

***CITY OF NEWTON, MASSACHUSETTS***

**PURCHASING DEPARTMENT**

**June 29, 2005**

**A D D E N D U M # 1**

**FOR**

**INVITATION TO BID #05-84**

***NEWTON LOWER FALLS TENNIS COURT RECONSTRUCTION***

**PLEASE NOTE:**

**This addendum is to:**

1. Provide **“REVISED”** Special Provisions, Sections 1 through Section 14 (attached)

All other terms and conditions of this bid remain unchanged

***PLEASE ENSURE THAT YOU ACKNOWLEDGE THIS ADDENDUM ON YOUR BID FORM***

Thank you.  
Re Cappoli  
*Chief Procurement Officer*

**SECTION 1****ITEM 1 – FURNISH & MOUNT SIGNS (INCLUDING POSTS)**Description

(a) Seven days prior to the commencement of work the Contractor shall establish safety and specialty signboards with posts, as directed by the Engineer, and/or as described on **page 66 of the City of Newton “General Constructions Details Revised March 2003”** and/or as shown on the plans and/or as otherwise may be required. However, the Contractor is not to order any signboards until he has coordinated this effort with the Engineer in order to identify the maximum number, and various types of signboards that should be contained in the initial sign making order as every new signboard, once delivered, is to be reused. The Contractor is to order new signboards as the Engineer may further direct as the construction activities progress, however, no payment will be made for any new signboard which is damaged or lost. Damaged or lost signs are to be replaced at the Contractors own expense.

(b) Signboards and posts being the first mobilization element to be established throughout each project zone before any other construction activity takes place within that particular zone.

(c) Specialty signboards, bearing unique messages, shall be fabricated by special order of the Engineer to address any and all site specific informational requirements.

(d) Once established, all signboards and/or post systems are to be maintained for the duration of the construction activities. Any damaged signboards and/or post systems are to be immediately replaced at the Contractors own expense without any additional compensation.

Materials

(e) Plywood signboards panels shall be fabricated from ¾” thick medium Density Overlaid (MDO) Exterior Type, A-B both sides surface in natural color and the whole conforming with the requirements and tests for the above as set forth in U.S. Products Standards PSI-74 for Construction and Industrial Plywood. All plywood shall bear the grade trademark of an approved testing agency. The entire area of the signs shall be reflectorized with the reflective sheeting conforming to Section M9.30.0 of the Commonwealth of Massachusetts, Standard Specification for Highway and Bridges, dated 1988. All applicable portions of Sections 828 and 840 of the aforementioned specifications shall also apply.

(f) Posts shall be constructed of sturdy material(s) and adequately installed so as to withstand seventy-five mile an hour sustained winds when the respective sign is mounted in place. No payment will be made for posts, and/or support systems, which do not clearly meet this criteria. No additional payment will be made to replace any damaged post systems.

Method of Construction

(g) All signboards shall be fastened in the manner described in the Construction Details, and/or as shown on the plans, or as directed by the Engineer.

(h) The Contractor shall be responsible for maintaining all signboards and posts for the duration of the contract and all signs and/or posts damaged or lost during construction shall be replaced by the Contractor at his own expense.

Method of Construction (Continued)

(i) Upon completion of the Contract, all safety and specialty signboards shall become the property of the City of Newton. Signboards shall be delivered by the Contractor to a City location designated by the Engineer, where the Contractor is to neatly stockpile the signboards (exclusive of the posts). The City reserves the right to limit the number of signs it receives, and to further pick and choose which signs are to be delivered to the City of Newton. In the event the City has no desire to take control of the signs, then the Contractor is to dispose of them as he so chooses, however, in no case is any sign to be discarded in this manner until such time as the Engineer authorizes its release.

Method of Measurement

(j) Under this item measurement for the payment of signboards with posts shall be by the square foot of surface area for each new and professionally made signboard. No additional payment will be made for field made signboards which are ordered by the Engineer and which bear a temporary hand-written message.

Basis of Payment

(k) Under this item the Contractor will be paid the contract unit price per square foot for each new professionally made safety and specialty signboard authorized and/or approved by the Engineer, complete in place, inclusive of the post system(s). The express intent, under this item is to re-use the signboards, moving the signboards from project zone to project zone as the construction operations progress, and without any further additional compensation under this item.

(l) Under this item signboards are to be furnished, complete in place, which unit price shall include full compensation for all labor, materials, tools and equipment and all incidentals necessary to complete the work under this item, as shown on the plans, as directed by the Engineer and as specified herein.

(m) No additional payment will be made for signs and/or signposts which are damaged and are subsequently replaced.

SECTION 1**ITEM 2 – SAFETY CONTROLS FOR CONSTRUCTION OPERATIONS**Description

(a) The Contractor is exclusively responsible for all safety aspects of the project. Work under this section consists of providing, positioning, repositioning and maintaining various pedestrian and traffic control devices for the protection, and guidance of the traveling public and working personnel during construction and maintenance operations. This work shall consist of providing all goods and services for channelizing, barricading, detouring and/or for any other warning and/or protective enterprise.

(b) Under this item the contractor is solely responsible for all safety aspects of the Contract subject to the **Provisions of Article 14 of the General Conditions of the Contract**, however, the Contractor is to act on the specialized requests of the Engineer.

Materials

(c) Materials required under this section need not be new but must be in first class condition and acceptable to the Engineer. Any materials that are damaged, or are otherwise unsatisfactory in appearance and/or performance, shall be removed and immediately replaced by acceptable units.

Method of Construction

(d) All warning, directional and/or barricading devices shall be subject to removal, replacement and/or repositioning as often as is necessary.

(e) Cones or non-reflectORIZED warning devices, when no longer needed for traffic control, shall not be left in operating position when the operations have been completed.

(f) Under this item the Contractor is to continually monitor, deploy and/or reposition, as often as is necessary, caution tape, cones, barrels, barricades, and/or any other device, or is to further provide any other service that is necessary to ensure the continued safety and convenience of site personnel, pedestrians, and/or the motoring public.

(g) The Contractor is to work closely with the Safety Officer of their insurance agency to determine, and establish, on an on going basis, as the construction operations progress, the number and type of devices that are needed in order to clearly define and identify any and all potential safety hazards to the general public and to site personnel.

(h) The Contractor shall replace, without additional compensation, any control devices which are lost, stolen, destroyed, and/or are deemed unacceptable while their use is required on the project,

Basis of Payment

(i) Under **Item 2** the Contractor shall be paid the contract lump sum price which price shall constitute full payment for all materials, labor and equipment required and/or is otherwise incidental to the work described herein, as shown on the plans and/or as directed by the Engineer.

**SECTION 2****ITEM 3 – SCARIFY & DISPOSE OF THE EXISTING BITUMINOUS SURFACE****Description**

(a) Under this item the Contractor shall carefully strip the existing bituminous concrete surface from the court system such that the underlying material and its gradient are minimally disturbed. No over-excavation shall be allowed.

(b) Disposal of all excavated materials shall be immediate such that no material(s) remain on the site at the end of the workday.

**Method of Construction**

(c) The Contractor shall exercise great care in selecting the most appropriate equipment which is to be used in these excavation process' so that the underlying material is minimally disturbed.

**Basis of Payment**

(d) Under **Item 3** the Contractor will be paid the lump sum price for the removal and immediate off-site disposal of the existing bituminous concrete tennis court surface and/or any other residual material(s) created during this excavation process, which lump sum price shall include full compensation for all labor, materials, tools and equipment, and all incidentals necessary to complete the work under this as shown on the plans, as directed by the Engineer, and/or as specified herein.

**SECTION 3****ITEM 4 - FURNISHING & PLACING DENSE GRADED CRUSHED STONE  
(FOR SUPPLEMENTAL GRADING & COURT EXTENSION REFILL)**Description

(a) Under this item the Contractor shall furnish and install dense graded crushed stone as a supplemental means of refining the subgrade gradient for the purpose of preparing the base for the proposed tennis court surface and also for refilling the perimeter 'trough' for the proposed court extension.

(b) The depths of dense graded crushed stone and gravel shall be as shown on the plans and/or as otherwise approved and/or directed by the Engineer.

Materials

(c) Dense graded crushed stone shall conform to Division III, Materials, subsection M2.01.7 of the Commonwealth of Massachusetts Department of Public Works Standard Specifications for Highway and Bridges, dated 1973. Dense graded crushed stone shall be subject to the approval of the Engineer.

Method of Construction

(d) If necessary, and at the direction of the Engineer, the dense graded material shall be spread from self-spreading vehicles or with power graders of approved types or by hand upon the prepared subbase. Care shall be taken while spreading the material to rake forward and distribute the largest stone so that they will be at the bottom of the course and be evenly distributed.

(e) The dense graded material shall be thoroughly rolled true to the lines and grades, as directed, with a self-propelled three (3) wheeled roller or tandem roller weighing not less than twelve (12) tons until it presents a firm stable and unyielding surface and until it ceases to creep under the wheels of the roller. Any depressions that appear during or after rolling shall be additionally filled with and re-rolled until the surface is true and even.

(f) Any area that is inaccessible to mobile mechanical equipment or in restricted areas shall be compacted with pneumatic rammers or powered hand tampers. This directive shall especially apply to the 'trough' area.

(g) Compaction shall be carried on until the density of the material is not less than ninety-five (95) per cent of the Standard Proctor Density as determined by Standard Laboratory Compaction Test. The Contractor, at the direction of the Engineer, shall arrange and pay for and submit to the Engineer results of such tests taken in such number as to indicate a test of every eight hundred (800) square feet of compacted area.

(h) The dense graded material shall be fine graded and rolled to a true grade, the prescribed number of inches in depth, and parallel to the finished grade of the roadway. The Contractor shall, when the Engineer orders to do so, place iron pins or stakes along the primary gradient lines, or wherever the Engineer may decide, and mark the necessary grade thereon. The Contractor shall supply all the labor and material necessary to accomplish this task.

Method of Measurement

(i) Measurements taken for payment shall be by the cubic yard and such measurements shall be taken with the dense graded crushed stone in place, properly graded and fully compacted.

Basis of Payment

(j) Under **Item 4** the Contractor will be paid the contract unit price per cubic yard for furnishing and placing dense graded crushed stone, which unit price shall include full compensation for all labor, materials, tools, equipment, and incidentals necessary to complete the work under this item as shown on the plans, as directed by the Engineer and as specified herein.

**SECTION 4****ITEM 5 – FURNISH & INSTALL CINCH STRAP FOUNDATION & ASSEMBLY**Description

(a) Under **Item 5** the Contractor shall furnish and install a new cinch strap assembly and foundation as shown on the plan and as specified herein.

Materials

(b) Materials shall be of the type shown on the plans or as otherwise approved.

(c) Foundations shall be of fully formed Class B concrete and shall comply with **Section 13 par. (r)**.

Method of Construction

(d) The Contractor is to install the equipment in accordance with the manufacturers instructions, a copy of which must be supplied to the Engineer prior to the commencement of work. Any other work not specifically covered by the manufacturers instructions shall be carried out by the Contractor in the manner, to the dimensions, and in accordance with the directives as shown on the plans, as specified herein and/or as directed by the Engineer.

Basis of Payment

(e) Under **Item 5** the Contractor will be paid the contract price for furnishing and installing each new cinch strap assembly and foundation, complete in place, including all necessary hardware and assembly, as well as the excavation and disposal of the existing cinch strap foundation, which price shall include full compensation for all labor, materials, tools and equipment, and all incidentals necessary to complete the work under this item as shown on the plans, as directed by the Engineer, and as specified herein.

**SECTION 5****ITEM 6 - FURNISHING & PLACING 3" TYPE I-1 BITUMINOUS CONCRETE  
( FOR COURT SURFACE)**Description

(a) The Contractor shall furnish and place bituminous concrete Type I-1 as shown on the plans, as directed by the Engineer and as specified herein. **This work shall include the disassembly and subsequent restoration of fences necessarily removed for the purpose of gaining equipment access to the court system(s).**

Materials

(b) This type of pavement shall be composed of mineral aggregate, mineral filler and bituminous material, plant mixed and laid hot. The mixing and materials shall conform to the current specifications as set forth in the Commonwealth of Massachusetts Department of Public Works Standard Specifications for Highway and Bridges, Sections 460 and M3, dated 1988

(c) The bituminous concrete shall be laid on the existing sub-base material. However any additional supplemental material shall be furnished and installed under **Section 3 Item 7.**

Method of Construction

(d) The Contractor shall supply all necessary materials to subsequently stake and grade the entire court area with a sufficient number of stakes such that the design grades can be clearly met. This directive shall apply for all grading operations, inclusive of the subgrade material(s), the binder course, and/or the final bituminous concrete top. The Contractor is to further stake and/or set any lines, for any critical points of interest that the Engineer may require. Subsequent to their final use the Contractor is to remove all stakes in their entirety. No stake shall be broken off but instead it shall be thoroughly and entirely removed and promptly discarded. Equipment and materials utilized by the Contractor to achieve the design grades are subject to the approval of the Engineer.

(e) The bituminous concrete shall be spread with a mechanical spreader of the self powered type having a floating screed assembly controlling the elevation of the strike-off. The screed or strike-off member shall be adjustable to the shape of the cross-section of the finished pavement and shall be of such design as to produce without tearing, shoving or gouging, a finished surface of the evenness and texture desired. The use of road graders, or towed spreaders, shall not be allowed. If, in the opinion of the Engineer, the spreading and finishing equipment is not providing satisfactory results, he shall order the use of such equipment be discontinued and other satisfactory spreading and finishing equipment shall be provided by the Contractor. Hand spreading may be used in places inaccessible to the machine and when permitted by the Engineer. When hand spreading is permitted, the mixture shall be dumped, upon arrival, on approved steel dump sheets outside the area in which it is to be spread and shall then immediately laid to the required depth.

Method of Construction (Continued)

(f) The Engineer may at any time order the use of side forms which shall be of a type subject to his approval. The forms shall be set so that the finished pavement shall be at a true line and grade as determined by the Engineer. The Engineer may in lieu of forms order the use of iron pins with grade marked thereon, so placed that they will not interfere with the travel of the machine spreader, but close enough so that a short straight edge placed on the newly laid pavement can reach a string line tied from pin to pin, and afford a visual check on the thickness of the newly laid pavement. The Engineer may order the pins to be used on the base, binder, or top courses. All expenses involved in the use of pins including the furnishing of such iron pins shall be borne by the Contractor.

(g) The bituminous concrete must be kept clean during hauling and handling and covered if necessary during transit with canvas or other material which will retain the desired pavement temperature. These mixtures must not be hauled in such a manner that segregation of the ingredients takes place, or that a crust is formed on the surface, or that the mixture will crumble or flatten out when dumped. Trucks which transport the mixture shall be tight, and the side of the bodies shall be coated with a thin film of oil, or soap solution. The dispatching of trucks from the distribution point shall be so arranged that all the material may be placed in a continuous manner so that the adjacent joints are laid hot and such that the entire surface shall have received final compression before nightfall of the same day.

(h) The bituminous concrete mixture shall be delivered to the work in such condition that it is easily workable and can be efficiently laid. The mixture shall not be laid upon a wet or damp surface, but shall only be laid on an approved base course which is dry, and only when weather conditions are suitable which shall be decided by the Engineer. The temperature of the mixture to be laid shall be between two hundred and twenty-five (225) degrees Fahrenheit and three hundred and twenty-five (325) degrees Fahrenheit and no mixture shall be placed when the air temperature in the shade and away from artificial heat is forty (40) degrees Fahrenheit or less. Variation from these temperatures may be permitted only on written permission of the Engineer.

(i) The bituminous concrete shall be laid in the prescribed number of courses as shown on the plans or as determined by the Engineer. All depths of courses shall mean the finished depths after rolling and all courses must be laid so that they will have the required thickness and be parallel to the proposed finished grade of the surface.

Method of Construction (Continued)

(j) After the paving mixture has been properly spread it shall be thoroughly and uniformly compressed by rolling with power rollers. On projects involving less than one hundred and fifty (150) tons of paving mixture per day one (1) tandem roller of not less than ten (10) tons shall be used. On projects using more than one hundred and fifty (150) tons but less than three hundred and fifty (350) tons two (2) rollers shall be required with one (1) additional roller for each two hundred (200) tons of mixture per day thereafter. A day shall be construed as eight (8) hours working time. If, in the opinion of the Engineer, satisfactory compaction is not obtained by rolling with a tandem roller, the Engineer may order the rolling to be done with ten (10) to twelve (12) ton three (3) wheeled roller with wheels not less than twenty-four (24) inches wide. All rollers used shall weigh at least two hundred and fifty (250) pounds per inch width of tread. Each roller shall be in charge of a competent, experienced roller operator and shall be kept in a nearly continuous operation as practical while the work is under way. The pavement shall be rolled longitudinally, diagonally, and transversely, as directed. Longitudinal rolling shall start at the side and proceed toward the center of the pavement, overlapping on successive trips by at least one-half (1/2) the width of the rear wheel of the roller. Diagonal rolling shall be in two (2) directions, the second diagonal rolling crossing the lines of the first. If the width of the work permits, it shall in addition be rolled at right angles to the centerline. This method of rolling shall be continued and so executed that all roller marks, ridges, porous spots and impressions are eliminated, and the resulting surface has the required grade and contour. Rolling shall proceed at a rate not to exceed two hundred and fifty (250) square yards per hour, per roller. To prevent adhesion of the mixture to the roller the wheels shall be kept properly moistened but excess water or oil will not be permitted. Along forms, curb headers and similar structures and all places not accessible with a roller, the mixture shall be thoroughly compacted by tampers. Such tampers shall weigh not less than twenty-five (25) pounds and shall have a tamping face of not more than fifty (50) square inches. The surface of the mixture after compressing shall be smooth and true to the established crown and grade. Any mixture which becomes loose and broken, mixed with dirt or in any way defective shall be removed and replaced with fresh mixture, which shall be immediately compacted to conform with the surrounding area. Areas of one (1) square foot or more showing an excess of bitumen shall be removed and replaced.

(k) The densities of the completed pavement shall be not less than ninety-two (92) percent of the calculated density of a voidless mixture composed of the same materials in like proportions. After final compression, samples will be taken from the completed pavements and when tested by standard laboratory methods shall show compliance with aforesaid density requirement.

(l) The lengths of lanes or strips of bituminous concrete in the base, binder and top courses shall be under control of the Engineer at all times. The practice of laying lanes of bituminous concrete for such lengths that an unduly long period of time elapses before laying adjacent lanes shall not be allowed.

(m) The finished surface shall present an even texture free from blemishes, ridge marks or imperfect spots and it shall be true as to line and grade. When tested with a sixteen (16) foot straight edge placed parallel with the center line of the surface course there shall be no deviation from a true surface in excess of one-quarter (1/4) of an inch. A ten (10) foot straight edge may be used on vertical curves. If any soft or imperfect places or spots develop in the surface, all such places shall be removed and replaced with new material and then rolled until the edges at which the new work connects with the old becomes invisible. All such removal and replacement of unsatisfactory surfacing shall be done by the Contractor without additional compensation.

Basis of Payment

(n) Under **Item 6** the Contractor will be paid the contract price per square yard for bituminous concrete Type I-1, complete in place, which unit price shall include full compensation for all preparatory excavation and subsequent grading operations, for any additional demolition processes not covered elsewhere under a other item, for the disassembly and subsequent restoration of any fence and/or fence materials necessarily removed for the purpose of gaining equipment access, for the disposal of all excess and/or unsuitable material(s) of any type not specifically covered under other items, and for all labor, materials, tools and equipment and all incidentals necessary to complete the work under this item as shown on the plans, as directed by the Engineer and as specified herein.

**SECTION 6****ITEM 7 - ADJUST THE EXISTING TENNIS NET POST PULLEY CAPS****ITEM 8 - PRIME & PAINT THE EXISTING TENNIS NET POSTS & APPURTENANCES**Description

- (a) Under **Item 7** the Contractor shall adjust the existing net post pulley caps as the Engineer may require in order to achieve the prescribed regulation height as shown on the plans.
- (b) Under **Item 8** the Contractor shall prime and topcoat the existing tennis net posts as shown on the plans and/or as directed by the Engineer.

Materials

(c) In the event the tennis caps must be shimmed then the Contractor shall cut and install steel shims that are of a size and nature equal to the top inside dimensions of the existing cap(s), or in lieu of shimming with disks the Contractor may provide an alternative plan via a shop drawing proposal. In the event the tennis net post caps must be lowered then the Contractor shall squarely cut the top of the existing post(s) with an approved cutting blade. No torch cutting will be allowed.

(d) Primer and paint for the tennis net posts and appurtenances shall be 'Rustoleum'® grade or an approved equal of a type and color as approved by the Engineer prior to application. The primer and paint shall be manufactured by the same company, and shall also be of a compatible nature. Additionally, the primer shall be of a type that is traditionally used to prepare galvanized metal prior to topcoating.

Method of Construction

(e) Subsequent to the final adjustment of the tennis net post caps the Contractor is to apply paint in accordance with the manufacturers instructions, a copy of which must be supplied to the Engineer prior to the commencement of this work. Any other related work which is not specifically covered by the manufacturers instructions shall be carried out by the Contractor in accordance with the directives as shown on the plans, as specified herein and/or as directed by the Engineer.

(f) A minimum of two coats of top coat paint shall be brushed on with a high quality brush in order to prevent any unsightly seaming and/or 'holidays'. Additionally, the Contractor is to exercise great care while painting around any movable parts such as pulleys and ratchets so that they are not rendered inoperable due to the painting process. Further, no paint splatter is to occur on the surface of the bituminous top course, either before or after the sealcoating application. To that end the Contractor shall employ adequate paint shields and/or drop cloths.

Basis of Payment

(g) Under **Item 7** the Contractor will be paid the lump sum contract unit price for adjusting the tennis net post pulley caps, complete in place, which unit price shall include full compensation for all preparatory work and subsequent adjustment process', and for all labor, materials, tools and equipment and all incidentals necessary to complete the work under this item as shown on the plans, as directed by the Engineer and as specified herein.

(Continued on next page)

Basis of Payment (Continued)

(h) Under **Item 8** the Contractor will be paid the lump sum contract unit price for priming and painting the tennis net posts and related tennis net post appurtenances, which unit price shall include full compensation for all preparatory work and subsequent top coating process', and for all labor, materials, tools and equipment and all incidentals necessary to complete the work under this item as shown on the plans, as directed by the Engineer and as specified herein.

SECTION 7**ITEM 9 – SEALCOAT & STRIPE THE TENNIS COURTS (3 COATS)**Description

- (a) The courts are to be finished in a two-tone color scheme. The interior court area shall be dark green, and the exterior area shall be red. The Contractor shall sealcoat the entire court(s) area with three (3) coats as shown on the plans, as directed by the Engineer and/or as specified herein.
- (b) The Contractor must show that he possesses the equipment, ability and experience necessary to do this work in accordance with the plans and specifications and to do a workmanlike job.
- (c) Before the Contractor begins work on these courts, and from time to time during construction, the Contractor shall submit to the Engineer for his approval detailed accounts of the methods and materials he intends to use.
- (d) No substitution for the materials specified shall be allowed unless the substituted materials are shown to be equal in all respects to the materials specified.
- (e) The Contractor will be held strictly responsible for a complete watertight workmanlike job.

Materials

- (f) All materials shall conform to these specifications and to such further material specifications and/or directives as shown on the plans.
- (g) All containers of materials for the sealcoating shall be delivered on the site in factory sealed containers. Samples shall be taken as the material is being applied for laboratory tests as may be required.
- (h) Materials used for sealcoating shall be a 100% acrylic latex color system for exterior use. This material shall be **Latex-ite System as manufactured by New England Sealcoating Co. Inc.**, or an approved equal. All material shall be a non-fading weather proof acrylic colored surface and sealer for use on plant mix asphalt. The colored system must protect the foundation and asphalt surface from fuel, oils, acid, alkalies, solvents, weather, sun, wind and other climatic conditions. The surface shall not peel, crack, craze or chalk. The surface shall provide a tough durable playing surface that is of uniform texture and shall remain resilient and flexible. The surface shall be water-tight yet have the ability to breath and allow water vapor to migrate from underlying foundation materials. Normal drying conditions shall allow for play after twenty-four (24) hours.
- (i) The sand to be used in all the emulsion shall be free from salt, clay, organic and other foreign matter and shall be graded so that one hundred (100) per cent passes a No. 20 U.S. Standard Sieve and one hundred (100) per cent is retained on a No. 200 U.S. Standard Sieve.
- (j) Playing lines shall be painted with an approved white acrylic latex line paint.

Method of Construction

- (k) Before laying any of the sealcoats the pavement shall be swept clean, flushed with water and be free of sand, dust and other foreign and objectionable material.
- (l) The entire area of bituminous concrete shall be sealcoated. The dimensions are shown on the plans.
- (m) Two (2) filler coats of latex acrylic shall be applied at a rate of approximately one tenth (0.10) gallon per square yard. It shall be applied with high quality twenty-four (24) inch rubber squeegee. The material, prior to application, shall be thoroughly mixed, on the job, by power agitator to a homogeneous consistency, and as portions of the mix are used it shall be constantly agitated to assure a continuous dispersion for uniform application.
- (n) The emulsion for the finish coat shall be applied at a rate not less than four-hundredths (0.04) gallon per square yard. It shall be applied with wide hair-type push brooms or high quality twenty-four (24) inch rubber squeegee. This shall produce a uniform color over the court surface when viewed from a distance of twenty-five (25) feet from any edge of the court at mid-day.
- (o) Each coat shall be thoroughly dehydrated before application of the succeeding coat.
- (p) The entire sealcoating operations shall be done under the direct supervision of the manufacturer's representative.
- (q) Suitable protection and precaution must be arranged to protect the treated areas until the final application is thoroughly dry and not subject to damage.
- (r) Two (2) inch playing lines shall be accurately located and marked in accordance with the latest standards of the U.S. Tennis Association. Approved line paint shall be used to paint the playing lines and no oil base paint shall be permitted. The surface shall cure for forty-eight (48) hours before the lines are painted. Painters shall use soft-shoes and knee pads to prevent indentation of the fresh surface. Ragged lines will not be acceptable. The lines may be masked and brushed on or sprayed with approved power equipment. There shall be no fogging, overspray or spattering.

Basis of Payment

- (s) Under this **Item 9** the Contractor will be paid the contract lump sum price for the sealcoat, laboratory tests, line painting, and all appurtenances, which lump sum price shall include full compensation for all labor, materials, tools and equipment, and all incidentals necessary to complete the work under this item and in accordance with the specific directives unique to the site as shown on the plans, as directed by the Engineer, and as specified herein. The basis of payment shall be one payment for the entire two court surface area.

SECTION 8**ITEM 10 - MISCELLANEOUS WORK ALLOWANCE (ENGINEER'S DISCRETION)**Description

The intent of this section is for the completion and/or furnishing for certain items of work which are not called for under the specifications or indicated on the plans but which are requested by the Engineer. These items of work shall be completed only when, and as, directed by the Engineer. The Contractor may not proceed with any work under this section without the written notice of the Engineer to complete the work under the "Miscellaneous Work Allowance".

The sum to be allowed for the work of this item, **Item 10**, shall be **one thousand dollars (\$1,000.00)**.

All work under this item shall be paid for by one or more or a combination of the following methods at the City's discretion.

- a. Unit prices previously bid.
- b. An agreed lump sum.
- c. The actual cost of:
  1. Labor, including foremen;
  2. materials entering permanently into the work;
  3. the ownership or rental cost of construction plant and equipment during the time of use on the extra work;

To the cost under c. there shall be added a fixed fee to be agreed upon but not to exceed fifteen per cent (15%) of the actual cost of the work. The fee shall be compensation to cover the cost of supervision, overhead, bond, profit and any other general expense.

The City shall retain a cash credit in full or in part, in the event that the final cost of materials and/or equipment is lower than the original cash allowance provided.

To the estimated cost or actual cost under (c) for work performed by subcontractors, there shall be added a fixed fee of ten per cent (10%) as compensation to cover the subcontractor's cost of supervision, overhead, profit and any other subcontract general expense, plus ten per cent (10%) as compensation to cover the General Contractor's cost of supervision, overhead, profit, bond and any other general expenses.

Basis of Payment

Payment for work completed under **Item 10** shall be as specified above, in full or in part, as approved by the Engineer.

SECTION 9**ITEM 11 - MATERIALS TESTING**Description

(a) The Contractor shall include in his bid, an allowance of **four hundred dollars (\$400.00)** for tests conducted in the field, and/or the laboratory, that are called for by the Engineer. The tests are to be conducted for the purpose of controlling the materials, and/or for the determination of compliance with the compaction requirements utilizing the Standard Proctor method (ASTM D698-00).

(b) The Contractor will arrange to have material tested as directed by the Engineer, and will transport sample materials to the testing facility, or to other destination as may be required, such that the sample materials are not disturbed or tampered with. Transportation will be by a means, and in a manner, that is satisfactory to the Engineer.

(c) The testing services, testing means, testing laboratories, and all associated costs, must be approved by the Engineer in advance.

Basis of Payment

(d) Under **Item 11** the Contractor will be paid the full invoice amount for all approved testing which shall serve as full reimbursement under this item, provided that such services, testing means, laboratories, and all associated costs, have been approved by the Engineer in advance. The Contractor is required to submit to the City Engineer copies of evidence of payment before reimbursement is made.

(e) The cost of the sample material, and the transport of the material, shall be borne by the Contractor.

**SECTION 10*****ITEM 12 – TRIM BUSHES BACK FROM THE EXISTING FENCELINE*****Description**

(a) Prior to beginning the demolition process the Contractor will be required to carefully cut, trim and dispose of any branches and/or leaders that are currently growing through the existing fence. This work is to be performed with extreme care in order to preserve the health and quality of the existing plant materials.

**Method of Construction**

(b) The Contractor shall work closely with the Engineer, and the City of Newton Tree Warden, to determine the method, the means, and the manner by which the Contractor shall carry out this work and to that end the Contractor shall arrange for a consultation with all concerned parties prior to the commencement of this work. Once the determinations have been made the Contractor shall carefully trim back the branches in accordance with the accepted and approved method(s) such that no harm is caused to the affected plant materials. Subsequent to the trimming back of the branches the Contractor shall immediately dispose of all brush and associated refuse, residue and/or other waste materials.

**Basis of Payment**

(c) Under **Item 12** the Contractor shall be paid the contract lump sum price which price shall constitute full payment for all materials, labor and equipment required and/or is otherwise incidental to the work described herein, as shown on the plans and/or as directed by the Engineer.

**SECTION 11*****ITEM 13 – DEMOLISH & DISPOSE OF THE EXISTING FENCE SYSTEM***Description

(a) The Contractor shall disassemble, remove and immediately dispose of the existing fencing system, the associated materials and/or any other related appurtenances, inclusive of the concrete footings and root systems embedded in the fence or otherwise. Disposal of all materials shall be immediate such that no material(s) remain on the site at the end of the workday. **The Contractor is further advised that the existing fence frame may be coated with lead paint.**

(b) The Contractor shall carefully remove the existing fence posts such that the original fence footing apertures are minimally disturbed. To that end the Contractor will be required to clear any loose soils from these original footing locations and shall thereafter re-establish the new fence footings in these same locations in order to avert any soil and/or bituminous surface settlements.

Materials

(c) Abandoned apertures, especially those created by the excavation of ‘embedded roots’ shall be filled with dense graded material as specified under **Item 4**.

Method of Construction

(d) Each existing fence post and footing shall be removed in a vertical manner by a means approved by the Engineer so that the ground is minimally disturbed by this operation. Subsequent to the removal of the footings the Contractor shall clear each individual aperture to make way for the new footing and post installation. Further, any holes which are either created by the excavation of roots or may otherwise be abandoned are to be filled with a suitable material and then immediately compacted with a pneumatically driven tamping bit. This directive applies to each fence post hole and to each existing foundation. The intent of this order is to ensure that no settlement occurs as a result of these removal and/or excavation procedures.

Basis of Payment

(e) Under **Item 13** the Contractor will be paid the lump sum price for the removal and immediate off-site disposal of all fence material(s), footings and/or any other associated fencing element, inclusive of loose soils created during these process’, which lump sum price shall include full compensation for all labor, materials, tools and equipment, and all incidentals necessary to complete the work under this item as shown on the plans, as directed by the Engineer, and/or as specified herein.

**SECTION 12****ITEM 14 - PERIMETER EXCAVATION TO PREPARE FOR THE COURT EXTENSION**Description

- (a) **In the event the City chooses to exercise this option, either in whole or in part, then under this item the Contractor shall use a one foot wide excavation bucket to create a trough along the entire outside perimeter of the existing tennis court footprint. This trough is to be made to a depth as shown on the plans or as may otherwise be required by the Engineer based upon a field determination as the quality of the existing subsurface base material. The purpose of this process is to provide a stable base for the proposed bituminous surface extension which will act as a barrier against future root encroachments. In lieu of this operation, and subject to a consensus field decision by the City of Newton, the existing fenceline may be moved inward toward the playing courts in order to achieve a viable paved root barrier, thereby utilizing both the existing fence footing apertures and the existing playing court base material.**
- (b) Excavation shall include the removal and disposal of brush, trees under six (6) inches in diameter, boulders less than one-half (1/2) cubic yard in volume, existing pavements whatever their nature may be, peat, mud and anything else to be removed which is not specifically covered under any other item.

Method of Construction

- (c) In the event that the Engineer decides that the material encountered at or below subbase is unsuitable material on which to place the dense graded material, then the Contractor shall excavate to such greater depths as the Engineer may decide and no extra compensation shall be allowed other than the regular unit price quoted in the proposal for excavation under this item.
- (d) The excavation shall be done in such a manner that the subbase shall be at a prescribed depth below and parallel to the finished grade. All such work shall be done before the dense graded material is installed.

Method of Measurement

- (e) The Contractor is not to refill any excavated area until such time as he has notified the Engineer that such excavation has occurred, and is to further work with the Engineer to verify both the depth and breadth of the excavated area(s) as only confirmed and verified quantities shall be paid.
- (f) Measurements taken for payment of the 'trough' excavation shall be by the cubic yard measured in place.

Basis of Payment

(g) Under **Item 14** the Contractor will be paid the contract unit price per cubic yard for earth excavation which unit price shall be full compensation for all labor, tools, equipment and all incidental work necessary to complete the work under this item as shown on the plans, as directed by the Engineer and as specified herein.

(h) Dense graded crushed stone used to refill this excavated 'trough' area shall be paid for under **Item 4**.

**SECTION 13****ITEM 15 – 10’ ‘COLORIZED’ CHAIN LINK FENCE WITH 2 PEDESTRIAN GATES**Description

(a) The Contractor shall furnish and erect a **Permafused ® II Polyolefin fused colorized fence and gate system as manufactured by Master Halco ®**, or an approved equal, in the locations shown on the plans. **Prior to commencing with this work the Contractor will be required to submit to the Engineer both a ‘Midnight Black’ and a ‘Forest Green’ sample that is representative of both the wire fabric, and the pipe, and he shall subsequently place his final order based upon the color selected by the City.**

Materials

- (b) Materials shall consist of a zinc-coated base steel that is ultimately graded as a **Type I Permafused II Polyolefin as manufactured by Master Halco ®**, or an approved equal.
- (c) Wire fabric shall be **Permafused II Polyolefin** fused and adhered to No. 9 gage zinc-coated steel wire conforming to ASTM-F668 two (2) inch mesh, knuckled top and bottom.
- (d) Posts and rails shall be **Type I Permafused II Polyolefin having a ten (10) mil minimum coating over a base of hot-dipped galvanized steel with a minimum average of 1.8 ounces per square foot of zinc-coated surface area conforming to ASTM F1043 Group 1A standard weight pipe, schedule 40**. Expansion sleeves, caps, eye-tops, rail ends, stretcher bars, wire ties, fabric ties, hog rings, tension wire, miscellaneous fittings and hardware shall be **Permafused II coated @ six (6) mil minimum over hot-dipped galvanized pressed steel**.
- (e) All pipe dimensions and weights shall conform to ASTM-A120, Schedule 40. The weight of the zinc coating for pipe shall be not less than 1.8 ounces per square foot of metal surface.
- (f) Top, bottom and middle (10'fence only) rails shall be tubular pipe 1 5/8 inch O.D. nominal weight 2.27 pounds per linear foot in conformance with ASTM-A120, Schedule 40. Couplings or expansion sleeves shall be outside sleeve type and at least six inches long.
- (g) Steel line posts shall be 2 3/8 inch O.D. pipe with a weight of 3.65 pounds per linear foot.
- (h) End and corner posts shall be 2 7/8 inch O.D. pipe with a weight of 5.79 pounds per linear foot.
- (i) Equipment gate posts shall be four (4) inch O.D. pipe with a weight of 9.10 pounds per linear foot.
- (j) All posts shall be fitted with an approved top so designed as to fit securely over the post and carry the top rail. The base of the top fitting shall carry an apron around the outside of the post.
- (k) When the fence is not equipped with a middle rail then all end and corner bays shall be diagonally braced with the same material as the rails.
- (l) Fabric bands shall be not less than 1/8 inch by 3/4 inch in section. Stretcher bars not less than 1/4 inch by 3/4 inch in section and shall be 1 inch less than the full height of the fabric with which they are to be used.

Materials (Continued)

- (m) Tie wire shall be No. 9 gage and hog ring fasteners No. 11 gage.
- (n) Gate frames shall be constructed of 1 7/8 inch O.D. pipe at 2.72 pounds per foot. All gate frame corners shall be fastened together and reinforced with a fitting designed for this purpose. No welding will be permitted. Cross trussing shall be 3/8 inch galvanized iron adjustable rods.
- (o) Fabric for gates shall be the same as fabric for fence.
- (p) Each gate shall be furnished complete with hinges, latch and drop bar locking device designed for the type of gate posts and gate used.
- (q) Gate sizes shall be as specified on the plans with the overall height of the section conforming to the height of the fence.
- (r) Concrete for the bases shall be Class B and shall consist of:
- (1) Cement shall be air entrained and shall conform to the requirements of A.A.S.H.T.O. Designation M134-48, Type IA to IIA.
  - (2) Sand shall be composed of clean, hard, durable and impermeable particles resistant to wear and frost and free from injurious amount of organic matter, loam, clay, salts, mica and weak grains.
  - (3) Coarse aggregate may be either gravel stone or crushed stone.
  - (4) Water shall be clean, clear and free from deleterious amounts of oil, acid, alkali, salts and organic matter.
  - (5) Class "B" cement concrete shall contain a minimum of five hundred (500) pounds of cement per cubic yard of concrete and shall have a minimum compressive strength of fifteen hundred (1500) pounds at seven (7) days and twenty-five hundred (2500) pounds at twenty-eight (28) days.
- (s) All materials shall conform to these specifications and to such further specifications as shown on the plans.

Method of Construction

- (t) The posts shall be set true to line and grade of the proposed fence in concrete bases.
- (u) The distances between posts as measured from center to center shall not be more eight (8) feet.
- (v) The Contractor shall clear the area as necessary to provide for the installation of the fence to the line and grade as shown on the plans and as directed by the Engineer. No clearing shall be made without the prior approval of the Engineer.
- (w) Holes for cast-in-place bases shall be deep enough to allow at least six (6) inches of concrete under the end of the pipe. The bases shall be fourteen (14) inches in diameter. The post hole shall be uniform in size, clean and dry. Forms, if required, shall be of metal, lumber or other materials capable of supporting the sides of the hole, otherwise the concrete shall be deposited in the hole without forms. The depth to be set in concrete shall be 3 feet.

Method of Construction (Continued)

(x) Where solid rock is encountered without an overburden of soil, line posts shall be set a minimum depth of eight (8) inches, and end, corner, gate and intermediate posts a minimum of twelve (12) inches into the solid rock. The hole shall have a minimum width or diameter of one inch greater than the largest dimension of the post section to be set. The posts shall be cut, before installation to lengths which give the required length of post above ground, or if the Contractor so elects he may use an even length of post set at a greater depth into the solid rock.

(y) After the post is set and plumbed, the hole shall be filled with grout consisting of one part Portland cement and one part clean, well graded sand. The grout shall be thoroughly worked into the hole so as to leave no voids. Where posts are set in the above manner, concrete footings will not be required.

(z) Where solid rock is covered by an overburden of soil or loose rock, the posts shall be set to the full depth as specified in **paragraph (w)** of these specifications unless the penetration into solid rock reaches the minimum depths as specified in **paragraph (x)** of these specifications, in which case the depth of penetration may be terminated. Concrete footings shall be constructed from the solid rock to the top of the ground as designated. Grouting will be required on the portion of the posts in solid rock.

(aa) The fence shall have top and bottom rail, except 10' fence which shall have top, bottom and middle rail. All end and corner bays shall be diagonally braced with the same material as the rails. Fittings of approved design shall be used to fasten the braces to the posts.

(ab) Intermediate brace posts shall be spaced at 500 foot maximum intervals. Changes in line of 30 degrees or more shall be considered as corners.

Method of Construction (Continued)

(ac) Top rails shall pass through post caps, and shall be securely fastened to all end, corner, brace and gate posts. Joints in top rails shall be made with expansion sleeve couplings as specified.

(ad) The ends of fence fabric shall be attached to posts with an approved stretcher bar and bands.

(ae) The fabric shall be stretched taught and securely fastened to the posts. Stretching by motor vehicle will not be permitted.

(af) The chain link fence fabric shall be placed snug to, and follow the contour of the ground.

(ag) Rolls of wire fabric shall be joined by weaving a single strand into the ends of the rolls to form a continuous mesh.

(ah) Gates shall be installed where and as shown on the plans as specified or as directed. The height of heavy equipment frames shall be approximately six (6) inches less than the height of the fence. The drop bar locking device for double hung gates shall be provided with a six (6) inch diameter, eighteen (18) inch deep footing of Class B concrete, crowned at the top and provided with a hole to receive the locking bar.

Method of Measurement

(ai) Measurements taken for payment shall be by the linear foot as measured along the outside perimeter of the fence line, complete in place, inclusive of gates.

Basis of Payment

(aj) Under this item the Contractor will be paid the contract price for furnishing and installing the colorized fence and gates complete in place, including the installation of foundations, foundation bases, hardware, as well as the refilling of any existing residual fence post holes, which lump sum price shall include full compensation for all labor, materials, tools and equipment, and all incidentals necessary to complete the work under this item as shown on the plans, as directed by the Engineer, and as specified herein.

**SECTION 14**

**ITEM 16 – REGRADING, LOAMING AND SEEDING**

Description

(a) The Contractor is to strip and dispose of the existing grass turf around and about the new bituminous area to the limits shown on the plan and/or as otherwise directed by the Engineer, and is to subsequently regrade, loam and seed these areas to create a smooth transition between the existing ground surface and the new work.

(b) Any supplemental loam to complete the work, as approved by the Engineer, is to be furnished by the Contractor and paid under this item.

(c) The depth of the loam used in this process shall be six (6) inches measured in its finished state and the work shall conform to the dimensions shown on the construction details.

Materials

(d) Loam shall be clear, rich, dark colored loam, friable, reasonable well supplied with plant food, free from excess swamp muck, peat, clay, silt, stones, sods, roots, gravel, sand, subsoil or other foreign material. All loam furnished for this work shall be approved by the Engineer.

(e) Limestone shall be ground limestone that will pass a No. 20 sieve, and at least seventy-five (75) per cent will pass a No. 100 sieve. Ground limestone shall have a neutralizing value satisfactory to the Engineer.

(f) Fertilizer shall be furnished in containers plainly marked with the chemical analysis of the product and it shall have one of the following compositions by weight:

	10-6-4	8-6-4	7-7-7
Nitrogen	10% min.	8% min.	7% min.
Available Potash Acid (P <sub>2</sub> O <sub>5</sub> )	6% min.	6% min.	7% min.
Water Soluble Potash (K <sub>2</sub> O)	4% min.	4% min.	7% min.

At least fifty (50) per cent by weight of the nitrogen content of the fertilizer shall be derived from organic materials.

Materials (Continued)

(g) Grass seed shall be of the previous year's crop and in no case shall the weed seed content exceed one (1) per cent by weight. Grass seed shall conform to the requirements of the following table:

	Proportion	Germination Minimum	Purity Minimum
Creeping Red Fescue	50%	85%	95%
Kentucky Blue	25%	85%	90%
Domestic Rye	10%	90%	98%
Red Top	10%	85%	92%
Ladino Clover	5%	85%	96%

(h) Grass seed for slopes graded at the rate of 3:1 and steeper shall conform to the requirements of the following table:

	Proportion	Germination Minimum	Purity Minimum
Creeping Red Fescue	50%	85%	95%
Kentucky Blue	25%	85%	90%
Domestic Rye	10%	90%	98%
Red Top	10%	85%	92%
Ladino Clover	5%	85%	96%

(i) The several varieties of seed shall be furnished and delivered separately, and mixed after delivery as directed by the Engineer.

(j) The responsibility for satisfactory results shall rest entirely with the Contractor regardless of any tentative approval given by the Engineer.

Method of Construction

(k) All lawns shall be excavated to subgrade six (6) inches below and parallel to the finished grade.

(l) Loam shall be spread on the subgrade to produce without rolling, and after material settlement has taken place, a parallel plane that is six (6) inches below the proposed finished grade. On this four (4) inch layer of loam the Contractor is to spread ground limestone at the rate of one-half pound per square yard and thoroughly incorporated into the loam for the total depth, by harrowing or spading and raking. The surface shall be brought smoothly to a grade parallel to the finished grade.

Method of Construction (Continued)

(m) The second layer of loam shall then be spread in sufficient quantities to produce after final rolling the required finished depth. At least five (5) days shall elapse after the application of the ground limestone, and then fertilizer shall be spread on the top layer of loam at the rate of two tenths (2/10) of a pound per square yard. The full depth of the loam shall then be spaded, harrowed and graded to the finished grade.

(n) After the grass plots have been prepared as described above, grass seed shall be carefully and appropriately sown at the rate of three and six tenths (3 6/10) pounds to each one hundred (100) square yards. The surface shall then be raked until the grass seed is thoroughly covered with a thin layer of loam. Finally the surface shall be rolled with a hand roller weighing not more than one hundred (100) pounds per foot of width.

(o) The Contractor shall insure a good catch of grass and shall be responsible for the first cutting of the grass. He shall maintain seeded areas during construction and he shall reloom, regrade and reseed any area which in the opinion of the Engineer requires such.

Method of Measurement

(p) Measurements taken for payment shall be by the square yard of the finished work, complete in place.

(q) No measurement shall be taken for the restoration of any access route, staging and/or stockpile area. These areas must be restored at the Contractors own expense.

Basis of Payment

(r) Under **Item 16** the Contractor will be paid the contract unit price per square yard for the furnishing of loam, and for regrading, raking, and reseeding the Playing Field, complete in place, which unit price shall include full compensation for all labor, materials, tools and equipment and all incidentals necessary to complete the work under this item in accordance with the plans, as directed by the Engineer and as specified herein. All disposal of surplus or undesirable material is to be done at the Contractors own expense.

(s) No payment will be made for lawn/grassed area restorations within and along any access route, staging, and/or stockpile area. These areas must be restored at the Contractors own expense.