OF MEASUREMENT:

Payment for this item shall be based on the unit price bid for this item in the proposal. Measurement for payment for shall be based on the actual number of cubic yards of Amended Existing Soil required for all locations as noted on the drawings.

BASIS OF PAYMENT:

Under the Unit Price for this item, the Contractor shall furnish all labor, materials, tools, equipment, and incidentals required to Amend Existing Soils, including, but not limited to, tilling and compost amendments, as shown on the Contract Drawings, at the direction of the Owner's Representative, and as specified.

-END OF SECTION 02950-