CITY OF NEWTON

PURCHASING DEPARTMENT

CONTRACT FOR THE NEWTON COMMONWEALTH FOUNDATION

PROJECT MANUAL:

GOLF COURSE IMPROVEMENTS

HOLE 3-4 TEE COMPLEXES

NEWTON COMMONWEALTH GOLF COURSE

INVITATION FOR BID #16-99

Pre-Bid Meeting: May 19, 2016 at 11:00 a.m.

Bid Opening Date: June 2, 2016 at 10:00 a.m.

Prepared By:

The Northeast Golf Company

118 Beauchamp Drive

Saunderstown, Rhode Island 02874

Robert McNeil

MAY 2016

Setti D. Warren, Mayor

CITY OF NEWTON
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GOLF COURSE IMPROVEMENTS HOLES 3-4 TEE COMPLEXES
NEWTON COMMONWEALTH GOLF COURSE

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May be downloaded from City of Newton's Website: **www.newtonma.gov/bids** **5** pages

END OF SECTION

CITY OF NEWTON

PURCHASING DEPARTMENT

INVITATION FOR BID #16-99

The City of Newton invites sealed bids in accordance with M.G.L. c.30, §39M from Contractors for:

GOLF COURSE IMPROVEMENTS HOLES 3-4 TEE COMPLEXES
NEWTON COMMONWEALTH GOLF COURSE

Pre-Bid Meeting: **11:00 a.m., Thursday, May 19, 2016 at 212 Kenrick Street, Newton**
Bids will be received until: **10:00 a.m., Thursday, June 2, 2016**
at the Purchasing Department, Room 201, Newton City Hall, 1000 Commonwealth Avenue, Newton, MA 02459. Bids will not be accepted nor may submitted bids be corrected, modified or withdrawn after the deadline for bids. Immediately following the deadline for bids, all bids received within the time specified will be publicly opened and read aloud.

Contract Documents will be available online at the City's website: **www.newtonma.gov/bids** after: **10:00 a.m., May 12, 2016.** Bidders are responsible for downloading the specifications from the City's web site at **www.newtonma.gov/bids** . Bidders are requested to email the Purchasing Department (purchasing@newtonma.gov) their Company Name, Address, Email address, Phone & Facsimile number and what bid # (i.e. #16-99) they have downloaded.

Work under this contract shall consist of supplying all labor, equipment and materials necessary for the completion of:

Base Bid: **Hole 3 Tee Complex (new tees {all associated erosion control, filling, hauling, topsoil mgt}, cart path construction, drainage installation, irrigation installation, tree and stump removal, general removals, finishing and preparations, seeding and sodding).**

Hole 4 Tee Complex (new tees {all associated erosion control, filling, hauling, topsoil mgt}, cart path construction, drainage installation, irrigation installation, tree and stump removal, general removals, finishing and preparations, seeding and sodding).

Alternate Bid: **(See quantities for Bid Alternate work within Bid Form)**

Award will be made to the lowest responsible and eligible bidder for the Base Bid and any accepted Alternates.All bids must be accompanied by a bid deposit in an amount that is not less than five percent (5%) of the highest possible total of items bid.

Bids must be submitted as ONE original and ONE copy.

Time is of the essence for this project. Work shall begin on or about October 15, 2016 and be completed not later than December 15, 2016.

All bids are subject to the provisions of M.G.L. Chapter 30, Section 39M. **Wages are subject** to minimum wage rates determined by the Massachusetts Department of Labor and Industries pursuant to M.G.L. Chapter 149, Sec. 26 to 27H. The schedule of wage rates applicable to this contract is included in the bidding documents. In addtion, the prevailing wage schedule will be updated annually for all public construction projects lasting longer than one (1) year. You will be required to pay the rates set out in any updated prevailing wage schedule. Increases in prevailing wage schedules will not be the basis for change order requests. The successful bidder will be required to provide a Certificate of Insurance demonstrating current coverage of the type and amounts set forth in the Project Manual**.** The successful bidder will be required to furnish a **Labor and Materials Payment Bond in the amount of 50%** of the contract total.

All City of Newton bids are only available on the City's web site, www.newtonma.gov/bids**.** It is the sole responsibility of the contractor downloading these bids to ensure they have received any and all addenda prior to the bid opening. Addendas will be available online within the original bid document, as well as a separate file. If you download bids from the internet site and would like to make it known that your company has done so, you may e-mail purchasing@newtonma.gov or fax the Purchasing Department (617) 796-1227 with your NAME, ADDRESS, PHONE, FAX AND INVITATION FOR BID NUMBER.

The City will reject any and all bids in accordance with the above referenced General Laws. In addition, the City reserves the right to waive minor informalities in any or all bids, or to reject any or all bids (in whole or in part) if it be in the public interest to do so.

In the event that any person wishes to attend a bid opening or pre-bid meeting, accessible and reasonable accommodations will be provided to persons requiring assistance. If you need a reasonable accommodation, please contact the city of Newton's ADA Coordinator, Jini Fairley, at least two business days in advance of the meeting: jfairley@newtonma.gov or (617) 796-1253. For Telecommunications Relay Service, please dial 711.

CITY OF NEWTON

Nicholas Read
Chief Procurement Officer
May 12, 2016

CITY OF NEWTON
DEPARTMENT OF PURCHASING
INSTRUCTIONS TO BIDDERS

ARTICLE 1 - BIDDER'S REPRESENTATION

1.1 Each General Bidder (hereinafter called the "Bidder") by making a bid (hereinafter called "bid") represents that:

1. The Bidder has read and understands the Bidding Documents, Contract Forms, General Conditions, Conditions of the Contract, General Requirements and Project Specifications (collectively, referred to as the "Contract Documents") and the bid is made in accordance therewith.

2. The Bidder has visited the work site and is familiar with the local conditions under which the work has to be performed.

1.2 Failure to so examine the Contract Documents and work site will not relieve any Bidder from any obligation under the bid as submitted.

ARTICLE 2 - REQUEST FOR INTERPRETATION

2.1 Bidders shall promptly notify the City of any ambiguity, inconsistency, or error which they may discover upon examination of the Contract Documents, the site, and local conditions.

2.2 Bidders requiring clarification or interpretation of the Contract Documents shall make a written request to the *Chief Procurement Officer*, at purchasing@newtonma.gov or via facsimile (617) 796-1227. The City will only answer such requests if received by **Friday, May 27, 2016 at 12:00 noon**. In the event that the bid opening date is changed, the deadline for informational requests may also change as provided in an addendum issued by the City.

2.3 Interpretation, correction, or change in the Contract Documents will be made by addendum which will become part of the Contract Documents. The City will not be held accountable for any oral communication.

2.3 Addenda will be emailed to every individual or firm on record as having taken a set of Contract Documents. Addenda will be emailed to every individual or firm on record as having taken a set of Contract Documents. Receipt of all addenda issued must be acknowledged in the Bid Form. YOUR FAILURE TO ACKNOWLEDGE ALL ADDENDA MAY RESULT IN YOUR BID BEING REJECTED AS NON-RESPONSIVE.

2.4 Copies of addenda will be made available for inspection at the location listed in the Invitation for Bids where Contract Documents are on file, in addition to being available online at **www.newtonma.gov/bids**.

2.5 Bidders or proposers contacting ANY CITY EMPLOYEE regarding an Invitation for Bid (IFB) or a Request for Proposal (RFP), outside of the Purchasing Department, once an IFB or RFP has been released, may be disqualified from the procurement process.

2.6 Bidders downloading information off the internet web site are solely responsible for obtaining any addenda prior to the bid opening. If the bidder makes itself known to the Purchasing Department, at purchasing@newtonma.gov or via facsimile (617) 796-1227, it shall be placed on the bidder's list. Bidders must provide the Purchasing Department with their company's name, street address, city, state, zip, phone, fax, email address and **INVITATION FOR BID #16-99**.

ARTICLE 3 - MBE PARTICIPATION

3.1 Notice is hereby given that the Mayor's Affirmative Action Plan for the City of Newton in effect at the time of this solicitation is applicable to all construction contracts in excess of $10,000.00.

3.2 Notice is hereby given that the City of Newton Minority/Women Business Enterprise Plan and the Supplemental Equal Employment Opportunity Anti-Discrimination and Affirmative Action Program in effect at the time of this solicitation are applicable to all City contracts for goods and services in excess of $50,000.00.

3.3 Copies of the Plans and Program referred to in Sections 3.1 and 3.2 are available at: **www.newtonma.gov/purchasing**.

ARTICLE 4 - PREPARATION AND SUBMISSION OF BIDS

4.1 Bids shall be submitted on the "Bid Form #16-99," attached.

4.2 All entries on the Bid Form shall be made by typewriter or in ink.

4.3 Where so indicated on the Bid Form, sums shall be expressed in both words and figures. Where there is a discrepancy between the bid sum expressed in words and the bid sum expressed in figures, the words shall control.

4.4 Bid Deposits shall be submitted in the amount specified in the Invitation for Bids. They shall be made payable to the City and shall be either in the form of cash, certified check, treasurer's or cashier's check issued by a responsible bank or trust company, or a bid bond issued by a surety licensed to do business in the Commonwealth of Massachusetts; and shall be conditioned upon the faithful performance by the principal of the agreements contained in the bid. Bidders are reminded that the bid deposit covers the City for damages when a bidder withdraws its bid after the bid submisssion date. **Be advised that to the extent permitted by the law the City will retain all bid deposits for withdrawn bids.**

Bid deposits of the three (3) lowest responsible and eligible Bidders shall be retained until the execution and delivery of the City-Contractor agreement.

4.5 The Bid, including the bid deposit shall be enclosed in a sealed envelope with the following plainly marked on the outside:

* GENERAL BID FOR: **#16-99**

* NAME OF PROJECT: **Golf Course Improvements Holes 3-4 Tee Complexes**
Newton Commonwealth Golf Course

* BIDDER'S NAME, BUSINESS ADDRESS, AND PHONE NUMBER

4.6 Date and time for receipt of bids is set forth in the Invitation for Bids.

4.7 Timely delivery of a bid at the location designated shall be the full responsibility of the Bidder. In the event that Newton City Hall is closed on the date or at the time that bids are due, the date and time for receipt of bids shall be on the next business day following that the Newton City Hall and the Purchasing Department are open.

4.8 Bids shall be submitted with one **original** and one **copy.**

4.9 Be advised that a new Massachusetts law has been enacted that required all employees who work on Massachusetts public works construction sites must have no less than 10 hours of OSHA-approved safety and health training. See Chapter 306 of the Acts of 2004, which became effective July 1, 2006.

1. This requirement will apply to any general bid or sub bid submitted.
2. This law directs the Massachusetts Attorney General to restrain the award of construction contracts to any contractor who is in violation to this requirement and to restrain the performance of these contracts by non-complying contractors.
3. The contractor and all subcontractors on this project will be required to provide certification of compliance with this requirement. Non-compliance with this law will disqualify you from bidding on public contracts.

ARTICLE 5 - ALTERNATES

5.1 Each Bidder shall acknowledge alternates (if any) in Section C on the Bid Form.

5.2 In the event an alternate does not involve a change in the amount of the base bid, the Bidder shall so indicated by writing "No Change", or "N/C" or "0" in the space provided for that alternate.

5.3 Bidders shall enter on the Bid Form a single amount for each alternate which shall consist of the amount for work performed by the Contractor.

5.4 The low Bidder will be determined on the basis of the sum of the base bid and the accepted alternates.

ARTICLE 6 - WITHDRAWAL OF BIDS

6.1 Any bid may be withdrawn prior to the time designated for receipt of bids on written or electronic request. Electronic withdrawal of bids must be confirmed over the Bidder's signature by written notice postmarked on or before the date and time set for receipt of bids.

6.2 Withdrawn bids may be resubmitted up to the time designated for the receipt of bids.

6.3 No bids may be withdrawn within sixty (60) days, Saturdays, Sundays and legal holidays excluded, after the opening of the bids.

ARTICLE 7 - CONTRACT AWARD

7.1 The City is soliciting prices for ithe supp[lies and serviuces set forth in the Item Sheets at pp. 11-12 bel,ow. It is the City's intent to award and one (1) contract to the responsible eleigible bidder submitting the lowest Propoased Contract Price. A contract will be awarded within sixty (60) days, Saturdays, Sundays, and legal holidays excluded, after the opening of bids.

7.2 The City reserves the right to waive minor informalities in or to reject any or all Bids if it be in the public interest to do so.

7.3 The City reserves the right to reject any bidder who has failed to pay any local taxes, fees, assessments, betterments, or any other municipal charge, unless the bidder has a pending abatement application or has entered into a payment agreement with the collector-treasurer.

7.4 As used herein, the term "lowest responsible and eligible Bidder" shall mean the Bidder (1) whose bid is the lowest of those bidders possessing the skill, ability and integrity necessary for the faithful performance of the work; (2) who has met all the requirements of the invitation for bids; (3) who shall certify that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed in the work; (4) who, where the provisions of section eight B of chapter twenty-nine apply, shall have been determined to be qualified thereunder.

7.5 Subsequent to the award and within five (5) days, Saturday, Sundays and legal holidays excluded, after the prescribed forms are presented for signature, the successful Bidder shall execute and deliver to the City a contract in the form included in the Contract Documents in such number of counterparts as the City may require.

7.6 In the event that the City receives low bids in identical amount from two or more responsive and responsible Bidders, the City shall select the successful Bidder by a blind selection process chosen by the City such as flipping a coin or drawing names from a hat. The low Bidders who are under consideration will be invited to attend and observe the selection process.

ARTICLE 8 - TAXES

8.1 The Bidder shall not include in this bid any tax imposed upon the sale or rental of tangible personal property in this Commonwealth, such as any and all building materials, supplies, services and equipment required to complete the work.

8.2 The City is exempt from payment of the Massachusetts Sales Tax, and the Bidder shall not include any sales tax on its bid. The City's exemption Number is E-046-001-404.

ARTICLE 9 – PROPRIETARY SPECIFICATIONS

9.1 The City has used a proprietary specification to describe the supply listed in the specifications. Such specifications are permitted under M.G.L. c. 30, §39M(b), provided that the City states in writing that use of the proprietary specification is in its best interest and that it will accept an "equal" of the item specified. An item is considered equal if (i) it is at least equal in quality, durability, appearance, strength, and design; (ii) will perform the intended function at least equally; and (iii) conforms substantially, even with deviations, to the detailed requirements contained in the specifications. In the event that the Bidder wishes to substitute an equal item, it may do so either in its bid or proposal or after the contract is awarded but before a contract is executed, it being understood that the award shall be conditioned on the Bidder providing the item originally specified or an equal item accepted by the City and identified in the contract.

In no event shall the Bidder be entitled to offer, or the City obliged to consider, the substitution of an item as equal after execution of a contract. In the event the Bidder substitutes or attempts to substitute an "equal" item after that date, it shall be in breach thereof and be liable for actual and consequential damages resulting from its failure to perform as agreed. The City shall have the sole right to determine whether or not said item is equal.

9.2 The required determination and justification have been duly prepared, and a copy may be requested in accordance with the Massachusetts Public Records Law, M.G.L. c. 66, §10.

ARTICLE 10 – ENVIRONMENTALLY PREFERABLE PRODUCTS

10.1 The City encourages environmentally preferable products, i.e., products or services that have less negative or more positive effects on human health and the environment when compared with competing products or services that serve the same purpose. The city encourages bidders to describe, in the space provided on the Bid Form, the environmental attributes of its goods or services throughout the entire life-cycle, including manufacture, use and disposition. This information may include multiple environmental considerations such as natural resource use, recycled content, energy and water efficiency, greenhouse gas emissions, impact on climate change, packaging, hazardous material use, and health and safety impacts on workers, consumers and the community. If you do not currently assess such attributes, please indicate that. However you respond, the City will not take your information into account in evaluating bid proposals.

10.2 Bidders are encouraged also to provide information related to steps they take internally to (a) identify any positive or negative environmental attributes of products or services they offer, as specified above, and (b) insure that those attributes are being addressed as part of operations.

END OF SECTION

CITY OF NEWTON
NEWTON COMMONWEALTH FOUNDATION
BID FORM #16-99

A. The undersigned proposes to furnish all labor and materials required in accordance with the Contract Documents supplied by the City of Newton/Foundation entitled:

GOLF COURSE IMPROVEMENTS HOLES 3 and 4 TEE COMPLEXES
- NEWTON COMMONWEALTH GOLF COURSE

for the contract price specified below, subject to additions and deduction according to the terms of the specifications.

B. This bid includes addenda number(s) _____, _____, _____, _____,

C. The Proposed Contract Price is:

Base Bid: **Hole 3 Tee Complex (new tees {all associated erosion control, filling, hauling, topsoil mgt}, cart path construction, drainage installation, irrigation installation, tree and stump removal, general removals, finishing and preparations, seeding and sodding).**

Itemized Total Hole 3 (p. 11 below) **$_____**

Hole 4 Tee Complex (new tees {all associated erosion control, filling, hauling, topsoil mgt}, cart path construction, drainage installation, irrigation installation, tree and stump removal, general removals, finishing and preparations, seeding and sodding).

Itemized Total Hole 4 (p. 12 below) **$_____**

Alternate Bid: **BA3-1 (p. 11 below)** **$_____**

BA4-1 (p. 12 below) **$ Zero**

_____DOLLARS ($ _____).

(The Proposed Contract Price shall be the sum of the above Base and Alternate Bids.)

COMPANY: _____

D. The undersigned has completed and submits herewith the following documents:

- ❑ Original Bid Form and one COPY, signed, 2 pages
- ❑ Item Sheets and Supplemental Item Sheets, 5 pages
- ❑ Bidder's Qualifications and References Form, 2 pages
- ❑ Bidder's Qualifications for Irrigation System Installations/Contracts, 2 pages
- ❑ Guidelines for the Qualification and Evaluation Criteria for Qualification, Supplied by Bidder
- ❑ A five percent (5%) bid deposit
- ❑ Certificate of Non-Collusion, 1 page
- ❑ Debarment Letter, 1 page
- ❑ IRS Form W-9, 1 page

E. The undersigned agrees that, if selected as general contractor, s/he will within five days, Saturdays, Sundays and legal holidays excluded, after presentation thereof by the City of Newton/Foundation, execute a contract in accordance with the terms of this bid and furnish a labor and materials payment bond of a surety company qualified to do business under the laws of the commonwealth and satisfactory to the City of Newton/Foundation and each in the sum not less than 50% of the contract price, the premiums for which are to be paid by the general contractor and are included in the contract price.

The undersigned hereby certifies that it is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the work and that they will comply fully with all laws and regulations applicable to awards made subject to M.G.L. Chapter 30, Section 39M.

The undersigned certifies that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed in the work; (2) that all employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration ("OSHA") that is at least 10 hours in duration at the time the employee begins work and who shall furnish documentation of successful completion of said course with the first certified payroll report for each employee; and (3) that all employees to be employed in the work subject to this bid have successfully completed a course in construction safety and health approved by the United States OSHA that is at least 10 hours in duration. The undersigned understands that any employee found on a worksite subject to this section without documentation of successful completion of a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration shall be subject to immediate removal.
The undersigned hereby certifies that it intends to comply with the CITY OF NEWTON MINORITY/WOMEN BUSINESS ENTERPRISE PLAN, dated December 1999 to further expand business opportunities for minority firms.The undersigned further certifies under the penalties of perjury that this bid is in all respects bona fide, fair and made without collusion or fraud with any other person. As used in this paragraph the word "person" shall mean any natural person, joint venture, partnership, corporation or other business or legal entity. The undersigned further certifies under penalty of perjury that the said undersigned is not presently debarred from public contracting or subcontracting in the Commonwealth under the provisions of M.G.L. Chapter 29, Section 29F or any other applicable debarment provisions of any other chapter of the General Laws or any rule or regulation promulgated thereunder.

F. Environmentally preferable products information (which is requested but which will not be considered in awarding a contract):
Description of environmental attributes of Bidder's goods or services:
Steps taken to (a) identify any positive or negative environmental attributes of products or services and (b) insure that those attributes are being addressed as part of operations:

Date _____ _____
(Name of General Bidder)

BY: _____

_____
(Printed Name and Title of Signatory)

_____
(Business Address)

_____
(City, State, Zip)

_____
(Telephone / Fax)

_____
(E-mail address)

NOTE: If the bidder is a corporation, indicate state of incorporation under signature, and affix corporate seal; if a partnership, give full names and residential addresses of all partners; if an individual, give residential address if different from business address; and, if operating as a d/b/a give full legal identity. Attach additional pages as necessary.

Item #	Newton Commonwealth Hole 3	Units	Quantity	Unit Cost	Total Cost
H3-1	**Tee Construction (shape complex and surrounds, drainage pipe and gravel, finish bottom cavity, install mix, laser level**	SF	6,235		
H3-2	**Asphalt Cart Path Construction**	SF	2,400		
H3-3	**Asphalt Cart Path Curbing**	LF	295		
H3-4	**Sub-Surface Drainage (all pipe 12" and > with stone surround)**				
a	4" Pipe-solid (poly smooth wall interior)	LF	217		
b	4" Pipe-perf. (with stone surround)- inside of tee	LF	294		
	6" Pipe-solid (poly smooth wall interior)	LF	44		
c	6" Drain Vents	EA	3		
d	12" Drain Sump	EA	1		
H3-5	**Grassing (includes soil amendments)**				
a	Fwy/Tee Surfaces (Low Mow BG sod)	SF	6,235		
b	Primary Roughs-misc. (sod)	SF	15,500		
c	Primary Rough Seed Area	SF	1,000		
H3-6	**Silt Fence**	LF	160		
H3-7	**Asphalt Cart Path Demolition and Removal**	SF	2,660		
H3-8	**Irrigation Allowance**	LS	1		
H3-9	**Miscellaneous**				
a	Stripping/material disposal (all turf areas)	SF	19,590		
b	Fill Material (Import)	CY	600		
c	Topsoil Management (strip, stockpile, spread)	CY	100		
d	Topsoil Material (import, spread)	CY	125		
e	General Shaping/Finishing (all areas)	LS	1		
			Itemized Total Hole 3		

	Bid Alternates				
BA3-1	Fill Material Transport from on course borrow area-unit cost only	CY			
				Alt. Total	

*extend each item with quantities listed

Item #	Newton Commonwealth Hole 4	Units	Quantity	Unit Cost	Total Cost
H4-1	**Tee Construction (shape complex and surrounds, drainage pipe and gravel, finish bottom cavity, install mix, laser level**	SF	5,135		
H4-2	**Asphalt Cart Path Construction**	SF	1,900		
H4-3	**Asphalt Cart Path Curbing**	LF	177		
H4-4	**Sub-Surface Drainage (all pipe 12" and > with stone surround)**				
a	4" Pipe-solid (poly smooth wall interior)	LF	237		
b	4" Pipe-perf. (with stone surround)- inside of tee	LF	326		
c	6" Drain Vents	EA	3		
d	12" Drain Sump	EA	1		
H4-5	**Grassing (includes soil amendments)**				
a	Fwy/Tee Surfaces (Low Mow BG sod)	SF	5,135		
b	Primary Roughs-misc. (sod)	SF	15,500		
c	Primary Rough Seed Area	SF	1,000		
H4-6	**Silt Fence**	LF	165		
H4-7	**Asphalt Cart Path Demolition and Removal**	SF	1,350		
H4-8	**Irrigation Allowance**	LS	1		
H4-9	**Miscellaneous**				
a	Stripping/material disposal (all turf areas)	SF	16,150		
b	Fill Material (Import)	CY	1,000		
c	Topsoil Management (strip, stockpile, spread)	CY	50		
d	Topsoil Material (import, spread)	CY	250		
e	Tree Removal (7 Trees typ caliper 24") inc. stump removal	LS	1		
f	General Shaping/Finishing (all areas)	LS	1		
g	Removals (RR Tie Stairs)-dumpster	LS	1		
			Itemized Total Hole 4		
	Bid Alternates				
BA4-1	Fill Material Transport from on course borrow area-unit cost only	CY			$0.00

TOTALS PAGE

Hole 3 Tee Complex Itemized Total **$_____**

Hole 4 Tee Complex Itemized Total **$_____**

Total Itemized Project Bid **$_____**

****Unit prices, to be filled out by all bidders, shall be used for additions or deletions to the scope of work due to field changes. Prices shall include provision of costs associated with labor, materials and profit to complete task, along with any supervision and delivery charges.**

***extend each Bid Alternate item with quantities listed**

END OF SECTION

SUPPLEMENTAL UNIT PRICES

The following unit prices, to be filled out by all bidders, **shall be used for additions or deletions to the irrigation system due to field changes**. Prices shall include said material and installation labor and necessary equipment costs complete in place, along with any supervision and delivery charges. Fitting prices shall be provided as a lump sum and shown as a percentage off of list price for future additions or deletions. All Contractors are required to indicate the material quantities required for the complete irrigation system shown on the drawings and to bid the irrigation system as a lump sum, complete. Items with zero quantity shall be priced for possible field changes.

The Supplemental Unit Prices shall apply to materials procured under the awarded contract, but shall not be considered in determining what bidder has submitted the lowest Proposed Contract Price.

MATERIAL QUANTITIES AND UNIT PRICES

No.	Quantity	Description	Unit Price
1.	____	700 Series Nozzle	$_____/each
2.	____	1 Inch, 24 Volt Electric Valve with Pressure Regulation	$_____/each
3.	____	1-1/2 Inch, 24 Volt Electric Valve with Pressure Regulation	$_____/each
4.	____	2 Inch Bronze Gate Valve (Push On)	$_____/each
5.	____	2 Inch Bronze Gate Valve (Push On)	$_____/each
6.	____	10 Inch Valve Box w/detection	$_____/each
7.	____	12 Inch Valve Box w/detection	$_____/each
8.	____	3 Inch Extension for 10 Inch Valve Box	$_____/each
9.	____	6 Inch Extension for 12 Inch Valve Box	$_____/each
10.	____	#6 AWG Bare, Solid Copper Wire	$_____/foot
11.	____	#14 AWG Valve Control Wire	$_____/1000'
12.	____	#12 AWG Valve Common Wires	$_____/1000'
13.	____	#10/3 Tray Cable	$_____/1000'
14.	____	Controller Communication Cable	$_____/1000'
15.	____	3M DBY-6 Wire Connector or approved equal	$_____/each
16.	____	3M DBR-6 Wire Connector or approved equal	$_____/each
17.	____	3M 82-A Wire Splice Connector or approved equal	$_____/each

MATERIAL QUANTITIES AND UNIT PRICES (continued)

No.	Quantity	Description	Unit Price
18.	____	1 Inch Brass Swing Joint	$_____/each
19.	____	1 Inch PVC Swing Joint	$_____/each
20.	____	1-1/2 Inch PVC Swing Joint	$_____/each
21.	Price	PVC Schedule 40 Fittings	$_____% off list
22.	Price	PVC Gasketed Fittings	$_____% off list
23.	Price	Ductile Iron Fittings	$_____% off list
24.	Price	PVC Gasketed Tapped Tees	$_____% off list
25.	Price	Ductile Iron Gasketed Tapped Tees	$_____% off list
26.	Price	Schedule 80 Nipples	$_____% off list
27.	____	1 Inch PVC, Schedule 40 PVC Pipe	$_____/foot
28.	____	1-1/2 Inch PVC, Class 200 PVC Pipe	$_____/foot
29.	____	2 Inch PVC, Class 200 PVC Pipe	$_____/foot
30.	____	2-1/2 Inch PVC, Class 200 PVC Pipe	$_____/foot
31.	____	3 Inch PVC, Class 200 PVC Pipe	$_____/foot
32.	Pavement Cutting and Patching		$_____/sq ft
33.	____		$_____/
34.	____		$_____/
35.	____		$_____/

CITY OF NEWTON/NEWTON COMMONWEALTH FOUNDATION

BIDDER'S QUALIFICATIONS AND REFERENCES FORM

All questions must be answered, and the data given must be clear and comprehensive. Please type or print legibly. If necessary, add additional sheet for starred items. This information will be utilized by the City for purposes of determining bidder responsiveness and responsibility with regard to the requirements and specifications of the Contract.

1. FIRM NAME: _____

2. WHEN ORGANIZED: _____

3 INCORPORATED? _____ YES _____ NO DATE AND STATE OF INCORPORATION: _____

4. IS YOUR BUSINESS A **MBE**? _____YES _____NO **WBE**? _____YES _____NO or **MWBE**? _____YES _____NO

* 5. LIST ALL CONTRACTS CURRENTLY ON HAND, SHOWING CONTRACT AMOUNT AND ANTICIPATED DATE OFCOMPLETION:

_____
_____
_____
_____
_____

* 6. HAVE YOU EVER FAILED TO COMPLETE A CONTRACT AWARDED TO YOU?
_____ YES _____ NO
IF YES, WHERE AND WHY?

_____
_____

* 7. HAVE YOU EVER DEFAULTED ON A CONTRACT? _____ YES _____ NO
IF YES, PROVIDE DETAILS.

_____
_____

* 8. LIST YOUR VEHICLES/EQUIPMENT AVAILABLE FOR THIS CONTRACT:

_____
_____
_____
_____
_____
_____
_____

* 9. IN THE SPACES FOLLOWING, PROVIDE INFORMATION REGARDING CONTRACTS COMPLETED BY YOUR FIRM SIMILAR IN NATURE TO THE PROJECT BEING BID. A MINIMUM OF FOUR (4) CONTRACTS SHALL BE LISTED. PUBLICLY BID CONTRACTS ARE PREFERRED, BUT NOT MANDATORY.

PROJECT NAME: _____
OWNER: _____
CITY/STATE: _____

DOLLAR AMOUNT: $ _____ DATE COMPLETED: _____
PUBLICLY BID? _____YES _____ NO
TYPE OF WORK?: _____
CONTACT PERSON: _____ TELEPHONE #: ____)_____
CONTACT PERSON'S RELATION TO PROJECT?: _____
(i.e., contract manager, purchasing agent, etc.)

PROJECT NAME: _____
OWNER: _____
CITY/STATE: _____
DOLLAR AMOUNT: $ _____ DATE COMPLETED: _____
PUBLICLY BID? _____YES _____ NO
TYPE OF WORK?: _____
CONTACT PERSON: _____ TELEPHONE #: (____)_____
CONTACT PERSON'S RELATION TO PROJECT?: _____
(i.e., contract manager, purchasing agent, etc.)

PROJECT NAME: _____
OWNER: _____
CITY/STATE: _____
DOLLAR AMOUNT: $ _____ DATE COMPLETED: _____
PUBLICLY BID? _____YES _____ NO
TYPE OF WORK?: _____
CONTACT PERSON:_____ TELEPHONE #: (____)_____
CONTACT PERSON'S RELATION TO PROJECT?:_____
(i.e., contract manager, purchasing agent, etc.)

PROJECT NAME: _____
OWNER: _____
CITY/STATE: _____
DOLLAR AMOUNT: $ _____ DATE COMPLETED: _____
PUBLICLY BID? _____YES _____ NO
TYPE OF WORK?: _____
CONTACT PERSON: _____ TELEPHONE #:(____)_____
CONTACT PERSON'S RELATION TO PROJECT?: _____
(i.e., contract manager, purchasing agent, etc.)

10. The undersigned certifies that the information contained herein is complete and accurate and hereby authorizes and requests any person, firm, or corporation to furnish any information requested by the City in verification of the recitals comprising this statement of Bidder's qualifications and experience.

DATE: _____ BIDDER: _____

SIGNATURE: _____

PRINTED NAME: _____ TITLE: _____

END OF SECTION

CERTIFICATE OF NON-COLLUSION

The undersigned certifies under penalties of perjury that this bid or proposal has been made and submitted in good faith and submitted in good faith and without collusion or fraud with any other person. As used in this certification, the word "person" shall mean any natural person, business, partnership, corporation, union, committee club, or other organization, entity, or group or individuals.

_____

(Signature of individual)

_____

Name of Business

City of Newton

Mayor
Setti D. Warren

Purchasing Department
Nicholas Read ✆ *Chief Procurement Officer*
1000 Commonwealth Avenue
Newton Centre, MA 02459-1449
purchasing@newtonma.gov

Telephone
(617) 796-1220
Fax:
(617) 796-1227
TDD/TTY
(617) 796-1089

Date

Vendor

Re: Debarment Letter for Invitation For Bid #16-99

As a potential vendor on the above contract, the City requires that you provide a debarment/suspension certification indicating that you are in compliance with the below Federal Executive Order. Certification can be done by completing and signing this form.

Debarment:

Federal Executive Order (E.O.) 12549 "Debarment and Suspension" requires that all contractors receiving individual awards, using federal funds, and all sub-recipients certify that the organization and its principals are not debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded by any Federal department or agency from doing business with the Federal Government.

I hereby certify under pains and penalties of perjury that neither I nor any principal(s) of the Company identified below is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any federal department or agency.

_____ (Name)
_____ (Company)
_____ (Address)
_____ (Address)
PHONE _____ FAX _____
EMAIL _____

_____Signature

_____Date

If you have questions, please contact Nicholas Read, Chief Procurement Officer at (617) 796-1220.

Form **W-9**
(Rev. October 2007)
Department of the Treasury
Internal Revenue Service

Request for Taxpayer Identification Number and Certification

Give form to the requester. Do not send to the IRS.

Print or type
See Specific Instructions on page 2.

Name (as shown on your income tax return)

Business name, if different from above

Check appropriate box: ☐ Individual/Sole proprietor ☐ Corporation ☐ Partnership
☐ Limited liability company. Enter the tax classification (D=disregarded entity, C=corporation, P=partnership) ▶
☐ Other (see instructions) ▶

X Exempt payee

Address (number, street, and apt. or suite no.)

Requester's name and address (optional)

City, state, and ZIP code

List account number(s) here (optional)

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on Line 1 to avoid backup withholding. For individuals, this is your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the Part I instructions on page 3. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN* on page 3.

Note. If the account is in more than one name, see the chart on page 4 for guidelines on whose number to enter.

Social security number

or

Employer identification number

Part II Certification

Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me), and
2. I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding, and
3. I am a U.S. citizen or other U.S. person (defined below).

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the Certification, but you must provide your correct TIN. See the instructions on page 4.

Sign Here **Signature of U.S. person ▶** **Date ▶** Name

General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Purpose of Form

A person who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) to report, for example, income paid to you, real estate transactions, mortgage interest you paid, acquisition or abandonment of secured property, cancellation of debt, or contributions you made to an IRA.

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN to the person requesting it (the requester) and, when applicable, to:

1. Certify that the TIN you are giving is correct (or you are waiting for a number to be issued),

2. Certify that you are not subject to backup withholding, or

3. Claim exemption from backup withholding if you are a U.S. exempt payee. If applicable, you are also certifying that as a U.S. person, your allocable share of any partnership income from a U.S. trade or business is not subject to the withholding tax on foreign partners' share of effectively connected income.

Note. If a requester gives you a form other than Form W-9 to request your TIN, you must use the requester's form if it is substantially similar to this Form W-9.

Definition of a U.S. person. For federal tax purposes, you are considered a U.S. person if you are:

- An individual who is a U.S. citizen or U.S. resident alien,
- A partnership, corporation, company, or association created or organized in the United States or under the laws of the United States,
- An estate (other than a foreign estate), or
- A domestic trust (as defined in Regulations section 301.7701-7).

Special rules for partnerships. Partnerships that conduct a trade or business in the United States are generally required to pay a withholding tax on any foreign partners' share of income from such business. Further, in certain cases where a Form W-9 has not been received, a partnership is required to presume that a partner is a foreign person, and pay the withholding tax. Therefore, if you are a U.S. person that is a partner in a partnership conducting a trade or business in the United States, provide Form W-9 to the partnership to establish your U.S. status and avoid withholding on your share of partnership income.

The person who gives Form W-9 to the partnership for purposes of establishing its U.S. status and avoiding withholding on its allocable share of net income from the partnership conducting a trade or business in the United States is in the following cases:

- The U.S. owner of a disregarded entity and not the entity,

BIDDER'S QUALIFICATIONS AND REFERENCES FORM FOR IRRIGATION SYSTEM INSTALLATIONS/CONTRACTS

IN THE SPACES FOLLOWING, PROVIDE INFORMATION REGARDING GOLF COURSE IRRIGATION SYSTEM INSTALLATIONSCONTRACTS COMPLETED BY YOUR FIRM SIMILAR IN NATURE TO THE PROJECT BEING BID. A MINIMUM OF THREE (3) CONTRACTS SHOULD BE LISTED. PUBLICLY BID CONTRACTS ARE PREFERRED, BUT NOT MANDATORY.

1. PROJECT NAME:_____
OWNER:_____

CITY/STATE:_____

DOLLAR AMOUNT: $ _____ DATE COMPLETED:_____

PUBLICALY BID? □YES □ NO

TYPE OF WORK?:_____

TURF OR DIRT?_____

CONTACT PERSON: _____

TELEPHONE #: (____)_____
CONTACT PERSON'S RELATION TO PROJECT?:_____
(manager, purchasing agent, etc.)

2. PROJECT NAME:_____
OWNER:_____

CITY/STATE:_____

DOLLAR AMOUNT: $ _____ DATE COMPLETED:_____

PUBLICALY BID? □YES □ NO

TYPE OF WORK?:_____

TURF OR DIRT?_____

CONTACT PERSON: _____

TELEPHONE #: (____)_____

CONTACT PERSON'S RELATION TO PROJECT?:_____
(manager, purchasing agent, etc.)

3. PROJECT NAME:_____
OWNER:_____

CITY/STATE:_____

DOLLAR AMOUNT: $ _____ DATE COMPLETED:_____

PUBLICALY BID? ☐YES ☐ NO

TYPE OF WORK?:_____

TURF OR DIRT?_____

CONTACT PERSON: _____

TELEPHONE #: (____)_____
CONTACT PERSON'S RELATION TO PROJECT?:_____
(manager, purchasing agent, etc.)

END OF SECTION

Guidelines for the Qualification of the Golf Course General Contractor for the Golf Course Enhancement Project at Newton Commonwealth Golf Club in Newton, Massachusetts

The City of Newton Massachusetts /Newton Commonwealth Foundation, will be accepting bids from select General Contractors to construct the proposed Golf Course Enhancements at Newton Commonwealth Golf Club in Newton, Massachusetts. Bid packages will be available to Golf Course Contractors on May 12, 2016. In order to be considered, your firm must submit the following:

A. How many golf course enhancement/renovation projects has the Golf Course Contractor successfully administered and completed? **(The City requires a minimum of 4 golf course renovation projects completed by contractors bidding on the Newton Commonwealth Golf Club Project)**

1. Please list the completed golf course renovation projects, scope of work, budget, time frame of work (start and finish), and cost overruns (change orders) for each project.

2. Please list a contact for each project described above to speak with about performance, including name, address, and telephone number.

B. List the Project Manager for the Newton Commonwealth Golf Club Project (start date of January, 2015, completion April, 2015). How many golf course projects has the Project Manager managed? Experience and references are required.

C. List the Project Shapers for this project. How many golf course renovation projects have the Shapers successfully executed? Their experience and references are required.

D. List any anticipated sub-contractors, including the irrigation sub-contractor if necessary, and their experience.

E. Company Prospectus:

1. Identifying size of Company and Golf Division.

2. Dollar value of all contracts last three years and Golf Division.

END OF SECTION

Evaluation Criteria for the Qualification of the Golf Course General Contractor for the Golf Course Enhancement Project at Newton Commonwealth Golf Club in Newton, Massachusetts

1. Number and type of Golf Course Enhancement/Renovation Projects completed during the past three years. **(minimum of 4 completed projects required)**

2. Demonstrated ability to develop Golf Course Enhancement/Renovation Projects on time and within budget.

3. Experience of key personnel that will be on this project.

4. Presentation and detail of material provided for this Golf Course Project Qualification.

END OF SECTION

CONTRACT FORMS

The awarded bidder will be required to complete and submit documents substantially similar in form to the following.

These forms may need to be modified on account of changed circumstances, and are provided for informational purposes only.

CITY-CONTRACTOR AGREEMENT

CONTRACT NO. C- _____

THIS AGREEMENT made this ___ day of _____ in the year Two Thousand and Sixteen by and between the CITY OF NEWTON, a municipal corporation organized and existing under the laws of the Commonwealth of Massachusetts, hereinafter referred to as the CITY, acting through its Chief Procurement Officer, but without personal liability to him, and hereinafter referred to as the CONTRACTOR.

The parties hereto for the consideration hereinafter set forth agree as follows:

ARTICLE 1. **STATEMENT OF WORK.** The Contractor shall furnish all labor, materials, and equipment and perform all work required in strict accordance with the Contract Documents for the following project:

GOLF COURSE IMPROVEMENTS HOLES 3-4 TEE COMPLEXES
AT THE NEWTON COMMONWEALTH GOLF COURSE

ARTICLE 2. **TIME OF COMPLETION.** The Contractor shall commence work under this Contract on the date specified in the written notice of the City to proceed and shall fully complete all work hereunder within the time specified in the Summary of Work and Specific Work Requirements of the Project Manual. Time is of the essence with regard to this contract. Failure to complete within the time specified shall be subject to the assessment of liquidated damages in accordance with the provisions contained in the Project Manual.

ARTICLE 3. **THE CONTRACT PRICE.** The City shall pay the Contractor for the full and satisfactory performance of the Contract a sum not to exceed:

($)

ARTICLE 4. **CONTRACT DOCUMENTS.** The Contract Documents consist of the following documents which are either attached to this Agreement or are incorporated herein by reference:

a. This CITY-CONTRACTOR Agreement;

b. The City's Invitation to Bid #16-99 issued by the Purchasing Department;

c. The Project Manual for **Golf Course Improvements Holes 3-4 Tee Complexes The Newton Commonwealth Golf Course** including the Instructions to Bidders; General Conditions; Special Conditions; MWBE/AA Requirements, Wage Rate Requirements and Wage Rate Schedule(s) including any updated prevailing wage rate schedules if applicable; The Supplementary Special Conditions; General Requirements and Project Specifications; and Drawings, if included or referenced therein;

d. Addenda Number(s)_____ ;

e. The Bid Response of the CONTRACTOR submitted for this Project and accompanying documents and certifications;

f. Certificate(s) of Insurance and surety bond(s) submitted by the CONTRACTOR in connection with this Project;

g. Duly authorized and executed Amendments, Change Orders or Work Orders issued by the CITY after execution of this CITY-CONTRACTOR Agreement.

This CITY-CONTRACTOR Agreement, together with the other documents enumerated in this Article, constitute the entire Agreement between the CITY and the CONTRACTOR. The CONTRACTORrepresents that its bid was made without condition, qualification or reservation of any kind, except upon the written acknowledgement and consent of the CITY.

ARTICLE 5. **ALTERNATES.** The following Alternates have been accepted and their costs are included in the Contract Price stated in Article 3 of this Agreement:

Alternates: _____

ARTICLE 6. **APPLICABLE STATUTES.** All applicable federal, state and local laws and regulations are incorporated herein by reference and the Contractor agrees to comply with same.

IN WITNESS WHEREOF, the parties have caused this instrument to be executed under seal the day and year first above written.

CONTRACTOR

By_____

Print Name_____

Title _____

Date_____

Affix Corporate Seal Here

City funds in the amount of $_____
are available in account number
Newton Commonwealth Foundation, Inc.

I further certify that the Mayor, or his designee, is authorized to execute contracts and approve change orders

By_____
Comptroller of Accounts

Date _____

CITY OF NEWTON

By_____
Chief Procurement Officer

Date_____

By_____
Newton Commonwealth Golf Course

Date_____

By _____
Commissioner of Parks & Recreation

Date_____

Approved as to Legal Form and Character

By _____
Associate City Solicitor

Date_____

CONTRACT AND BONDS APPROVED

By_____
Mayor *or his designee*

Date_____

CERTIFICATE OF AUTHORITY - CORPORATE

1. I hereby certify that I am the Clerk/Secretary of _____
(insert full name of Corporation)

2. corporation, and that _____
(insert the name of officer who signed the **contract and bonds**.)

3. is the duly elected _____
(insert the title of the officer in line 2)

4. of said corporation, and that on _____
(insert a date that is ***ON OR BEFORE*** the date the officer signed the **contract and bonds**.)

at a duly authorized meeting of the Board of Directors of said corporation, at which all the directors were present or waived notice, it was voted that

5. _____ the _____
(insert **name** from line 2) (insert **title** from line 3)

of this corporation be and hereby is authorized to execute contracts and bonds in the name and on behalf of said corporation, and affix its Corporate Seal thereto, and such execution of any contract of obligation in this corporation's name and on its behalf, with or without the Corporate Seal, shall be valid and binding upon this corporation; and that the above vote has not been amended or rescinded and remains in full force and effect as of the date set forth below.

6. ATTEST: _____ *AFFIX CORPORATE SEAL HERE*
(Signature of **Clerk or Secretary**)*

7. Name: _____
(Please print or type name in line 6)*

8. Date: _____
(insert a date that is ***ON OR AFTER*** the date the officer signed the **contract and bonds**.)

* The name and signature inserted in lines 6 & 7 must be that of the Clerk or Secretary of the corporation.

CERTIFICATION OF TAX COMPLIANCE

Pursuant to M.G.L. c.62C, §49A and requirements of the City, the undersigned acting on behalf of the Contractor certifies under the penalties of perjury that the Contractor is in compliance with all laws of the Commonwealth relating to taxes including payment of all local taxes, fees, assessments, betterments and any other local or municipal charges (unless the Contractor has a pending abatement application or has entered into a payment agreement with the entity to which such charges were owed), reporting of employees and contractors, and withholding and remitting child support.*

_____
**Signature of Individual (Mandatory)

_____
*** Contractor's Social Security Number (Voluntary) or Federal Identification Number

Print Name: _____

Date: _____

OR

_____
Company Name
(Corporation, Partnership, LLC, etc.)

By: _____
**Corporate Officer (Mandatory)

Print Name: _____

Date: _____

* The provision in this Certification relating to child support applies only when the Contractor is an individual.

** Approval of a contract or other agreement will not be granted until the City receives a signed copy of this Certification.

*** Your social security number may be furnished to the Massachusetts Department of Revenue to determine whether you have met tax filing or tax payment obligations. Providers who fail to correct their non-filing or delinquency will not have a contract or other agreement issued, renewed, or extended.

CITY OF NEWTON, MASSACHUSETTS

PAYMENT BOND

Know All Men By These Presents:

That we,_____, as PRINCIPAL, and _____, as SURETY, are held and firmly bound unto the City of Newton as Obligee, in the sum of _____ dollars ($_____) to be paid to the Obligee, for which payments well and truly to be made, we bind ourselves, our respective heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

Whereas, the said PRINCIPAL has made a contract with the Obligee, bearing the date _____ __, 2016, for the construction of _____ in Newton, Massachusetts.
(Project Title)

Now, the conditions of this obligation are such that if the PRINCIPAL and all Sub-contractors under said contract shall pay for all labor performed or furnished and for all materials used or employed in said contract and in any and all duly authorized modifications, alterations, extensions of time, changes or additions to said contract that may hereafter be made, notice to the SURETY of such modifications, alterations, extensions of time, changes or additions being hereby waived, the foregoing to include any other purposes or items set out in, and to be subject to, provisions of M.G.L. c. 30, sec. 39A, and M.G.L. c. 149 sec. 29, as amended, then this obligation shall become null and void; otherwise it shall remain in full force, virtue and effect.

In Witness Whereof, the PRINCIPAL and SURETY have hereto set their hands and seals this _____day of _____,2016.

PRINCIPAL	SURETY
_____	_____
BY_____ (SEAL)	BY_____ (ATTORNEY-IN-FACT) (SEAL)
_____ (Title)	
ATTEST: _____	ATTEST: _____

CITY OF NEWTON

Attachment A - Contractors Certification

A Contractor will not be eligible for award of a contract, unless such contractor has submitted the following certification, which is deemed a part of the resulting contract.

CONTRACTOR'S CERTIFICATION

_____Certifies that:
Contractor's Name

it tends to use the following listed construction trades in the work under the contract

_____ and

will comply with the minority manpower ration and specific affirmative action steps contained herein; and

will obtain from each of its subcontractors and submit to the contracting or administering agency prior to the award of any subcontract under this contract the subcontractor certification required by these bid conditions

_____
(Signature of authorized representative of Contractor)

Any contract for the provision of goods or services to the City of Newton or any of its departments is subject to the ordinance creating the Human Rights Commission, as it may be amended from Time to Time. Any complaints within the purview shall be forwarded immediately to the contracting agency, and a copy shall be sent to the Human Rights Commission; any complaints received by the contracting agency shall be forwarded to the contractor, and a copy shall be sent to the Human Rights Commission.

CITY OF NEWTON

Attachment B - Subcontractors Certification

Prior to the award of any subcontract, regardless of tier, the prospective subcontractor must execute and submit to the Prime Contractor the following certification, which will be deemed a part of the resulting subcontractor.

SUBCONTRACTOR`S CERTIFICATION

_____Certifies that:
Contractor's Name

it tends to use the following listed construction trades in the work under the contract

_____ and

will comply with the minority manpower ration and specific affirmative action steps contained herein; and

will obtain from each of its subcontractors and submit to the contracting or administering agency prior to the award of any subcontract under this contract the subcontractor certification required by these bid conditions

Pursuant to M.G.L. Ch. 62C, Sec. 49A, I certify under the penalties of perjury that, to the best of my knowledge and belief, I am in compliance with all laws of the Commonwealth relating to taxes, reporting of employees and contractors, and withholding and remitting child support.

_____
(Signature of authorized representative of Contractor)

In order to ensure that the said subcontractor's certification becomes part of all subcontracts under the prime contract, no subcontract shall be executed until an authorize representative of the Administrative Agency administering this project has determined in writing, that the said certification has been incorporated in such subcontract, regardless of tier, Any subcontract executed without such written approval shall be void.

Any contract for the provision of goods or services to the City of Newton or any of its departments is subject to the ordinance creating the Human Rights Commission, as it may be amended from Time to Time. Any complaints within the purview shall be forwarded immediately to the contracting agency, and a copy shall be sent to the Human Rights Commission; any complaints received by the contracting agency shall be forwarded to the contractor, and a copy shall be sent to the Human Rights Commission.

GENERAL CONDITIONS
OF THE CONTRACT
FOR NON-TECHNICAL SERVICES

The City of Newton, herein referred to as the City, does hereby establish the following General Conditions, applicable to this Invitation for Bids and any subsequent purchase order, work order, or contract resulting therefrom.

1.0 SCOPE OF SERVICES

1.1 The Contractor agrees to furnish all labor, materials, equipment and insurance necessary to perform and fully complete, in every respect, within the time frame herein specified, all work (hereinafter referred as the Services) described in the Project Manual.

1.2 The Contractor shall not make any changes in the scope of Services without the prior written consent of the City. The Contractor shall make reasonable revisions or corrections, within the scope of Services, to any work performed until submitted in a form acceptable to the City.

1.3 The City reserves the right to alter, add to or reduce the Services by delivering to the Contractor written notice specifying the nature and extent of such alteration, addition or reduction. Such notice shall be effective upon the later of actual receipt by the Contractor or upon the date given in such notice. No addition to the Services shall be made unless the City and the Contractor have agreed to such increase in writing.

2.0 CONTRACT TERM

2.1 The obligations of the Contractor identified herein shall commence upon execution of the City-Contractor Agreement and shall continue in full force and effect for the duration of the contract term as identified in the Project Manual. The contractor shall commence the performance of services under this contract promptly upon receipt of the City's Notice to Proceed in accordance with the provisions identified in the Project Manual.

2.2 In the event the term of this contract exceeds a period of one year and notwithstanding any provision to the contrary herein, the City shall cancel this contract in the event that funds are not appropriated or otherwise made available to support continuation of performance by the Contractor in any fiscal year succeeding the first year.

3.0 EXECUTION

3.1 All work required hereunder shall be performed as promptly as possible, and in any event within the time herein set forth, and such work shall be subject to approval and acceptance by the City, but such approval and acceptance shall not relieve the Contractor from the obligation to correct any incomplete, inaccurate or defective work, all of which shall be promptly remedied by the Contractor on demand, without cost to the City. The Contractor shall obtain all the required licenses and permits for the work herein described.

3.2 The Contractor shall conform to all determinations and directions of the City concerning the Contractor's delivery of services in the event of inclement weather, equipment failure, picket lines on City property, or labor strikes by the contractor's employees.

4.0 COMPENSATION

4.1 The City shall pay the Contractor for services rendered under this contract in accordance with the amount(s) set forth in the Contractor's General Bid Form and pursuant to the provisions contained in the Project Manual.

4.2 Notwithstanding anything to the contrary contained in the Contract, the City may withhold any payment to the Contractor hereunder if and for so long as the Contractor fails to perform any of its obligations hereunder or otherwise is in default under this Contract including, without limitation, any failure to perform Services in full accordance with the amount sufficient in the reasonable opinion of the City to cure any such default or failure of performance by the Contractor.

4.3 In no event shall the City be required to pay any amounts for work deemed by it to be unacceptable, or which are otherwise disputed. In the event the City disputes any such amounts invoiced, it shall pay all amounts not in dispute and notify the Contractor in writing of the amounts disputed and the reasons therefor.

4.4 No payment made shall constitute or be construed as final acceptance or approval of that part of the Services to which payment relates, or relieve the Contractor of any of its obligations outlined in this Contract. Further, the City shall not be deemed, by virtue of making payments to the Contractor hereunder, to have released the Contractor from any claim or liability, or to have waived any action arising out of the breach of this Contract by the Contractor.

5.0 REPORTS AND DRAWINGS

When the Contractor has been paid for the Services performed by him or her, all reports, drawings, and other material furnished to the City shall become the City's property and may be used by the City (or such parties as the City may designate) thereafter in such manner and for such proposes as the City (or such parties as the City may designate) may deem advisable, without further employment of or additional compensation to the Contractor. The Contractor shall not release or disclose any report, drawing, or other material furnished to the Contractor by the City in connection with the performance of the Contractor's Services

6.0 CONTRACTOR'S ACCOUNTING RECORDS

The Contractor shall keep records pertaining to Services performed (including complete and detailed time records) on the basis of recognized bookkeeping practices, generally accepted accounting principles, and in accordance with such reasonable requirements to facilitate audit as the City may provide. All records shall be available to the City or its authorized representatives for review and audit during normal business hours.

7.0 ASSIGNMENT/SUBCONTRACTING

The Contractor agrees that he will not sell, assign or transfer this Contract or any part thereof or interest therein without the prior written consent of the City.

8.0 REMEDY FOR DEFAULT

If the Contractor, in the sole judgment of the City, shall violate or fail properly to comply with or perform in any material respect any condition, provision, or warranty hereof, the City shall have the right by prior written notice to the Contractor to have the services called for hereby otherwise performed, and/or to terminate this contract without prejudice to any other rights or remedies of the City under this contract. The Contractor shall pay any excess in the City's cost to so procure the services and any related goods, supplies, materials or equipment. In addition, and without limiting any other remedies available to the City, the Contractor shall be liable for all losses, costs and expenses incurred by the City which result from the Contractors noncompliance.

9.0 SUSPENSION OR TERMINATION

9.1 The City shall have the right, upon seven (7) days written notice to the Contractor so stating, to terminate, suspend, or postpone this contract in whole or in part for any reason deemed by the City to be in the public interest. Any such termination, suspension, or postponement shall not give rise to any cause of action for damages against the City. In the event that the City postpones or suspends the Services, the Contractor's time for performance of the Services shall be extended for a period equal to the period of such postponement or suspension. In the event of termination, suspension or postponement, the City shall pay: (a) for services and any related goods, supplies, materials and equipment furnished up to the time of termination, suspension, or postponement at the contract price upon delivery; (b) for work in process in the amount of the Contractor's cost, determined in accordance with ordinary accepted accounting practices, up to the time of termination, suspension, or postponement; and (c) for raw materials purchased by the Contractor as of the date of termination, suspension, or postponement and which are noncancelable at the Contractor's actual cost plus reasonable handling charges, but only to the extent that such raw materials were purchased in reliance upon this contract and are useful solely with respect to this contract.

9.2 Upon receipt of a notice of termination, suspension, or postponement the Contractor shall immediately cease all work hereunder and cancel all orders placed with respect to this contract. The Contractor's failure to so cancel shall relieve the City of the obligations of paragraph 10.1 above.

9.3 The City may postpone, suspend or terminate the Services immediately, by notice, hand delivery or certified mail, if the Contractor violates any of the provisions of this Contract, or fails to perform or observe any of the terms, covenants or conditions of this Contract, or abandons in whole or in part its Services, or becomes unable to perform its Services.

9.4 In the event of termination of this Contract, the Contractor shall promptly deliver to the City all documents, work papers, calculations, computer programs, data, drawings, plans, and other tangible work product, or materials pertaining to the Services performed under this Contract to the time of termination.

10.0 NOTICE

Any action, notice or request required to be taken, given or made by City or the Contractor hereunder may be taken, given or made only by those persons identified for that purpose on the Contract Form. All notices required to be given hereunder shall be deemed properly given if personally delivered, or if mailed by registered or certified mail, postage prepaid addressed to the address and officer identified on the Contract Form.

11.0 PROTECTION OF PROPERTY

The Contractor shall take all reasonable precautions to prevent damage to property, visible and concealed, and shall restore to substantially the same condition existing prior to the Contractor's entry any disturbance or damage to property caused by the Contractor or any person acting under its control.

12.0 INSURANCE REQUIREMENTS

12.1 The Contractor shall provide insurance coverage as listed below. This insurance shall be provided at the Contractor's expense and shall be in full force and effect during the full term of this Contract.

WORKER'S COMPENSATION

Worker's Compensation:	Per M.G.L. c.. l49, s. 34 and c.. l52 as amended.

COMMERCIAL GENERAL LIABILITY

Personal Injury	$500,000 each occurrence $1,000,000 aggregate
Property Damage	$500,000 each occurrence $1,000,000 aggregate

VEHICLE LIABILITY

Personal Injury	$500,000 each person $1,000,000 aggregate
Property Damage	$300,000 each occurrence $500,000 aggregate

12.2 The City shall be named as additional insureds on the Contractor's Liability Policies.

12.3 The Contractor shall not commence the work until proof of compliance with this Section 13.0 has been furnished to the City by submitting one copy of a properly endorsed insurance certificate issued by a company authorized to write insurance in the Commonwealth. This certificate shall indicate that the contractual liability coverage is in force.

12.4 The Contractor shall file the original and one certified copy of all policies with the City within fifteen (15) days after contract award. If the City is damaged by the Contractor's failure to maintain such insurance and to so notify the City, then the Contractor shall be responsible for all reasonable costs attributable thereto.

12.5 Cancellation of any insurance required by this contract, whether by the insurer or the insured, shall not be valid unless written notice thereof is given by the party proposing cancellation to the other party and City at least thirty days prior to the effective date thereof, which shall be expressed in said notice.

13.0 CONFLICT OF INTEREST

No member, agent or employee of the City shall , during his/her tenure or one year thereafter directly or indirectly, have any interest in any property to be included in, or any contract for property, materials or services to be furnished or used in connection with, this contract or the proceeds thereof.

14.0 COMPLIANCE WITH LAWS

All work to be performed and wages paid under this specification shall be in accordance with all applicable laws, state or federal, and all applicable ordinances, codes, rules, and regulations of the City of Newton, or any public board or office having any jurisdiction, regulation or control over any work to be done hereunder, including minimum wage rates. In particular, without limitation, the Contractor agrees to comply with all regulations pertaining to approvals for federal and state grants, and with all federal and state environmental laws and regulations. The Contractor agrees to assist in making any submissions to federal or state agencies as may be required in order to meet the requirements in this paragraph.

15.0 INDEMNIFICATION

The Contractor agrees to indemnify and save the City harmless from and against any and all costs, losses, expenses, liabilities, damages or claims for damages, including reasonable attorney's fees and expenses, on account of any injury or damage to buildings, improvements, or property of the City or on account of any injury (including death) or damage to any person, persons, firm, corporation or association, or on account of any infringement or claim of infringement of patents, arising out of or resulting from the deliveries provided for or performed under this contract or from any act, omission or negligence of the contractor, his agents, employees, or assigns. The foregoing provisions shall not be deemed to be released, waived or modified in any respect by reason of any surety or insurance provided by the contractor under contract.

16.0 FORCE MAJEURE

The City may not hold the Contractor liable for any loss, expense or damage incurred by the City on account of failure of the Contractor to deliver services as specified herein, if that failure is caused by state of war, acts of enemies, expropriation or confiscation of facilities used by the Contractor, or compliance with any law, order, or regulation of any federal, state or municipal governmental authority, if the Contractor shall show that such compliance would impair this ability to perform a material provision of this contract, the Contractor having given the City reasonable notice of such cause.

17.0 DISPUTES

All claims, disputes and other matters in question between the City and the Contractor arising out of or relating to this Contract or the breach of it, shall be submitted for resolution to a court of competent jurisdiction in Massachusetts, unless otherwise agreed by the parties. No such action shall be brought, however, until the completion of all Services under this Contract or the earlier termination of this Contract as provided herein, the parties agreeing to negotiate any claims, disputes or other matters in question during the term of this Contract before resorting to litigation. As to all acts or failures to act by either party to this Contract, any applicable statute of limitations shall commence to run and any alleged cause of action shall be deemed to have accrued in any and all events when the other party becomes aware or should have been aware of such acts or failure to act.

18.0 GOVERNING LAW

This contract shall be governed by and construed in accordance with Massachusetts Law.

19.0 LIABILITY

The Contractor is retained solely for the purpose of and to the extent set forth in this Contract. The Contractor's relationship to the City for the purpose of services to be performed under this Contract shall be that of an independent contractor. The Contractor shall have no capacity or authority to involve the City in any contract or to incur any liability on behalf of the City. In no event shall the City be held liable as an employer or otherwise for any personal injury to or death of the Contractor's principals, employees, agents and/or representatives occasioned by or resulting from the Contractor's performance under this Contract.

20.0 LIENS

The Contractor shall cause to be removed from the property of the City any liens or other claims asserted by any person or entity claiming through or under the Contractor and arising out of Services performed under this Contract by such third party.

21.0 SEVERABILITY

In the event that any portion of this Contract is held illegal or unenforceable by a court of competent jurisdiction, the parties agree that such invalidity shall not affect the validity of the remaining portions of this Contract and Contractor and the City agree to substitute for the invalid provision a valid provision which most closely approximates the economics and intent of the invalid provision.

END OF SECTION

CITY OF NEWTON

WAGE RATE REQUIREMENTS

1. GENERAL

A. This section summarizes the requirements for the payment of wages to laborers and mechanics employed under the Contract.

B. Other duties and requirements of law which may not be specified in this section apply and are inherently a part of the Contract.

2. WAGE RATES

A. The rate per hour to be paid to mechanics, apprentices, teamsters, chauffeurs, and laborers employed on the Work shall not be less than the rate of wages in the attached "Minimum Wage Rates" as determined by the Commissioner of Labor and Industries. This schedule shall continue to be the minimum rate of wages for said employees during the life of this Contract.

B. Keep posted on the site a legible copy of said schedule. Keep on file the wage rates and classifications of labor employed on this Work in order that they may be available for inspection by the Owner, Administrator, or the Architect.

C. Apprentices employed pursuant to this determination of wage rates must be registered and approved by the State Apprenticeship Council wherever rates for journeymen or apprentices are not listed.

D. Pay reserve police officers employed on the Work the prevailing rate of wages paid to regular police officers as required by M.G.L. c149, Sec. 34B, as amended. Such police officers shall be covered by Workmen's Compensation Insurance and Employers Liability Insurance by the Contractor.

E. **The Contractor and all subcontractors shall, on a weekly basis throughout the term of the contract, provide to the City of Newton certified payroll affidavits verifying compliance with M.G.L. c.149, Sec. 27, 27A and 27B.** The Contractor is obiligated to provide such records to the City directly on a weekly basis. The City may assess a penalty of $100 for each day beyond the required submission date that such records are received, which amount shall be deducted from any amounts to the Contractor from the City. In the event of chronic late submissions, the City shall report the same to the Office of the Attorney General.

F. The Contractor and all subcontractors shall provide a Statement of Compliance within 15 days of the completion of its portion of the work. This statement shall be submitted to the Owner on the form found elsewhere in this section.

G. The Contractor shall maintain accurate and complete records, including payroll records, during the Contract term and for three years thereafter.

END OF SECTION

THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF LABOR AND WORKFORCE DEVELOPMENT
DEPARTMENT OF LABOR STANDARDS

Prevailing Wage Rates

As determined by the Director under the provisions of the Massachusetts General Laws, Chapter 149, Sections 26 to 27H

CHARLES D. BAKER
Governor

KARYN E. POLITO
Lt. Governor

RONALD L. WALKER, II
Secretary

WILLIAM D MCKINNEY
Director

Awarding Authority: City of Newton

Contract Number: 16-99 **City/Town:** NEWTON

Description of Work: Hole #3 and #4 Tee Reconstruction at Newton Commonwealth Golf Course

Job Location: Kenrick Street

Information about Prevailing Wage Schedules for Awarding Authorities and Contractors

- This wage schedule applies only to the specific project referenced at the top of this page and uniquely identified by the "Wage Request Number" on all pages of this schedule.
- An Awarding Authority must request an updated wage schedule from the Department of Labor Standards ("DLS") if it has not opened bids or selected a contractor within 90 days of the date of issuance of the wage schedule. For CM AT RISK projects (bid pursuant to G.L. c.149A), the earlier of: (a) the execution date of the GMP Amendment, or (b) the bid for the first construction scope of work must be within 90-days of the wage schedule issuance date.
- The wage schedule shall be incorporated in any advertisement or call for bids for the project as required by M.G.L. c. 149, § 27. The wage schedule shall be made a part of the contract awarded for the project. The wage schedule must be posted in a conspicuous place at the work site for the life of the project in accordance with M.G.L. c. 149 § 27. The wages listed on the wage schedule must be paid to employees performing construction work on the project whether they are employed by the prime contractor, a filed sub-bidder, or any sub-contractor.
- All apprentices working on the project are required to be registered with the Massachusetts Department of Labor Standards, Division of Apprentice Standards (DLS/DAS). Apprentice must keep his/her apprentice identification card on his/her person during all work hours on the project. An apprentice registered with DAS may be paid the lower apprentice wage rate at the applicable step as provided on the prevailing wage schedule. **Any apprentice not registered with DLS/DAS regardless of whether or not they are registered with any other federal, state, local, or private agency must be paid the journeyworker's rate for the trade.**
- The wage rates will remain in effect for the duration of the project, except in the case of multi-year public construction projects. For construction projects lasting longer than one year, awarding authorities must request an updated wage schedule. Awarding authorities are required to request these updates no later than two weeks before the anniversary of the date the contract was executed by the awarding authority and the general contractor. For multi-year CM AT RISK projects, awarding authority must request an annual update no later than two weeks before the anniversary date, determined as the earlier of: (a) the execution date of the GMP Amendment, or (b) the execution date of the first amendment to permit procurement of construction services. Contractors are required to obtain the wage schedules from awarding authorities, and to pay no less than these rates to covered workers. The annual update requirement is not applicable to 27F "rental of equipment" contracts.
- Every contractor or subcontractor which performs construction work on the project is required to submit weekly payroll reports and a Statement of Compliance directly to the awarding authority by mail or email and keep them on file for three years. Each weekly payroll report must contain: the employee's name, address, occupational classification, hours worked, and wages paid. Do not submit weekly payroll reports to DLS. A sample of a payroll reporting form may be obtained at http://www.mass.gov/dols/pw.
- Contractors with questions about the wage rates or classifications included on the wage schedule have an affirmative obligation to inquire with DLS at (617) 626-6953.
- Employees not receiving the prevailing wage rate set forth on the wage schedule may report the violation to the Fair Labor Division of the office of the Attorney General at (617) 727-3465.
- Failure of a contractor or subcontractor to pay the prevailing wage rates listed on the wage schedule to all employees who perform construction work on the project is a violation of the law and subjects the contractor or subcontractor to civil and

Issue Date: 05/03/2016 **Wage Request Number:** 20160503-080

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Construction						
(2 AXLE) DRIVER - EQUIPMENT *TEAMSTERS JOINT COUNCIL NO. 10 ZONE A*	12/01/2015	$32.75	$10.41	$10.08	$0.00	$53.24
	06/01/2016	$33.25	$10.41	$10.08	$0.00	$53.74
	08/01/2016	$33.25	$10.91	$10.08	$0.00	$54.24
	12/01/2016	$33.25	$10.91	$10.89	$0.00	$55.05
(3 AXLE) DRIVER - EQUIPMENT *TEAMSTERS JOINT COUNCIL NO. 10 ZONE A*	12/01/2015	$32.82	$10.41	$10.08	$0.00	$53.31
	06/01/2016	$33.32	$10.41	$10.08	$0.00	$53.81
	08/01/2016	$33.32	$10.91	$10.08	$0.00	$54.31
	12/01/2016	$33.32	$10.91	$10.89	$0.00	$55.12
(4 & 5 AXLE) DRIVER - EQUIPMENT *TEAMSTERS JOINT COUNCIL NO. 10 ZONE A*	12/01/2015	$32.94	$10.41	$10.08	$0.00	$53.43
	06/01/2016	$33.44	$10.41	$10.08	$0.00	$53.93
	08/01/2016	$33.44	$10.91	$10.08	$0.00	$54.43
	12/01/2016	$33.44	$10.91	$10.89	$0.00	$55.24
ADS/SUBMERSIBLE PILOT *PILE DRIVER LOCAL 56 (ZONE 1)* For apprentice rates see "Apprentice- PILE DRIVER"	08/01/2015	$88.29	$9.80	$19.23	$0.00	$117.32
AIR TRACK OPERATOR *LABORERS - ZONE 1*	12/01/2015	$36.10	$7.45	$13.55	$0.00	$57.10
	06/01/2016	$36.85	$7.45	$13.55	$0.00	$57.85
	12/01/2016	$37.85	$7.45	$13.55	$0.00	$58.85
For apprentice rates see "Apprentice- LABORER"						
ASBESTOS REMOVER - PIPE / MECH. EQUIPT. *HEAT & FROST INSULATORS LOCAL 6 (BOSTON)*	12/01/2015	$34.38	$10.40	$5.95	$0.00	$50.73
ASPHALT RAKER *LABORERS - ZONE 1*	12/01/2015	$35.60	$7.45	$13.55	$0.00	$56.60
	06/01/2016	$36.35	$7.45	$13.55	$0.00	$57.35
	12/01/2016	$37.35	$7.45	$13.55	$0.00	$58.35
For apprentice rates see "Apprentice- LABORER"						
ASPHALT/CONCRETE/CRUSHER PLANT-ON SITE *OPERATING ENGINEERS LOCAL 4*	12/01/2015	$43.73	$10.00	$14.90	$0.00	$68.63
	06/01/2016	$44.48	$10.00	$14.90	$0.00	$69.38
	12/01/2016	$45.73	$10.00	$14.90	$0.00	$70.63
	06/01/2017	$46.73	$10.00	$14.90	$0.00	$71.63
	12/01/2017	$47.73	$10.00	$14.90	$0.00	$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BACKHOE/FRONT-END LOADER *OPERATING ENGINEERS LOCAL 4*	12/01/2015	$43.73	$10.00	$14.90	$0.00	$68.63
	06/01/2016	$44.48	$10.00	$14.90	$0.00	$69.38
	12/01/2016	$45.73	$10.00	$14.90	$0.00	$70.63
	06/01/2017	$46.73	$10.00	$14.90	$0.00	$71.63
	12/01/2017	$47.73	$10.00	$14.90	$0.00	$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BARCO-TYPE JUMPING TAMPER *LABORERS - ZONE 1*	12/01/2015	$35.60	$7.45	$13.55	$0.00	$56.60
	06/01/2016	$36.35	$7.45	$13.55	$0.00	$57.35
	12/01/2016	$37.35	$7.45	$13.55	$0.00	$58.35
For apprentice rates see "Apprentice- LABORER"						
BLOCK PAVER, RAMMER / CURB SETTER *LABORERS - ZONE 1*	12/01/2015	$36.10	$7.45	$13.55	$0.00	$57.10
	06/01/2016	$36.85	$7.45	$13.55	$0.00	$57.85
	12/01/2016	$37.85	$7.45	$13.55	$0.00	$58.85
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
BOILER MAKER *BOILERMAKERS LOCAL 29*	01/01/2016	$41.62	$6.97	$16.21	$0.00	$64.80
	01/01/2017	$42.92	$6.97	$16.21	$0.00	$66.10

Apprentice - *BOILERMAKER - Local 29*

Effective Date - 01/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	65	$27.05	$6.97	$10.54	$0.00	$44.56
2	65	$27.05	$6.97	$10.54	$0.00	$44.56
3	70	$29.13	$6.97	$11.35	$0.00	$47.45
4	75	$31.22	$6.97	$12.16	$0.00	$50.35
5	80	$33.30	$6.97	$12.97	$0.00	$53.24
6	85	$35.38	$6.97	$13.78	$0.00	$56.13
7	90	$37.46	$6.97	$14.59	$0.00	$59.02
8	95	$39.54	$6.97	$15.40	$0.00	$61.91

Effective Date - 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	65	$27.90	$6.97	$10.54	$0.00	$45.41
2	65	$27.90	$6.97	$10.54	$0.00	$45.41
3	70	$30.04	$6.97	$11.35	$0.00	$48.36
4	75	$32.19	$6.97	$12.16	$0.00	$51.32
5	80	$34.34	$6.97	$12.97	$0.00	$54.28
6	85	$36.48	$6.97	$13.78	$0.00	$57.23
7	90	$38.63	$6.97	$14.59	$0.00	$60.19
8	95	$40.77	$6.97	$15.40	$0.00	$63.14

Notes:

Apprentice to Journeyworker Ratio:1:5

BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING) *BRICKLAYERS LOCAL 3 (NEWTON)*	02/01/2016	$49.86	$10.18	$19.14	$0.00	$79.18
	08/01/2016	$50.76	$10.18	$19.22	$0.00	$80.16
	02/01/2017	$51.33	$10.18	$19.22	$0.00	$80.73

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *BRICK/PLASTER/CEMENT MASON - Local 3 Newton*

Effective Date - 02/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$24.93	$10.18	$19.14	$0.00	$54.25
2	60	$29.92	$10.18	$19.14	$0.00	$59.24
3	70	$34.90	$10.18	$19.14	$0.00	$64.22
4	80	$39.89	$10.18	$19.14	$0.00	$69.21
5	90	$44.87	$10.18	$19.14	$0.00	$74.19

Effective Date - 08/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$25.38	$10.18	$19.22	$0.00	$54.78
2	60	$30.46	$10.18	$19.22	$0.00	$59.86
3	70	$35.53	$10.18	$19.22	$0.00	$64.93
4	80	$40.61	$10.18	$19.22	$0.00	$70.01
5	90	$45.68	$10.18	$19.22	$0.00	$75.08

Notes:

Apprentice to Journeyworker Ratio:1:5

BULLDOZER/GRADER/SCRAPER *OPERATING ENGINEERS LOCAL 4*	12/01/2015	$43.31	$10.00	$14.90	$0.00	$68.21
	06/01/2016	$44.06	$10.00	$14.90	$0.00	$68.96
	12/01/2016	$45.29	$10.00	$14.90	$0.00	$70.19
	06/01/2017	$46.28	$10.00	$14.90	$0.00	$71.18
	12/01/2017	$47.27	$10.00	$14.90	$0.00	$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
CAISSON & UNDERPINNING BOTTOM MAN *LABORERS - FOUNDATION AND MARINE*	12/01/2015	$36.45	$7.45	$13.75	$0.00	$57.65
	06/01/2016	$37.20	$7.45	$13.75	$0.00	$58.40
	12/01/2016	$38.20	$7.45	$13.75	$0.00	$59.40
For apprentice rates see "Apprentice- LABORER"						
CAISSON & UNDERPINNING LABORER *LABORERS - FOUNDATION AND MARINE*	12/01/2015	$35.30	$7.45	$13.75	$0.00	$56.50
	06/01/2016	$36.05	$7.45	$13.75	$0.00	$57.25
	12/01/2016	$37.05	$7.45	$13.75	$0.00	$58.25
For apprentice rates see "Apprentice- LABORER"						
CAISSON & UNDERPINNING TOP MAN *LABORERS - FOUNDATION AND MARINE*	12/01/2015	$35.30	$7.45	$13.75	$0.00	$56.50
	06/01/2016	$36.05	$7.45	$13.75	$0.00	$57.25
	12/01/2016	$37.05	$7.45	$13.75	$0.00	$58.25
For apprentice rates see "Apprentice- LABORER"						
CARBIDE CORE DRILL OPERATOR *LABORERS - ZONE 1*	12/01/2015	$35.60	$7.45	$13.55	$0.00	$56.60
	06/01/2016	$36.35	$7.45	$13.55	$0.00	$57.35
	12/01/2016	$37.35	$7.45	$13.55	$0.00	$58.35
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
CARPENTER *CARPENTERS -ZONE 2 (Eastern Massachusetts)*	03/01/2016	$37.10	$9.80	$16.82	$0.00	$63.72
	09/01/2016	$38.08	$9.80	$16.82	$0.00	$64.70
	03/01/2017	$39.05	$9.80	$16.82	$0.00	$65.67
	09/01/2017	$40.06	$9.80	$16.82	$0.00	$66.68
	03/01/2018	$41.06	$9.80	$16.82	$0.00	$67.68
	09/01/2018	$42.10	$9.80	$16.82	$0.00	$68.72
	03/01/2019	$43.13	$9.80	$16.82	$0.00	$69.75

Apprentice - *CARPENTER - Zone 2 Eastern MA*

Effective Date - 03/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$18.55	$9.80	$1.63	$0.00	$29.98
2	60	$22.26	$9.80	$1.63	$0.00	$33.69
3	70	$25.97	$9.80	$11.93	$0.00	$47.70
4	75	$27.83	$9.80	$11.93	$0.00	$49.56
5	80	$29.68	$9.80	$13.56	$0.00	$53.04
6	80	$29.68	$9.80	$13.56	$0.00	$53.04
7	90	$33.39	$9.80	$15.19	$0.00	$58.38
8	90	$33.39	$9.80	$15.19	$0.00	$58.38

Effective Date - 09/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$19.04	$9.80	$1.63	$0.00	$30.47
2	60	$22.85	$9.80	$1.63	$0.00	$34.28
3	70	$26.66	$9.80	$11.93	$0.00	$48.39
4	75	$28.56	$9.80	$11.93	$0.00	$50.29
5	80	$30.46	$9.80	$13.56	$0.00	$53.82
6	80	$30.46	$9.80	$13.56	$0.00	$53.82
7	90	$34.27	$9.80	$15.19	$0.00	$59.26
8	90	$34.27	$9.80	$15.19	$0.00	$59.26

Notes:

Apprentice to Journeyworker Ratio:1:5

CEMENT MASONRY/PLASTERING *BRICKLAYERS LOCAL 3 (NEWTON)*	01/01/2016	$46.44	$10.90	$18.71	$1.30	$77.35

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *CEMENT MASONRY/PLASTERING - Eastern Mass (Newton)*

Effective Date - 01/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$23.22	$10.90	$12.21	$0.00	$46.33
2	60	$27.86	$10.90	$13.71	$1.30	$53.77
3	65	$30.19	$10.90	$14.71	$1.30	$57.10
4	70	$32.51	$10.90	$15.71	$1.30	$60.42
5	75	$34.83	$10.90	$16.71	$1.30	$63.74
6	80	$37.15	$10.90	$17.71	$1.30	$67.06
7	90	$41.80	$10.90	$18.71	$1.30	$72.71

Notes:
Steps 3,4 are 500 hrs. All other steps are 1,000 hrs.

Apprentice to Journeyworker Ratio:1:3

CHAIN SAW OPERATOR *LABORERS - ZONE 1*	12/01/2015	$35.60	$7.45	$13.55	$0.00	$56.60
	06/01/2016	$36.35	$7.45	$13.55	$0.00	$57.35
	12/01/2016	$37.35	$7.45	$13.55	$0.00	$58.35
For apprentice rates see "Apprentice- LABORER"						
CLAM SHELLS/SLURRY BUCKETS/HEADING MACHINES *OPERATING ENGINEERS LOCAL 4*	12/01/2015	$44.73	$10.00	$14.90	$0.00	$69.63
	06/01/2016	$45.48	$10.00	$14.90	$0.00	$70.38
	12/01/2016	$46.73	$10.00	$14.90	$0.00	$71.63
	06/01/2017	$47.73	$10.00	$14.90	$0.00	$72.63
	12/01/2017	$48.73	$10.00	$14.90	$0.00	$73.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
COMPRESSOR OPERATOR *OPERATING ENGINEERS LOCAL 4*	12/01/2015	$30.13	$10.00	$14.90	$0.00	$55.03
	06/01/2016	$30.65	$10.00	$14.90	$0.00	$55.55
	12/01/2016	$31.52	$10.00	$14.90	$0.00	$56.42
	06/01/2017	$32.21	$10.00	$14.90	$0.00	$57.11
	12/01/2017	$32.90	$10.00	$14.90	$0.00	$57.80
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DELEADER (BRIDGE) *PAINTERS LOCAL 35 - ZONE 2*	01/01/2016	$49.51	$7.85	$16.10	$0.00	$73.46
	07/01/2016	$50.46	$7.85	$16.10	$0.00	$74.41
	01/01/2017	$51.41	$7.85	$16.10	$0.00	$75.36

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *PAINTER Local 35 - BRIDGES/TANKS*

Effective Date - 01/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$24.76	$7.85	$0.00	$0.00	$32.61
2	55	$27.23	$7.85	$3.66	$0.00	$38.74
3	60	$29.71	$7.85	$3.99	$0.00	$41.55
4	65	$32.18	$7.85	$4.32	$0.00	$44.35
5	70	$34.66	$7.85	$14.11	$0.00	$56.62
6	75	$37.13	$7.85	$14.44	$0.00	$59.42
7	80	$39.61	$7.85	$14.77	$0.00	$62.23
8	90	$44.56	$7.85	$15.44	$0.00	$67.85

Effective Date - 07/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$25.23	$7.85	$0.00	$0.00	$33.08
2	55	$27.75	$7.85	$3.66	$0.00	$39.26
3	60	$30.28	$7.85	$3.99	$0.00	$42.12
4	65	$32.80	$7.85	$4.32	$0.00	$44.97
5	70	$35.32	$7.85	$14.11	$0.00	$57.28
6	75	$37.85	$7.85	$14.44	$0.00	$60.14
7	80	$40.37	$7.85	$14.77	$0.00	$62.99
8	90	$45.41	$7.85	$15.44	$0.00	$68.70

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

DEMO: ADZEMAN *LABORERS - ZONE 1*	12/01/2015	$35.50	$7.45	$13.55	$0.00	$56.50
For apprentice rates see "Apprentice- LABORER"						
DEMO: BACKHOE/LOADER/HAMMER OPERATOR *LABORERS - ZONE 1*	12/01/2015	$36.50	$7.45	$13.55	$0.00	$57.50
For apprentice rates see "Apprentice- LABORER"						
DEMO: BURNERS *LABORERS - ZONE 1*	12/01/2015	$36.25	$7.45	$13.55	$0.00	$57.25
For apprentice rates see "Apprentice- LABORER"						
DEMO: CONCRETE CUTTER/SAWYER *LABORERS - ZONE 1*	12/01/2015	$36.50	$7.45	$13.55	$0.00	$57.50
For apprentice rates see "Apprentice- LABORER"						
DEMO: JACKHAMMER OPERATOR *LABORERS - ZONE 1*	12/01/2015	$36.25	$7.45	$13.55	$0.00	$57.25
For apprentice rates see "Apprentice- LABORER"						
DEMO: WRECKING LABORER *LABORERS - ZONE 1*	12/01/2015	$35.50	$7.45	$13.55	$0.00	$56.50
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
DIRECTIONAL DRILL MACHINE OPERATOR *OPERATING ENGINEERS LOCAL 4*	12/01/2015	$43.31	$10.00	$14.90	$0.00	$68.21
	06/01/2016	$44.06	$10.00	$14.90	$0.00	$68.96
	12/01/2016	$45.29	$10.00	$14.90	$0.00	$70.19
	06/01/2017	$46.28	$10.00	$14.90	$0.00	$71.18
	12/01/2017	$47.27	$10.00	$14.90	$0.00	$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DIVER *PILE DRIVER LOCAL 56 (ZONE 1)*	08/01/2015	$58.86	$9.80	$19.23	$0.00	$87.89
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER TENDER *PILE DRIVER LOCAL 56 (ZONE 1)*	08/01/2015	$42.04	$9.80	$19.23	$0.00	$71.07
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER TENDER (EFFLUENT) *PILE DRIVER LOCAL 56 (ZONE 1)*	08/01/2015	$63.06	$9.80	$19.23	$0.00	$92.09
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER/SLURRY (EFFLUENT) *PILE DRIVER LOCAL 56 (ZONE 1)*	08/01/2015	$88.23	$9.80	$19.23	$0.00	$117.26
For apprentice rates see "Apprentice- PILE DRIVER"						
DRAWBRIDGE OPERATOR (Construction) *ELECTRICIANS LOCAL 103*	03/01/2016	$46.17	$13.00	$16.39	$0.00	$75.56
For apprentice rates see "Apprentice- ELECTRICIAN"						
ELECTRICIAN *ELECTRICIANS LOCAL 103*	03/01/2016	$46.17	$13.00	$16.39	$0.00	$75.56

Apprentice - *ELECTRICIAN - Local 103*
Effective Date - 03/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	$18.47	$13.00	$0.55	$0.00	$32.02
2	40	$18.47	$13.00	$0.55	$0.00	$32.02
3	45	$20.78	$13.00	$12.34	$0.00	$46.12
4	45	$20.78	$13.00	$12.34	$0.00	$46.12
5	50	$23.09	$13.00	$12.71	$0.00	$48.80
6	55	$25.39	$13.00	$13.07	$0.00	$51.46
7	60	$27.70	$13.00	$13.44	$0.00	$54.14
8	65	$30.01	$13.00	$13.81	$0.00	$56.82
9	70	$32.32	$13.00	$14.18	$0.00	$59.50
10	75	$34.63	$13.00	$14.55	$0.00	$62.18

Notes: :
App Prior 1/1/03; 30/35/40/45/50/55/65/70/75/80

Apprentice to Journeyworker Ratio:2:3***

ELEVATOR CONSTRUCTOR *ELEVATOR CONSTRUCTORS LOCAL 4*	01/01/2016	$54.53	$14.43	$14.96	$0.00	$83.92
	01/01/2017	$55.86	$15.28	$15.71	$0.00	$86.85

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *ELEVATOR CONSTRUCTOR - Local 4*

Effective Date - 01/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$27.27	$14.43	$0.00	$0.00	$41.70
2	55	$29.99	$14.43	$14.96	$0.00	$59.38
3	65	$35.44	$14.43	$14.96	$0.00	$64.83
4	70	$38.17	$14.43	$14.96	$0.00	$67.56
5	80	$43.62	$14.43	$14.96	$0.00	$73.01

Effective Date - 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$27.93	$15.28	$0.00	$0.00	$43.21
2	55	$30.72	$15.28	$15.71	$0.00	$61.71
3	65	$36.31	$15.28	$15.71	$0.00	$67.30
4	70	$39.10	$15.28	$15.71	$0.00	$70.09
5	80	$44.69	$15.28	$15.71	$0.00	$75.68

Notes:
Steps 1-2 are 6 mos.; Steps 3-5 are 1 year

Apprentice to Journeyworker Ratio:1:1

ELEVATOR CONSTRUCTOR HELPER *ELEVATOR CONSTRUCTORS LOCAL 4*	01/01/2016	$38.17	$14.43	$14.96	$0.00	$67.56
	01/01/2017	$39.10	$15.28	$15.71	$0.00	$70.09
For apprentice rates see "Apprentice - ELEVATOR CONSTRUCTOR"						
FENCE & GUARD RAIL ERECTOR *LABORERS - ZONE 1*	12/01/2015	$35.60	$7.45	$13.55	$0.00	$56.60
	06/01/2016	$36.35	$7.45	$13.55	$0.00	$57.35
	12/01/2016	$37.35	$7.45	$13.55	$0.00	$58.35
For apprentice rates see "Apprentice- LABORER"						
FIELD ENG.INST.PERSON-BLDG,SITE,HVY/HWY *OPERATING ENGINEERS LOCAL 4*	05/01/2016	$41.03	$10.00	$14.90	$0.00	$65.93
	11/01/2016	$41.62	$10.00	$14.90	$0.00	$66.52
	05/01/2017	$42.50	$10.00	$14.90	$0.00	$67.40
	11/01/2017	$43.23	$10.00	$14.90	$0.00	$68.13
	05/01/2018	$43.94	$10.00	$14.90	$0.00	$68.84
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIELD ENG.PARTY CHIEF-BLDG,SITE,HVY/HWY *OPERATING ENGINEERS LOCAL 4*	05/01/2016	$42.47	$10.00	$14.90	$0.00	$67.37
	11/01/2016	$43.07	$10.00	$14.90	$0.00	$67.97
	05/01/2017	$43.96	$10.00	$14.90	$0.00	$68.86
	11/01/2017	$44.69	$10.00	$14.90	$0.00	$69.59
	05/01/2018	$45.41	$10.00	$14.90	$0.00	$70.31
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIELD ENG.ROD PERSON-BLDG,SITE,HVY/HWY *OPERATING ENGINEERS LOCAL 4*	05/01/2016	$21.88	$10.00	$14.90	$0.00	$46.78
	11/01/2016	$22.23	$10.00	$14.90	$0.00	$47.13
	05/01/2017	$22.76	$10.00	$14.90	$0.00	$47.66
	11/01/2017	$23.18	$10.00	$14.90	$0.00	$48.08
	05/01/2018	$23.61	$10.00	$14.90	$0.00	$48.51
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
FIRE ALARM INSTALLER *ELECTRICIANS LOCAL 103*	03/01/2016	$46.17	$13.00	$16.39	$0.00	$75.56
For apprentice rates see "Apprentice- ELECTRICIAN"						
FIRE ALARM REPAIR / MAINTENANCE / COMMISSIONING *ELECTRICIANS LOCAL 103*	03/01/2016	$34.63	$13.00	$14.55	$0.00	$62.18
For apprentice rates see "Apprentice- TELECOMMUNICATIONS TECHNICIAN"						
FIREMAN (ASST. ENGINEER) *OPERATING ENGINEERS LOCAL 4*	12/01/2015	$36.34	$10.00	$14.90	$0.00	$61.24
	06/01/2016	$36.96	$10.00	$14.90	$0.00	$61.86
	12/01/2016	$38.00	$10.00	$14.90	$0.00	$62.90
	06/01/2017	$38.84	$10.00	$14.90	$0.00	$63.74
	12/01/2017	$39.67	$10.00	$14.90	$0.00	$64.57
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FLAGGER & SIGNALER *LABORERS - ZONE I*	12/01/2015	$20.50	$7.45	$13.55	$0.00	$41.50
	06/01/2016	$20.50	$7.45	$13.55	$0.00	$41.50
	12/01/2016	$20.50	$7.45	$13.55	$0.00	$41.50
For apprentice rates see "Apprentice- LABORER"						
FLOORCOVERER *FLOORCOVERERS LOCAL 2168 ZONE I*	03/01/2016	$42.13	$9.80	$17.62	$0.00	$69.55

Apprentice - *FLOORCOVERER - Local 2168 Zone I*

Effective Date - 03/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$21.07	$9.80	$1.79	$0.00	$32.66
2	55	$23.17	$9.80	$1.79	$0.00	$34.76
3	60	$25.28	$9.80	$12.25	$0.00	$47.33
4	65	$27.38	$9.80	$12.25	$0.00	$49.43
5	70	$29.49	$9.80	$14.04	$0.00	$53.33
6	75	$31.60	$9.80	$14.04	$0.00	$55.44
7	80	$33.70	$9.80	$15.83	$0.00	$59.33
8	85	$35.81	$9.80	$15.83	$0.00	$61.44

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

FORK LIFT/CHERRY PICKER *OPERATING ENGINEERS LOCAL 4*	12/01/2015	$43.73	$10.00	$14.90	$0.00	$68.63
	06/01/2016	$44.48	$10.00	$14.90	$0.00	$69.38
	12/01/2016	$45.73	$10.00	$14.90	$0.00	$70.63
	06/01/2017	$46.73	$10.00	$14.90	$0.00	$71.63
	12/01/2017	$47.73	$10.00	$14.90	$0.00	$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
GENERATOR/LIGHTING PLANT/HEATERS *OPERATING ENGINEERS LOCAL 4*	12/01/2015	$30.13	$10.00	$14.90	$0.00	$55.03
	06/01/2016	$30.65	$10.00	$14.90	$0.00	$55.55
	12/01/2016	$31.52	$10.00	$14.90	$0.00	$56.42
	06/01/2017	$32.21	$10.00	$14.90	$0.00	$57.11
	12/01/2017	$32.90	$10.00	$14.90	$0.00	$57.80
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS)	01/01/2016	$39.01	$7.85	$16.10	$0.00	$62.96
GLAZIERS LOCAL 35 (ZONE 2)	07/01/2016	$39.96	$7.85	$16.10	$0.00	$63.91
	01/01/2017	$40.91	$7.85	$16.10	$0.00	$64.86

Apprentice - *GLAZIER - Local 35 Zone 2*

Effective Date - 01/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$19.51	$7.85	$0.00	$0.00	$27.36
2	55	$21.46	$7.85	$3.66	$0.00	$32.97
3	60	$23.41	$7.85	$3.99	$0.00	$35.25
4	65	$25.36	$7.85	$4.32	$0.00	$37.53
5	70	$27.31	$7.85	$14.11	$0.00	$49.27
6	75	$29.26	$7.85	$14.44	$0.00	$51.55
7	80	$31.21	$7.85	$14.77	$0.00	$53.83
8	90	$35.11	$7.85	$15.44	$0.00	$58.40

Effective Date - 07/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$19.98	$7.85	$0.00	$0.00	$27.83
2	55	$21.98	$7.85	$3.66	$0.00	$33.49
3	60	$23.98	$7.85	$3.99	$0.00	$35.82
4	65	$25.97	$7.85	$4.32	$0.00	$38.14
5	70	$27.97	$7.85	$14.11	$0.00	$49.93
6	75	$29.97	$7.85	$14.44	$0.00	$52.26
7	80	$31.97	$7.85	$14.77	$0.00	$54.59
8	90	$35.96	$7.85	$15.44	$0.00	$59.25

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

HOISTING ENGINEER/CRANES/GRADALLS	12/01/2015	$43.73	$10.00	$14.90	$0.00	$68.63
OPERATING ENGINEERS LOCAL 4	06/01/2016	$44.48	$10.00	$14.90	$0.00	$69.38
	12/01/2016	$45.73	$10.00	$14.90	$0.00	$70.63
	06/01/2017	$46.73	$10.00	$14.90	$0.00	$71.63
	12/01/2017	$47.73	$10.00	$14.90	$0.00	$72.63

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *OPERATING ENGINEERS - Local 4*

Effective Date - 12/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	$24.05	$10.00	$0.00	$0.00	$34.05
2	60	$26.24	$10.00	$14.90	$0.00	$51.14
3	65	$28.42	$10.00	$14.90	$0.00	$53.32
4	70	$30.61	$10.00	$14.90	$0.00	$55.51
5	75	$32.80	$10.00	$14.90	$0.00	$57.70
6	80	$34.98	$10.00	$14.90	$0.00	$59.88
7	85	$37.17	$10.00	$14.90	$0.00	$62.07
8	90	$39.36	$10.00	$14.90	$0.00	$64.26

Effective Date - 06/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	$24.46	$10.00	$0.00	$0.00	$34.46
2	60	$26.69	$10.00	$14.90	$0.00	$51.59
3	65	$28.91	$10.00	$14.90	$0.00	$53.81
4	70	$31.14	$10.00	$14.90	$0.00	$56.04
5	75	$33.36	$10.00	$14.90	$0.00	$58.26
6	80	$35.58	$10.00	$14.90	$0.00	$60.48
7	85	$37.81	$10.00	$14.90	$0.00	$62.71
8	90	$40.03	$10.00	$14.90	$0.00	$64.93

Notes:

Apprentice to Journeyworker Ratio:1:6

HVAC (DUCTWORK) *SHEETMETAL WORKERS LOCAL 17 - A*	02/01/2016	$43.31	$10.70	$21.95	$2.28	$78.24
	08/01/2016	$44.46	$10.70	$21.95	$2.28	$79.39
	02/01/2017	$45.56	$10.70	$21.95	$2.28	$80.49
	08/01/2017	$46.66	$10.70	$21.95	$2.28	$81.59
	02/01/2018	$47.81	$10.70	$21.95	$2.28	$82.74
For apprentice rates see "Apprentice- SHEET METAL WORKER"						
HVAC (ELECTRICAL CONTROLS) *ELECTRICIANS LOCAL 103*	03/01/2016	$46.17	$13.00	$16.39	$0.00	$75.56
For apprentice rates see "Apprentice- ELECTRICIAN"						
HVAC (TESTING AND BALANCING - AIR) *SHEETMETAL WORKERS LOCAL 17 - A*	02/01/2016	$43.31	$10.70	$21.95	$2.28	$78.24
	08/01/2016	$44.46	$10.70	$21.95	$2.28	$79.39
	02/01/2017	$45.56	$10.70	$21.95	$2.28	$80.49
	08/01/2017	$46.66	$10.70	$21.95	$2.28	$81.59
	02/01/2018	$47.81	$10.70	$21.95	$2.28	$82.74
For apprentice rates see "Apprentice- SHEET METAL WORKER"						
HVAC (TESTING AND BALANCING -WATER) *PIPEFITTERS LOCAL 537*	03/01/2016	$49.19	$9.70	$18.14	$0.00	$77.03
	09/01/2016	$50.19	$9.70	$18.14	$0.00	$78.03
	03/01/2017	$51.19	$9.70	$18.14	$0.00	$79.03
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
HVAC MECHANIC *PIPEFITTERS LOCAL 537*	03/01/2016	$49.19	$9.70	$18.14	$0.00	$77.03
	09/01/2016	$50.19	$9.70	$18.14	$0.00	$78.03
	03/01/2017	$51.19	$9.70	$18.14	$0.00	$79.03
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
HYDRAULIC DRILLS *LABORERS - ZONE 1*	12/01/2015	$36.10	$7.45	$13.55	$0.00	$57.10
	06/01/2016	$36.85	$7.45	$13.55	$0.00	$57.85
	12/01/2016	$37.85	$7.45	$13.55	$0.00	$58.85
For apprentice rates see "Apprentice- LABORER"						
INSULATOR (PIPES & TANKS) *HEAT & FROST INSULATORS LOCAL 6 (BOSTON)*	09/01/2015	$43.81	$11.50	$13.80	$0.00	$69.11
	09/01/2016	$45.81	$11.50	$13.80	$0.00	$71.11
	09/01/2017	$47.81	$11.50	$13.80	$0.00	$73.11
	09/01/2018	$50.06	$11.50	$13.80	$0.00	$75.36
	09/01/2019	$52.56	$11.50	$13.80	$0.00	$77.86

Apprentice - *ASBESTOS INSULATOR (Pipes & Tanks) - Local 6 Boston*

Effective Date - 09/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$21.91	$11.50	$10.05	$0.00	$43.46
2	60	$26.29	$11.50	$10.80	$0.00	$48.59
3	70	$30.67	$11.50	$11.55	$0.00	$53.72
4	80	$35.05	$11.50	$12.30	$0.00	$58.85

Effective Date - 09/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$22.91	$11.50	$10.05	$0.00	$44.46
2	60	$27.49	$11.50	$10.80	$0.00	$49.79
3	70	$32.07	$11.50	$11.55	$0.00	$55.12
4	80	$36.65	$11.50	$12.30	$0.00	$60.45

Notes:
Steps are 1 year

Apprentice to Journeyworker Ratio:1:4

IRONWORKER/WELDER *IRONWORKERS LOCAL 7 (BOSTON AREA)*	03/16/2016	$43.40	$7.80	$20.85	$0.00	$72.05
	09/16/2016	$44.05	$7.80	$20.85	$0.00	$72.70
	03/16/2017	$44.65	$7.80	$20.85	$0.00	$73.30

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *IRONWORKER - Local 7 Boston*

Effective Date - 03/16/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	$26.04	$7.80	$20.85	$0.00	$54.69
2	70	$30.38	$7.80	$20.85	$0.00	$59.03
3	75	$32.55	$7.80	$20.85	$0.00	$61.20
4	80	$34.72	$7.80	$20.85	$0.00	$63.37
5	85	$36.89	$7.80	$20.85	$0.00	$65.54
6	90	$39.06	$7.80	$20.85	$0.00	$67.71

Effective Date - 09/16/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	$26.43	$7.80	$20.85	$0.00	$55.08
2	70	$30.84	$7.80	$20.85	$0.00	$59.49
3	75	$33.04	$7.80	$20.85	$0.00	$61.69
4	80	$35.24	$7.80	$20.85	$0.00	$63.89
5	85	$37.44	$7.80	$20.85	$0.00	$66.09
6	90	$39.65	$7.80	$20.85	$0.00	$68.30

Notes:

** Structural 1:6; Ornamental 1:4

Apprentice to Journeyworker Ratio:**

JACKHAMMER & PAVING BREAKER OPERATOR *LABORERS - ZONE 1*	12/01/2015	$35.60	$7.45	$13.55	$0.00	$56.60
	06/01/2016	$36.35	$7.45	$13.55	$0.00	$57.35
	12/01/2016	$37.35	$7.45	$13.55	$0.00	$58.35
For apprentice rates see "Apprentice- LABORER"						
LABORER *LABORERS - ZONE 1*	12/01/2015	$35.35	$7.45	$13.55	$0.00	$56.35
	06/01/2016	$36.10	$7.45	$13.55	$0.00	$57.10
	12/01/2016	$37.10	$7.45	$13.55	$0.00	$58.10

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *LABORER - Zone 1*

Effective Date - 12/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	$21.21	$7.45	$13.55	$0.00	$42.21
2	70	$24.75	$7.45	$13.55	$0.00	$45.75
3	80	$28.28	$7.45	$13.55	$0.00	$49.28
4	90	$31.82	$7.45	$13.55	$0.00	$52.82

Effective Date - 06/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	$21.66	$7.45	$13.55	$0.00	$42.66
2	70	$25.27	$7.45	$13.55	$0.00	$46.27
3	80	$28.88	$7.45	$13.55	$0.00	$49.88
4	90	$32.49	$7.45	$13.55	$0.00	$53.49

Notes:

Apprentice to Journeyworker Ratio:1:5

LABORER: CARPENTER TENDER *LABORERS - ZONE 1*	12/01/2015	$35.35	$7.45	$13.55	$0.00	$56.35
	06/01/2016	$36.10	$7.45	$13.55	$0.00	$57.10
	12/01/2016	$37.10	$7.45	$13.55	$0.00	$58.10
For apprentice rates see "Apprentice- LABORER"						
LABORER: CEMENT FINISHER TENDER *LABORERS - ZONE 1*	12/01/2015	$35.35	$7.45	$13.55	$0.00	$56.35
	06/01/2016	$36.10	$7.45	$13.55	$0.00	$57.10
	12/01/2016	$37.10	$7.45	$13.55	$0.00	$58.10
For apprentice rates see "Apprentice- LABORER"						
LABORER: HAZARDOUS WASTE/ASBESTOS REMOVER *LABORERS - ZONE 1*	12/01/2015	$35.50	$7.45	$13.55	$0.00	$56.50
For apprentice rates see "Apprentice- LABORER"						
LABORER: MASON TENDER *LABORERS - ZONE 1*	12/01/2015	$35.60	$7.45	$13.55	$0.00	$56.60
	06/01/2016	$36.35	$7.45	$13.55	$0.00	$57.35
	12/01/2016	$37.35	$7.45	$13.55	$0.00	$58.35
For apprentice rates see "Apprentice- LABORER"						
LABORER: MULTI-TRADE TENDER *LABORERS - ZONE 1*	12/01/2015	$35.35	$7.45	$13.55	$0.00	$56.35
	06/01/2016	$36.10	$7.45	$13.55	$0.00	$57.10
	12/01/2016	$37.10	$7.45	$13.55	$0.00	$58.10
For apprentice rates see "Apprentice- LABORER"						
LABORER: TREE REMOVER *LABORERS - ZONE 1*	12/01/2015	$35.35	$7.45	$13.55	$0.00	$56.35
	06/01/2016	$36.10	$7.45	$13.55	$0.00	$57.10
	12/01/2016	$37.10	$7.45	$13.55	$0.00	$58.10
This classification applies to all tree work associated with the removal of standing trees, and trimming and removal of branches and limbs when the work is not done for a utility company for the purpose of operation, maintenance or repair of utility company equipment. For apprentice rates see "Apprentice- LABORER"						
LASER BEAM OPERATOR *LABORERS - ZONE 1*	12/01/2015	$35.60	$7.45	$13.55	$0.00	$56.60
	06/01/2016	$36.35	$7.45	$13.55	$0.00	$57.35
	12/01/2016	$37.35	$7.45	$13.55	$0.00	$58.35
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
MARBLE & TILE FINISHERS *BRICKLAYERS LOCAL 3 - MARBLE & TILE*	02/01/2016	$38.08	$10.18	$17.70	$0.00	$65.96
	08/01/2016	$38.78	$10.18	$17.78	$0.00	$66.74
	02/01/2017	$39.24	$10.18	$17.78	$0.00	$67.20

Apprentice - *MARBLE & TILE FINISHER - Local 3 Marble & Tile*

Effective Date - 02/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$19.04	$10.18	$17.70	$0.00	$46.92
2	60	$22.85	$10.18	$17.70	$0.00	$50.73
3	70	$26.66	$10.18	$17.70	$0.00	$54.54
4	80	$30.46	$10.18	$17.70	$0.00	$58.34
5	90	$34.27	$10.18	$17.70	$0.00	$62.15

Effective Date - 08/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$19.39	$10.18	$17.78	$0.00	$47.35
2	60	$23.27	$10.18	$17.78	$0.00	$51.23
3	70	$27.15	$10.18	$17.78	$0.00	$55.11
4	80	$31.02	$10.18	$17.78	$0.00	$58.98
5	90	$34.90	$10.18	$17.78	$0.00	$62.86

Notes:

Apprentice to Journeyworker Ratio:1:3

MARBLE MASONS,TILELAYERS & TERRAZZO MECH *BRICKLAYERS LOCAL 3 - MARBLE & TILE*	02/01/2016	$49.90	$10.18	$19.14	$0.00	$79.22
	08/01/2016	$50.80	$10.18	$19.22	$0.00	$80.20
	02/01/2017	$51.37	$10.18	$19.22	$0.00	$80.77

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *MARBLE-TILE-TERRAZZO MECHANIC - Local 3 Marble & Tile*

Effective Date - 02/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$24.95	$10.18	$19.14	$0.00	$54.27
2	60	$29.94	$10.18	$19.14	$0.00	$59.26
3	70	$34.93	$10.18	$19.14	$0.00	$64.25
4	80	$39.92	$10.18	$19.14	$0.00	$69.24
5	90	$44.91	$10.18	$19.14	$0.00	$74.23

Effective Date - 08/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$25.40	$10.18	$19.22	$0.00	$54.80
2	60	$30.48	$10.18	$19.22	$0.00	$59.88
3	70	$35.56	$10.18	$19.22	$0.00	$64.96
4	80	$40.64	$10.18	$19.22	$0.00	$70.04
5	90	$45.72	$10.18	$19.22	$0.00	$75.12

Notes:

Apprentice to Journeyworker Ratio:1:5

MECH. SWEEPER OPERATOR (ON CONST. SITES) *OPERATING ENGINEERS LOCAL 4*	12/01/2015	$43.31	$10.00	$14.90	$0.00	$68.21
	06/01/2016	$44.06	$10.00	$14.90	$0.00	$68.96
	12/01/2016	$45.29	$10.00	$14.90	$0.00	$70.19
	06/01/2017	$46.28	$10.00	$14.90	$0.00	$71.18
	12/01/2017	$47.27	$10.00	$14.90	$0.00	$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
MECHANICS MAINTENANCE *OPERATING ENGINEERS LOCAL 4*	12/01/2015	$43.31	$10.00	$14.90	$0.00	$68.21
	06/01/2016	$44.06	$10.00	$14.90	$0.00	$68.96
	12/01/2016	$45.29	$10.00	$14.90	$0.00	$70.19
	06/01/2017	$46.28	$10.00	$14.90	$0.00	$71.18
	12/01/2017	$47.27	$10.00	$14.90	$0.00	$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
MILLWRIGHT (Zone 1) *MILLWRIGHTS LOCAL 1121 - Zone 1*	04/01/2015	$37.64	$9.80	$16.21	$0.00	$63.65

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *MILLWRIGHT - Local 1121 Zone 1*
Effective Date - 04/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	$20.70	$9.80	$4.48	$0.00	$34.98
2	65	$24.47	$9.80	$13.36	$0.00	$47.63
3	75	$28.23	$9.80	$14.18	$0.00	$52.21
4	85	$31.99	$9.80	$14.99	$0.00	$56.78

Notes:

Steps are 2,000 hours

Apprentice to Journeyworker Ratio:1:5

MORTAR MIXER *LABORERS - ZONE 1*	12/01/2015	$35.60	$7.45	$13.55	$0.00	$56.60
	06/01/2016	$36.35	$7.45	$13.55	$0.00	$57.35
	12/01/2016	$37.35	$7.45	$13.55	$0.00	$58.35
For apprentice rates see "Apprentice- LABORER"						
OILER (OTHER THAN TRUCK CRANES,GRADALLS) *OPERATING ENGINEERS LOCAL 4*	12/01/2015	$22.27	$10.00	$14.90	$0.00	$47.17
	06/01/2016	$22.66	$10.00	$14.90	$0.00	$47.56
	12/01/2016	$23.31	$10.00	$14.90	$0.00	$48.21
	06/01/2017	$23.82	$10.00	$14.90	$0.00	$48.72
	12/01/2017	$24.34	$10.00	$14.90	$0.00	$49.24
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
OILER (TRUCK CRANES, GRADALLS) *OPERATING ENGINEERS LOCAL 4*	12/01/2015	$26.08	$10.00	$14.90	$0.00	$50.98
	06/01/2016	$26.54	$10.00	$14.90	$0.00	$51.44
	12/01/2016	$27.29	$10.00	$14.90	$0.00	$52.19
	06/01/2017	$27.89	$10.00	$14.90	$0.00	$52.79
	12/01/2017	$28.50	$10.00	$14.90	$0.00	$53.40
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
OTHER POWER DRIVEN EQUIPMENT - CLASS II *OPERATING ENGINEERS LOCAL 4*	12/01/2015	$43.31	$10.00	$14.90	$0.00	$68.21
	06/01/2016	$44.06	$10.00	$14.90	$0.00	$68.96
	12/01/2016	$45.29	$10.00	$14.90	$0.00	$70.19
	06/01/2017	$46.28	$10.00	$14.90	$0.00	$71.18
	12/01/2017	$47.27	$10.00	$14.90	$0.00	$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PAINTER (BRIDGES/TANKS) *PAINTERS LOCAL 35 - ZONE 2*	01/01/2016	$49.51	$7.85	$16.10	$0.00	$73.46
	07/01/2016	$50.46	$7.85	$16.10	$0.00	$74.41
	01/01/2017	$51.41	$7.85	$16.10	$0.00	$75.36

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *PAINTER Local 35 - BRIDGES/TANKS*

Effective Date - 01/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$24.76	$7.85	$0.00	$0.00	$32.61
2	55	$27.23	$7.85	$3.66	$0.00	$38.74
3	60	$29.71	$7.85	$3.99	$0.00	$41.55
4	65	$32.18	$7.85	$4.32	$0.00	$44.35
5	70	$34.66	$7.85	$14.11	$0.00	$56.62
6	75	$37.13	$7.85	$14.44	$0.00	$59.42
7	80	$39.61	$7.85	$14.77	$0.00	$62.23
8	90	$44.56	$7.85	$15.44	$0.00	$67.85

Effective Date - 07/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$25.23	$7.85	$0.00	$0.00	$33.08
2	55	$27.75	$7.85	$3.66	$0.00	$39.26
3	60	$30.28	$7.85	$3.99	$0.00	$42.12
4	65	$32.80	$7.85	$4.32	$0.00	$44.97
5	70	$35.32	$7.85	$14.11	$0.00	$57.28
6	75	$37.85	$7.85	$14.44	$0.00	$60.14
7	80	$40.37	$7.85	$14.77	$0.00	$62.99
8	90	$45.41	$7.85	$15.44	$0.00	$68.70

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (SPRAY OR SANDBLAST, NEW) *	01/01/2016	$40.41	$7.85	$16.10	$0.00	$64.36
* If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used. *PAINTERS LOCAL 35 - ZONE 2*	07/01/2016	$41.36	$7.85	$16.10	$0.00	$65.31
	01/01/2017	$42.31	$7.85	$16.10	$0.00	$66.26

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *PAINTER Local 35 Zone 2 - Spray/Sandblast - New*

Effective Date - 01/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$20.21	$7.85	$0.00	$0.00	$28.06
2	55	$22.23	$7.85	$3.66	$0.00	$33.74
3	60	$24.25	$7.85	$3.99	$0.00	$36.09
4	65	$26.27	$7.85	$4.32	$0.00	$38.44
5	70	$28.29	$7.85	$14.11	$0.00	$50.25
6	75	$30.31	$7.85	$14.44	$0.00	$52.60
7	80	$32.33	$7.85	$14.77	$0.00	$54.95
8	90	$36.37	$7.85	$15.44	$0.00	$59.66

Effective Date - 07/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$20.68	$7.85	$0.00	$0.00	$28.53
2	55	$22.75	$7.85	$3.66	$0.00	$34.26
3	60	$24.82	$7.85	$3.99	$0.00	$36.66
4	65	$26.88	$7.85	$4.32	$0.00	$39.05
5	70	$28.95	$7.85	$14.11	$0.00	$50.91
6	75	$31.02	$7.85	$14.44	$0.00	$53.31
7	80	$33.09	$7.85	$14.77	$0.00	$55.71
8	90	$37.22	$7.85	$15.44	$0.00	$60.51

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (SPRAY OR SANDBLAST, REPAINT) *PAINTERS LOCAL 35 - ZONE 2*	01/01/2016	$38.47	$7.85	$16.10	$0.00	$62.42
	07/01/2016	$39.42	$7.85	$16.10	$0.00	$63.37
	01/01/2017	$40.37	$7.85	$16.10	$0.00	$64.32

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *PAINTER Local 35 Zone 2 - Spray/Sandblast - Repaint*

Effective Date - 01/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$19.24	$7.85	$0.00	$0.00	$27.09
2	55	$21.16	$7.85	$3.66	$0.00	$32.67
3	60	$23.08	$7.85	$3.99	$0.00	$34.92
4	65	$25.01	$7.85	$4.32	$0.00	$37.18
5	70	$26.93	$7.85	$14.11	$0.00	$48.89
6	75	$28.85	$7.85	$14.44	$0.00	$51.14
7	80	$30.78	$7.85	$14.77	$0.00	$53.40
8	90	$34.62	$7.85	$15.44	$0.00	$57.91

Effective Date - 07/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$19.71	$7.85	$0.00	$0.00	$27.56
2	55	$21.68	$7.85	$3.66	$0.00	$33.19
3	60	$23.65	$7.85	$3.99	$0.00	$35.49
4	65	$25.62	$7.85	$4.32	$0.00	$37.79
5	70	$27.59	$7.85	$14.11	$0.00	$49.55
6	75	$29.57	$7.85	$14.44	$0.00	$51.86
7	80	$31.54	$7.85	$14.77	$0.00	$54.16
8	90	$35.48	$7.85	$15.44	$0.00	$58.77

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (TRAFFIC MARKINGS) *LABORERS - ZONE 1*	12/01/2015	$35.35	$7.45	$13.55	$0.00	$56.35
	06/01/2016	$36.10	$7.45	$13.55	$0.00	$57.10
	12/01/2016	$37.10	$7.45	$13.55	$0.00	$58.10
For Apprentice rates see "Apprentice- LABORER"						
PAINTER / TAPER (BRUSH, NEW) * * If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used.*PAINTERS LOCAL 35 - ZONE 2*	01/01/2016	$39.01	$7.85	$16.10	$0.00	$62.96
	07/01/2016	$39.96	$7.85	$16.10	$0.00	$63.91
	01/01/2017	$40.91	$7.85	$16.10	$0.00	$64.86

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *PAINTER - Local 35 Zone 2 - BRUSH NEW*

Effective Date - 01/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$19.51	$7.85	$0.00	$0.00	$27.36
2	55	$21.46	$7.85	$3.66	$0.00	$32.97
3	60	$23.41	$7.85	$3.99	$0.00	$35.25
4	65	$25.36	$7.85	$4.32	$0.00	$37.53
5	70	$27.31	$7.85	$14.11	$0.00	$49.27
6	75	$29.26	$7.85	$14.44	$0.00	$51.55
7	80	$31.21	$7.85	$14.77	$0.00	$53.83
8	90	$35.11	$7.85	$15.44	$0.00	$58.40

Effective Date - 07/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$19.98	$7.85	$0.00	$0.00	$27.83
2	55	$21.98	$7.85	$3.66	$0.00	$33.49
3	60	$23.98	$7.85	$3.99	$0.00	$35.82
4	65	$25.97	$7.85	$4.32	$0.00	$38.14
5	70	$27.97	$7.85	$14.11	$0.00	$49.93
6	75	$29.97	$7.85	$14.44	$0.00	$52.26
7	80	$31.97	$7.85	$14.77	$0.00	$54.59
8	90	$35.96	$7.85	$15.44	$0.00	$59.25

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER / TAPER (BRUSH, REPAINT) *PAINTERS LOCAL 35 - ZONE 2*	01/01/2016	$37.07	$7.85	$16.10	$0.00	$61.02
	07/01/2016	$38.02	$7.85	$16.10	$0.00	$61.97
	01/01/2017	$38.97	$7.85	$16.10	$0.00	$62.92

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *PAINTER Local 35 Zone 2 - BRUSH REPAINT*

Effective Date - 01/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$18.54	$7.85	$0.00	$0.00	$26.39
2	55	$20.39	$7.85	$3.66	$0.00	$31.90
3	60	$22.24	$7.85	$3.99	$0.00	$34.08
4	65	$24.10	$7.85	$4.32	$0.00	$36.27
5	70	$25.95	$7.85	$14.11	$0.00	$47.91
6	75	$27.80	$7.85	$14.44	$0.00	$50.09
7	80	$29.66	$7.85	$14.77	$0.00	$52.28
8	90	$33.36	$7.85	$15.44	$0.00	$56.65

Effective Date - 07/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$19.01	$7.85	$0.00	$0.00	$26.86
2	55	$20.91	$7.85	$3.66	$0.00	$32.42
3	60	$22.81	$7.85	$3.99	$0.00	$34.65
4	65	$24.71	$7.85	$4.32	$0.00	$36.88
5	70	$26.61	$7.85	$14.11	$0.00	$48.57
6	75	$28.52	$7.85	$14.44	$0.00	$50.81
7	80	$30.42	$7.85	$14.77	$0.00	$53.04
8	90	$34.22	$7.85	$15.44	$0.00	$57.51

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PANEL & PICKUP TRUCKS DRIVER *TEAMSTERS JOINT COUNCIL NO. 10 ZONE A*	12/01/2015	$32.58	$10.41	$10.08	$0.00	$53.07
	06/01/2016	$33.08	$10.41	$10.08	$0.00	$53.57
	08/01/2016	$33.08	$10.91	$10.08	$0.00	$54.07
	12/01/2016	$33.08	$10.91	$10.89	$0.00	$54.88
PIER AND DOCK CONSTRUCTOR (UNDERPINNING AND DECK) *PILE DRIVER LOCAL 56 (ZONE 1)* For apprentice rates see "Apprentice- PILE DRIVER"	08/01/2015	$42.04	$9.80	$19.23	$0.00	$71.07
PILE DRIVER *PILE DRIVER LOCAL 56 (ZONE 1)*	08/01/2015	$42.04	$9.80	$19.23	$0.00	$71.07

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *PILE DRIVER - Local 56 Zone 1*

Effective Date - 08/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$21.02	$9.80	$19.23	$0.00	$50.05
2	60	$25.22	$9.80	$19.23	$0.00	$54.25
3	70	$29.43	$9.80	$19.23	$0.00	$58.46
4	75	$31.53	$9.80	$19.23	$0.00	$60.56
5	80	$33.63	$9.80	$19.23	$0.00	$62.66
6	80	$33.63	$9.80	$19.23	$0.00	$62.66
7	90	$37.84	$9.80	$19.23	$0.00	$66.87
8	90	$37.84	$9.80	$19.23	$0.00	$66.87

Notes:

Apprentice to Journeyworker Ratio:1:3

PIPEFITTER & STEAMFITTER *PIPEFITTERS LOCAL 537*	03/01/2016	$49.19	$9.70	$18.14	$0.00	$77.03
	09/01/2016	$50.19	$9.70	$18.14	$0.00	$78.03
	03/01/2017	$51.19	$9.70	$18.14	$0.00	$79.03

Apprentice - *PIPEFITTER - Local 537*

Effective Date - 03/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	$19.68	$9.70	$7.50	$0.00	$36.88
2	45	$22.14	$9.70	$18.14	$0.00	$49.98
3	60	$29.51	$9.70	$18.14	$0.00	$57.35
4	70	$34.43	$9.70	$18.14	$0.00	$62.27
5	80	$39.35	$9.70	$18.14	$0.00	$67.19

Effective Date - 09/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	$20.08	$9.70	$7.50	$0.00	$37.28
2	45	$22.59	$9.70	$18.14	$0.00	$50.43
3	60	$30.11	$9.70	$18.14	$0.00	$57.95
4	70	$35.13	$9.70	$18.14	$0.00	$62.97
5	80	$40.15	$9.70	$18.14	$0.00	$67.99

Notes:
** 1:3; 3:15; 1:10 thereafter / Steps are 1 yr.
Refrig/AC Mechanic **1:1;1:2;2:4;3:6;4:8;5:10;6:12;7:14;8:17;9:20;10:23(Max)

Apprentice to Journeyworker Ratio:**

PIPELAYER *LABORERS - ZONE 1*	12/01/2015	$35.60	$7.45	$13.55	$0.00	$56.60
	06/01/2016	$36.35	$7.45	$13.55	$0.00	$57.35
	12/01/2016	$37.35	$7.45	$13.55	$0.00	$58.35

For apprentice rates see "Apprentice- LABORER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
PLUMBERS & GASFITTERS *PLUMBERS & GASFITTERS LOCAL 12*	03/01/2016	$51.36	$11.07	$15.14	$0.00	$77.57
	09/01/2016	$52.41	$11.07	$15.14	$0.00	$78.62
	03/01/2017	$53.41	$11.07	$15.14	$0.00	$79.62

Apprentice - *PLUMBER/GASFITTER - Local 12*

Effective Date - 03/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	$17.98	$11.07	$5.63	$0.00	$34.68
2	40	$20.54	$11.07	$6.37	$0.00	$37.98
3	55	$28.25	$11.07	$8.56	$0.00	$47.88
4	65	$33.38	$11.07	$10.03	$0.00	$54.48
5	75	$38.52	$11.07	$11.48	$0.00	$61.07

Effective Date - 09/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	$18.34	$11.07	$5.63	$0.00	$35.04
2	40	$20.96	$11.07	$6.36	$0.00	$38.39
3	55	$28.83	$11.07	$8.55	$0.00	$48.45
4	65	$34.07	$11.07	$10.02	$0.00	$55.16
5	75	$39.31	$11.07	$11.48	$0.00	$61.86

Notes:
** 1:2; 2:6; 3:10; 4:14; 5:19/Steps are 1 yr
Step4 with lic$57.78 Step5 with lic$64.37

Apprentice to Journeyworker Ratio:**

PNEUMATIC CONTROLS (TEMP.) *PIPEFITTERS LOCAL 537*	03/01/2016	$49.19	$9.70	$18.14	$0.00	$77.03
	09/01/2016	$50.19	$9.70	$18.14	$0.00	$78.03
	03/01/2017	$51.19	$9.70	$18.14	$0.00	$79.03
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
PNEUMATIC DRILL/TOOL OPERATOR *LABORERS - ZONE 1*	12/01/2015	$35.60	$7.45	$13.55	$0.00	$56.60
	06/01/2016	$36.35	$7.45	$13.55	$0.00	$57.35
	12/01/2016	$37.35	$7.45	$13.55	$0.00	$58.35
For apprentice rates see "Apprentice- LABORER"						
POWDERMAN & BLASTER *LABORERS - ZONE 1*	12/01/2015	$36.35	$7.45	$13.55	$0.00	$57.35
	06/01/2016	$37.10	$7.45	$13.55	$0.00	$58.10
	12/01/2016	$38.10	$7.45	$13.55	$0.00	$59.10
For apprentice rates see "Apprentice- LABORER".						
POWER SHOVEL/DERRICK/TRENCHING MACHINE *OPERATING ENGINEERS LOCAL 4*	12/01/2015	$43.73	$10.00	$14.90	$0.00	$68.63
	06/01/2016	$44.48	$10.00	$14.90	$0.00	$69.38
	12/01/2016	$45.73	$10.00	$14.90	$0.00	$70.63
	06/01/2017	$46.73	$10.00	$14.90	$0.00	$71.63
	12/01/2017	$47.73	$10.00	$14.90	$0.00	$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
PUMP OPERATOR (CONCRETE) *OPERATING ENGINEERS LOCAL 4*	12/01/2015	$43.73	$10.00	$14.90	$0.00	$68.63
	06/01/2016	$44.48	$10.00	$14.90	$0.00	$69.38
	12/01/2016	$45.73	$10.00	$14.90	$0.00	$70.63
	06/01/2017	$46.73	$10.00	$14.90	$0.00	$71.63
	12/01/2017	$47.73	$10.00	$14.90	$0.00	$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (DEWATERING, OTHER) *OPERATING ENGINEERS LOCAL 4*	12/01/2015	$30.13	$10.00	$14.90	$0.00	$55.03
	06/01/2016	$30.65	$10.00	$14.90	$0.00	$55.55
	12/01/2016	$31.52	$10.00	$14.90	$0.00	$56.42
	06/01/2017	$32.21	$10.00	$14.90	$0.00	$57.11
	12/01/2017	$32.90	$10.00	$14.90	$0.00	$57.80
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
READY MIX CONCRETE DRIVERS after 4/30/10 (Drivers Hired After 4/30/2010)*TEAMSTERS LOCAL 25b*	05/01/2016	$28.03	$7.98	$9.31	$0.00	$45.32
	07/01/2016	$28.03	$8.23	$9.31	$0.00	$45.57
	05/01/2017	$28.18	$8.23	$9.72	$0.00	$46.13
	07/01/2017	$28.18	$8.48	$9.72	$0.00	$46.38
READY-MIX CONCRETE DRIVER *TEAMSTERS LOCAL 25b*	05/01/2016	$29.33	$7.98	$9.31	$0.00	$46.62
	07/01/2016	$29.33	$8.23	$9.31	$0.00	$46.87
	05/01/2017	$29.48	$8.23	$9.72	$0.00	$47.43
	07/01/2017	$29.48	$8.48	$9.72	$0.00	$47.68
RECLAIMERS *OPERATING ENGINEERS LOCAL 4*	12/01/2015	$43.31	$10.00	$14.90	$0.00	$68.21
	06/01/2016	$44.06	$10.00	$14.90	$0.00	$68.96
	12/01/2016	$45.29	$10.00	$14.90	$0.00	$70.19
	06/01/2017	$46.28	$10.00	$14.90	$0.00	$71.18
	12/01/2017	$47.27	$10.00	$14.90	$0.00	$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
RESIDENTIAL WOOD FRAME (All Other Work) *CARPENTERS -ZONE 2 (Residential Wood)*	04/01/2011	$24.24	$8.67	$15.51	$0.00	$48.42
RESIDENTIAL WOOD FRAME CARPENTER ** ** The Residential Wood Frame Carpenter classification applies only to the construction of new, wood frame residences that do not exceed four stories including the basement.*CARPENTERS -ZONE 2 (Residential Wood)*	05/01/2011	$24.24	$6.34	$6.23	$0.00	$36.81

As of 9/1/09 Carpentry work on wood-frame residential WEATHERIZATION projects shall be paid the RESIDENTIAL WOOD FRAME CARPENTER rate.

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *CARPENTER (Residential Wood Frame) - Zone 2*
Effective Date - 05/01/2011

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	$14.54	$6.34	$0.00	$0.00	$20.88
2	60	$14.54	$6.34	$6.23	$0.00	$27.11
3	65	$15.76	$6.34	$6.23	$0.00	$28.33
4	70	$16.97	$6.34	$6.23	$0.00	$29.54
5	75	$18.18	$6.34	$6.23	$0.00	$30.75
6	80	$19.39	$6.34	$6.23	$0.00	$31.96
7	85	$20.60	$6.34	$6.23	$0.00	$33.17
8	90	$21.82	$6.34	$6.23	$0.00	$34.39

Notes:

Apprentice to Journeyworker Ratio:1:5

RIDE-ON MOTORIZED BUGGY OPERATOR *LABORERS - ZONE 1*	12/01/2015	$35.60	$7.45	$13.55	$0.00	$56.60
	06/01/2016	$36.35	$7.45	$13.55	$0.00	$57.35
	12/01/2016	$37.35	$7.45	$13.55	$0.00	$58.35
For apprentice rates see "Apprentice- LABORER"						
ROLLER/SPREADER/MULCHING MACHINE *OPERATING ENGINEERS LOCAL 4*	12/01/2015	$43.31	$10.00	$14.90	$0.00	$68.21
	06/01/2016	$44.06	$10.00	$14.90	$0.00	$68.96
	12/01/2016	$45.29	$10.00	$14.90	$0.00	$70.19
	06/01/2017	$46.28	$10.00	$14.90	$0.00	$71.18
	12/01/2017	$47.27	$10.00	$14.90	$0.00	$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
ROOFER (Inc.Roofer Waterproofng &Roofer Damproofg) *ROOFERS LOCAL 33*	02/01/2016	$40.11	$11.00	$12.90	$0.00	$64.01

Apprentice - *ROOFER - Local 33*
Effective Date - 02/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$20.06	$11.00	$3.39	$0.00	$34.45
2	60	$24.07	$11.00	$12.90	$0.00	$47.97
3	65	$26.07	$11.00	$12.90	$0.00	$49.97
4	75	$30.08	$11.00	$12.90	$0.00	$53.98
5	85	$34.09	$11.00	$12.90	$0.00	$57.99

Notes: ** 1:5, 2:6-10, the 1:10; Reroofing: 1:4, then 1:1
Step 1 is 2000 hrs.; Steps 2-5 are 1000 hrs.

Apprentice to Journeyworker Ratio:**

ROOFER SLATE / TILE / PRECAST CONCRETE *ROOFERS LOCAL 33*	02/01/2016	$40.36	$11.00	$12.90	$0.00	$64.26
For apprentice rates see "Apprentice- ROOFER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
SHEETMETAL WORKER *SHEETMETAL WORKERS LOCAL 17 - A*	02/01/2016	$43.31	$10.70	$21.95	$2.28	$78.24
	08/01/2016	$44.46	$10.70	$21.95	$2.28	$79.39
	02/01/2017	$45.56	$10.70	$21.95	$2.28	$80.49
	08/01/2017	$46.66	$10.70	$21.95	$2.28	$81.59
	02/01/2018	$47.81	$10.70	$21.95	$2.28	$82.74

Apprentice - *SHEET METAL WORKER - Local 17-A*

Effective Date - 02/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	$17.32	$10.70	$4.90	$0.00	$32.92
2	40	$17.32	$10.70	$4.90	$0.00	$32.92
3	45	$19.49	$10.70	$9.79	$1.20	$41.18
4	45	$19.49	$10.70	$9.79	$1.20	$41.18
5	50	$21.66	$10.70	$10.65	$1.29	$44.30
6	50	$21.66	$10.70	$10.90	$1.30	$44.56
7	60	$25.99	$10.70	$12.37	$1.47	$50.53
8	65	$28.15	$10.70	$13.24	$1.56	$53.65
9	75	$32.48	$10.70	$14.97	$1.74	$59.89
10	85	$36.81	$10.70	$16.18	$1.91	$65.60

Effective Date - 08/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	$17.78	$10.70	$4.90	$0.00	$33.38
2	40	$17.78	$10.70	$4.90	$0.00	$33.38
3	45	$20.01	$10.70	$9.79	$1.22	$41.72
4	45	$20.01	$10.70	$9.79	$1.22	$41.72
5	50	$22.23	$10.70	$10.65	$1.31	$44.89
6	50	$22.23	$10.70	$10.90	$1.31	$45.14
7	60	$26.68	$10.70	$12.37	$1.49	$51.24
8	65	$28.90	$10.70	$13.24	$1.59	$54.43
9	75	$33.35	$10.70	$14.97	$1.77	$60.79
10	85	$37.79	$10.70	$16.18	$1.94	$66.61

Notes:
Steps are 6 mos.

Apprentice to Journeyworker Ratio:1:4

SIGN ERECTOR *PAINTERS LOCAL 35 - ZONE 2*	06/01/2013	$25.81	$7.07	$7.05	$0.00	$39.93

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *SIGN ERECTOR - Local 35 Zone 2*

Effective Date - 06/01/2013

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$12.91	$7.07	$0.00	$0.00	$19.98
2	55	$14.20	$7.07	$2.45	$0.00	$23.72
3	60	$15.49	$7.07	$2.45	$0.00	$25.01
4	65	$16.78	$7.07	$2.45	$0.00	$26.30
5	70	$18.07	$7.07	$7.05	$0.00	$32.19
6	75	$19.36	$7.07	$7.05	$0.00	$33.48
7	80	$20.65	$7.07	$7.05	$0.00	$34.77
8	85	$21.94	$7.07	$7.05	$0.00	$36.06
9	90	$23.23	$7.07	$7.05	$0.00	$37.35

Notes:
Steps are 4 mos.

Apprentice to Journeyworker Ratio:1:1

SPECIALIZED EARTH MOVING EQUIP < 35 TONS *TEAMSTERS JOINT COUNCIL NO. 10 ZONE A*	12/01/2015	$33.04	$10.41	$10.08	$0.00	$53.53
	06/01/2016	$33.54	$10.41	$10.08	$0.00	$54.03
	08/01/2016	$33.54	$10.91	$10.08	$0.00	$54.53
	12/01/2016	$33.54	$10.91	$10.89	$0.00	$55.34
SPECIALIZED EARTH MOVING EQUIP > 35 TONS *TEAMSTERS JOINT COUNCIL NO. 10 ZONE A*	12/01/2015	$33.33	$10.41	$10.08	$0.00	$53.82
	06/01/2016	$33.83	$10.41	$10.08	$0.00	$54.32
	08/01/2016	$33.83	$10.91	$10.08	$0.00	$54.82
	12/01/2016	$33.83	$10.91	$10.89	$0.00	$55.63
SPRINKLER FITTER *SPRINKLER FITTERS LOCAL 550 - (Section A) Zone 1*	03/01/2016	$54.43	$8.67	$16.80	$0.00	$79.90
	10/01/2016	$55.53	$8.67	$16.80	$0.00	$81.00
	03/01/2017	$56.53	$8.67	$16.80	$0.00	$82.00

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *SPRINKLER FITTER - Local 550 (Section A) Zone 1*

Effective Date - 03/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	$19.05	$8.67	$8.55	$0.00	$36.27
2	40	$21.77	$8.67	$8.55	$0.00	$38.99
3	45	$24.49	$8.67	$8.55	$0.00	$41.71
4	50	$27.22	$8.67	$8.55	$0.00	$44.44
5	55	$29.94	$8.67	$8.55	$0.00	$47.16
6	60	$32.66	$8.67	$8.55	$0.00	$49.88
7	65	$35.38	$8.67	$8.55	$0.00	$52.60
8	70	$38.10	$8.67	$8.55	$0.00	$55.32
9	75	$40.82	$8.67	$8.55	$0.00	$58.04
10	80	$43.54	$8.67	$8.55	$0.00	$60.76

Effective Date - 10/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	$19.44	$8.67	$8.55	$0.00	$36.66
2	40	$22.21	$8.67	$8.55	$0.00	$39.43
3	45	$24.99	$8.67	$8.55	$0.00	$42.21
4	50	$27.77	$8.67	$8.55	$0.00	$44.99
5	55	$30.54	$8.67	$8.55	$0.00	$47.76
6	60	$33.32	$8.67	$8.55	$0.00	$50.54
7	65	$36.09	$8.67	$8.55	$0.00	$53.31
8	70	$38.87	$8.67	$8.55	$0.00	$56.09
9	75	$41.65	$8.67	$8.55	$0.00	$58.87
10	80	$44.42	$8.67	$8.55	$0.00	$61.64

Notes: Apprentice entered prior 9/30/10:
40/45/50/55/60/65/70/75/80/85
Steps are 850 hours

Apprentice to Journeyworker Ratio:1:3

STEAM BOILER OPERATOR *OPERATING ENGINEERS LOCAL 4*	12/01/2015	$43.31	$10.00	$14.90	$0.00	$68.21
	06/01/2016	$44.06	$10.00	$14.90	$0.00	$68.96
	12/01/2016	$45.29	$10.00	$14.90	$0.00	$70.19
	06/01/2017	$46.28	$10.00	$14.90	$0.00	$71.18
	12/01/2017	$47.27	$10.00	$14.90	$0.00	$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TAMPERS, SELF-PROPELLED OR TRACTOR DRAWN *OPERATING ENGINEERS LOCAL 4*	12/01/2015	$43.31	$10.00	$14.90	$0.00	$68.21
	06/01/2016	$44.06	$10.00	$14.90	$0.00	$68.96
	12/01/2016	$45.29	$10.00	$14.90	$0.00	$70.19
	06/01/2017	$46.28	$10.00	$14.90	$0.00	$71.18
	12/01/2017	$47.27	$10.00	$14.90	$0.00	$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TELECOMMUNICATION TECHNICIAN *ELECTRICIANS LOCAL 103*	03/01/2016	$34.63	$13.00	$14.55	$0.00	$62.18

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *TELECOMMUNICATION TECHNICIAN - Local 103*

Effective Date - 03/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	$13.85	$13.00	$0.42	$0.00	$27.27
2	40	$13.85	$13.00	$0.42	$0.00	$27.27
3	45	$15.58	$13.00	$11.52	$0.00	$40.10
4	45	$15.58	$13.00	$11.52	$0.00	$40.10
5	50	$17.32	$13.00	$11.79	$0.00	$42.11
6	55	$19.05	$13.00	$12.06	$0.00	$44.11
7	60	$20.78	$13.00	$12.34	$0.00	$46.12
8	65	$22.51	$13.00	$12.62	$0.00	$48.13
9	70	$24.24	$13.00	$12.90	$0.00	$50.14
10	75	$25.97	$13.00	$13.17	$0.00	$52.14

Notes:

Apprentice to Journeyworker Ratio:1:1

TERRAZZO FINISHERS *BRICKLAYERS LOCAL 3 - MARBLE & TILE*	02/01/2016	$48.80	$10.18	$19.14	$0.00	$78.12
	08/01/2016	$49.70	$10.18	$19.22	$0.00	$79.10
	02/01/2017	$50.27	$10.18	$19.22	$0.00	$79.67

Apprentice - *TERRAZZO FINISHER - Local 3 Marble & Tile*

Effective Date - 02/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$24.40	$10.18	$19.14	$0.00	$53.72
2	60	$29.28	$10.18	$19.14	$0.00	$58.60
3	70	$34.16	$10.18	$19.14	$0.00	$63.48
4	80	$39.04	$10.18	$19.14	$0.00	$68.36
5	90	$43.92	$10.18	$19.14	$0.00	$73.24

Effective Date - 08/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$24.85	$10.18	$19.22	$0.00	$54.25
2	60	$29.82	$10.18	$19.22	$0.00	$59.22
3	70	$34.79	$10.18	$19.22	$0.00	$64.19
4	80	$39.76	$10.18	$19.22	$0.00	$69.16
5	90	$44.73	$10.18	$19.22	$0.00	$74.13

Notes:

Apprentice to Journeyworker Ratio:1:3

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TEST BORING DRILLER *LABORERS - FOUNDATION AND MARINE*	12/01/2015	$36.70	$7.45	$13.75	$0.00	$57.90
	06/01/2016	$37.45	$7.45	$13.75	$0.00	$58.65
	12/01/2016	$38.45	$7.45	$13.75	$0.00	$59.65
For apprentice rates see "Apprentice- LABORER"						
TEST BORING DRILLER HELPER *LABORERS - FOUNDATION AND MARINE*	12/01/2015	$35.42	$7.45	$13.75	$0.00	$56.62
	06/01/2016	$36.17	$7.45	$13.75	$0.00	$57.37
	12/01/2016	$37.17	$7.45	$13.75	$0.00	$58.37
For apprentice rates see "Apprentice- LABORER"						
TEST BORING LABORER *LABORERS - FOUNDATION AND MARINE*	12/01/2015	$35.30	$7.45	$13.75	$0.00	$56.50
	06/01/2016	$36.05	$7.45	$13.75	$0.00	$57.25
	12/01/2016	$37.05	$7.45	$13.75	$0.00	$58.25
For apprentice rates see "Apprentice- LABORER"						
TRACTORS/PORTABLE STEAM GENERATORS *OPERATING ENGINEERS LOCAL 4*	12/01/2015	$43.31	$10.00	$14.90	$0.00	$68.21
	06/01/2016	$44.06	$10.00	$14.90	$0.00	$68.96
	12/01/2016	$45.29	$10.00	$14.90	$0.00	$70.19
	06/01/2017	$46.28	$10.00	$14.90	$0.00	$71.18
	12/01/2017	$47.27	$10.00	$14.90	$0.00	$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TRAILERS FOR EARTH MOVING EQUIPMENT *TEAMSTERS JOINT COUNCIL NO. 10 ZONE A*	12/01/2015	$33.62	$10.41	$10.08	$0.00	$54.11
	06/01/2016	$34.12	$10.41	$10.08	$0.00	$54.61
	08/01/2016	$34.12	$10.91	$10.08	$0.00	$55.11
	12/01/2016	$34.12	$10.91	$10.89	$0.00	$55.92
TUNNEL WORK - COMPRESSED AIR *LABORERS (COMPRESSED AIR)*	12/01/2015	$47.58	$7.45	$14.15	$0.00	$69.18
	06/01/2016	$48.33	$7.45	$14.15	$0.00	$69.93
	12/01/2016	$49.33	$7.45	$14.15	$0.00	$70.93
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - COMPRESSED AIR (HAZ. WASTE) *LABORERS (COMPRESSED AIR)*	12/01/2015	$49.58	$7.45	$14.15	$0.00	$71.18
	06/01/2016	$50.33	$7.45	$14.15	$0.00	$71.93
	12/01/2016	$51.33	$7.45	$14.15	$0.00	$72.93
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - FREE AIR *LABORERS (FREE AIR TUNNEL)*	12/01/2015	$39.65	$7.45	$14.15	$0.00	$61.25
	06/01/2016	$40.40	$7.45	$14.15	$0.00	$62.00
	12/01/2016	$41.40	$7.45	$14.15	$0.00	$63.00
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - FREE AIR (HAZ. WASTE) *LABORERS (FREE AIR TUNNEL)*	12/01/2015	$41.65	$7.45	$14.15	$0.00	$63.25
	06/01/2016	$42.40	$7.45	$14.15	$0.00	$64.00
	12/01/2016	$43.40	$7.45	$14.15	$0.00	$65.00
For apprentice rates see "Apprentice- LABORER"						
VAC-HAUL *TEAMSTERS JOINT COUNCIL NO. 10 ZONE A*	12/01/2015	$33.04	$10.41	$10.08	$0.00	$53.53
	06/01/2016	$33.54	$10.41	$10.08	$0.00	$54.03
	08/01/2016	$33.54	$10.91	$10.08	$0.00	$54.53
	12/01/2016	$33.54	$10.91	$10.89	$0.00	$55.34
WAGON DRILL OPERATOR *LABORERS - ZONE 1*	12/01/2015	$35.60	$7.45	$13.55	$0.00	$56.60
	06/01/2016	$36.35	$7.45	$13.55	$0.00	$57.35
	12/01/2016	$37.35	$7.45	$13.55	$0.00	$58.35
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
WASTE WATER PUMP OPERATOR *OPERATING ENGINEERS LOCAL 4*	12/01/2015	$43.73	$10.00	$14.90	$0.00	$68.63
	06/01/2016	$44.48	$10.00	$14.90	$0.00	$69.38
	12/01/2016	$45.73	$10.00	$14.90	$0.00	$70.63
	06/01/2017	$46.73	$10.00	$14.90	$0.00	$71.63
	12/01/2017	$47.73	$10.00	$14.90	$0.00	$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
WATER METER INSTALLER *PLUMBERS & GASFITTERS LOCAL 12*	03/01/2016	$51.36	$11.07	$15.14	$0.00	$77.57
	09/01/2016	$52.41	$11.07	$15.14	$0.00	$78.62
	03/01/2017	$53.41	$11.07	$15.14	$0.00	$79.62
For apprentice rates see "Apprentice- PLUMBER/PIPEFITTER" or "PLUMBER/GASFITTER"						
Outside Electrical - East						
CABLE TECHNICIAN (Power Zone) *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	08/30/2015	$26.11	$7.25	$1.78	$0.00	$35.14
	08/28/2016	$26.61	$7.50	$1.80	$0.00	$35.91
	09/03/2017	$27.14	$7.75	$1.81	$0.00	$36.70
For apprentice rates see "Apprentice- LINEMAN"						
CABLEMAN (Underground Ducts & Cables) *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	08/30/2015	$36.98	$7.25	$8.12	$0.00	$52.35
	08/28/2016	$37.70	$7.50	$8.87	$0.00	$54.07
	09/03/2017	$38.45	$7.75	$9.53	$0.00	$55.73
For apprentice rates see "Apprentice- LINEMAN"						
DRIVER / GROUNDMAN CDL *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	08/30/2015	$30.46	$7.25	$8.34	$0.00	$46.05
	08/28/2016	$31.05	$7.50	$8.89	$0.00	$47.44
	09/03/2017	$31.66	$7.75	$9.44	$0.00	$48.85
For apprentice rates see "Apprentice- LINEMAN"						
DRIVER / GROUNDMAN -Inexperienced (<2000 Hrs) *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	08/30/2015	$23.93	$7.25	$1.72	$0.00	$32.90
	08/28/2016	$24.39	$7.50	$1.73	$0.00	$33.62
	09/03/2017	$24.88	$7.75	$1.75	$0.00	$34.38
For apprentice rates see "Apprentice- LINEMAN"						
EQUIPMENT OPERATOR (Class A CDL) *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	08/30/2015	$36.98	$7.25	$12.29	$0.00	$56.52
	08/28/2016	$37.70	$7.50	$12.95	$0.00	$58.15
	09/03/2017	$38.45	$7.75	$13.61	$0.00	$59.81
For apprentice rates see "Apprentice- LINEMAN"						
EQUIPMENT OPERATOR (Class B CDL) *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	08/30/2015	$32.63	$7.25	$9.05	$0.00	$48.93
	08/28/2016	$33.26	$7.50	$9.63	$0.00	$50.39
	09/03/2017	$33.92	$7.75	$10.21	$0.00	$51.88
For apprentice rates see "Apprentice- LINEMAN"						
GROUNDMAN *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	08/30/2015	$23.93	$7.25	$1.72	$0.00	$32.90
	08/28/2016	$24.39	$7.50	$1.73	$0.00	$33.62
	09/03/2017	$24.88	$7.75	$1.75	$0.00	$34.38
For apprentice rates see "Apprentice- LINEMAN"						
GROUNDMAN -Inexperienced (<2000 Hrs.) *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	08/30/2015	$19.58	$7.25	$1.59	$0.00	$28.42
	08/28/2016	$19.96	$7.50	$1.60	$0.00	$29.06
	09/03/2017	$20.35	$7.75	$1.61	$0.00	$29.71
For apprentice rates see "Apprentice- LINEMAN"						
JOURNEYMAN LINEMAN *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	08/30/2015	$43.51	$7.25	$15.06	$0.00	$65.82
	08/28/2016	$44.35	$7.50	$15.83	$0.00	$67.68
	09/03/2017	$45.23	$7.75	$16.61	$0.00	$69.59

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *LINEMAN (Outside Electrical) - East Local 104*

Effective Date - 08/30/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	$26.11	$7.25	$3.28	$0.00	$36.64
2	65	$28.28	$7.25	$3.35	$0.00	$38.88
3	70	$30.46	$7.25	$3.41	$0.00	$41.12
4	75	$32.63	$7.25	$4.98	$0.00	$44.86
5	80	$34.81	$7.25	$5.04	$0.00	$47.10
6	85	$36.98	$7.25	$5.11	$0.00	$49.34
7	90	$39.16	$7.25	$7.17	$0.00	$53.58

Effective Date - 08/28/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	$26.61	$7.50	$3.30	$0.00	$37.41
2	65	$28.83	$7.50	$3.36	$0.00	$39.69
3	70	$31.05	$7.50	$3.43	$0.00	$41.98
4	75	$33.26	$7.50	$5.00	$0.00	$45.76
5	80	$35.48	$7.50	$5.06	$0.00	$48.04
6	85	$37.70	$7.50	$5.13	$0.00	$50.33
7	90	$39.92	$7.50	$7.20	$0.00	$54.62

Notes:

Apprentice to Journeyworker Ratio:1:2

TELEDATA CABLE SPLICER *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	01/01/2016	$28.98	$4.25	$3.12	$0.00	$36.35
TELEDATA LINEMAN/EQUIPMENT OPERATOR *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	01/01/2016	$27.31	$4.25	$3.07	$0.00	$34.63
TELEDATA WIREMAN/INSTALLER/TECHNICIAN *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	01/01/2016	$27.31	$4.25	$3.07	$0.00	$34.63
TREE TRIMMER *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	01/31/2016	$18.51	$3.55	$0.00	$0.00	$22.06

This classification applies only to tree work done: (a) for a utility company, R.E.A. cooperative, or railroad or coal mining company, and (b) for the purpose of operating, maintaining, or repairing the utility company's equipment, and (c) by a person who is using hand or mechanical cutting methods and is not on the ground. This classification does not apply to wholesale tree removal.

TREE TRIMMER GROUNDMAN *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	01/31/2016	$16.32	$3.55	$0.00	$0.00	$19.87

This classification applies only to tree work done: (a) for a utility company, R.E.A. cooperative, or railroad or coal mining company, and (b) for the purpose of operating, maintaining, or repairing the utility company's equipment, and (c) by a person who is using hand or mechanical cutting methods and is on the ground. This classification does not apply to wholesale tree removal.

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Additional Apprentice Information:

Minimum wage rates for apprentices employed on public works projects are listed above as a percentage of the pre-determined hourly wage rate established by the Commissioner under the provisions of the M.G.L. c. 149, ss. 26-27D. Apprentice ratios are established by the Division of Apprenticeship Training pursuant to M.G.L. c. 23, ss. 11E-11L.

All apprentices must be registered with the Division of Apprenticeship Training in accordance with M.G.L. c. 23, ss. 11E-11L.

All steps are six months (1000 hours.)
Ratios are expressed in allowable number of apprentices to journeymen or fraction thereof, unless otherwise specified.

** Multiple ratios are listed in the comment field.
*** APP to JM; 1:1, 2:2, 2:3, 3:4, 4:4, 4:5, 4:6, 5:7, 6:7, 6:8, 6:9, 7:10, 8:10, 8:11, 8:12, 9:13, 10:13, 10:14, etc.
**** APP to JM; 1:1, 1:2, 2:3, 2:4, 3:5, 4:6, 4:7, 5:8, 6:9, 6:10, 7:11, 8:12, 8:13, 9:14, 10:15, 10:16, etc.

The Massachusetts Prevailing Wage Law
M.G.L. ch. 149, §§ 26 – 27

NOTICE TO AWARDING AUTHORITIES

- 'The enclosed wage schedule applies only to the specific project listed at the top and will be updated for any public construction project lasting longer than one (1) year.
- 'You should request an updated wage schedule from the Division of Occupational Safety if you have not opened bids or selected a contractor within 90 days of the date of issuance of the enclosed wage schedule.
- 'The wage schedule shall be incorporated in any advertisement or call for bids for the project for which it has been issued.
- 'Once a contractor has been selected by the awarding authority, the wage schedule shall be made a part of the contract for that project.

NOTICE TO CONTRACTORS

- The enclosed wage schedule, and any updated schedule, must be posted in a conspicuous place at the work site during the life of the project.
- The wages listed on the enclosed wage schedule must be paid to employees on public works projects regardless of whether they are employed by the prime contractor, a filed sub-bidder, or any sub-contractor.
- The enclosed wage schedule applies to all phases of the project including the final clean-up. Contractors whose only role is to perform final clean-up must pay their employees according to this wage schedule.
- All apprentices must be registered with the Massachusetts Division of Apprentice Training in order to be paid at the reduced apprentice rates. If a worker is not registered with the Division of Apprentice Training, they must be paid the “total rate” listed on the wage schedule regardless of experience or skill level. For further information, please call (617) 727-3486 or write to the Division of Apprentice Training, 399 Washington Street, 4th Floor, Boston, MA 02108

WEEKLY PAYROLL RECORDS REPORT
& STATEMENT OF COMPLIANCE

In accordance with Massachusetts General Law c149, §27B, a true and accurate record must be kept of all persons employed on the public works project for which the enclosed rates have been provided. A Payroll Form has been printed on the reverse of this page and includes all the information required to be kept by law. Every contractor or subcontractor is required to keep these records and preserve them for a period of three years from the date of completion of the contract.

In addition, every contractor and subcontractor is required to submit a copy of their weekly payroll records to the awarding authority. This is required to be done on a weekly basis. Once collected, the awarding authority is also required to preserve those records for three years.

In addition, each such contractor, subcontractor or public body shall furnish to the Department of Labor & Workforce Development/Division of Occupational Safety within fifteen days after completion of its portion of the work a statement, executed by the contractor, subcontractor or public body who supervises the payment of wages, in the following form:

STATEMENT OF COMPLIANCE

_____, 2016

I,_____,_____
(Name of signatory party) (Title)
do hereby state:
That I pay or supervise the payment of the persons employed by
_____ on the _____
(Contractor, subcontractor or public body) (Building or project)
and that all mechanics and apprentices, teamsters, chauffeurs and laborers employed on said project have been paid in accordance with wages determined under the provisions of sections twenty-six and twenty-seven of chapter one hundred and forty nine of the General Laws.

Signature _____

Title _____

DIVISION OF OCCUPATIONAL SAFETY, 399 WASHINGTON STREET, 5TH FL., BOSTON, MA. 02108

WEEKLY PAYROLL REPORT FORM

Company Name:

Project Name:

Awarding Auth.:

Work Week Ending:

Prime Contractor

Subcontractor
List Prime Contractor:

Employer Signature:

Print Name & Title:

Employee Name & Address	Work Classification	Hours Worked							(A) Tot. Hrs.	(B) Hourly Base Wage	Employer Contributions			(F) [B+C+D+E] Hourly Total Wage (prev. wage)	(G) [A*F] Weekly Total Amount
											(C) Health & Welfare	(D) Pension	(E) Supp. Unemp.		
		S	M	T	W	T	F	S							

NOTE: Every contractor and subcontractor is required to submit a copy of their weekly payroll records to the awarding authority.

PUBLIC WORKS MAINTENANCE SERVICE CONTRACT
SPECIAL CONDITIONS

The following provisions supplement the General Conditions of the Contract for Non-Technical Services. In the event of conflict or discrepancy between the General Conditions and these Special Conditions, the provisions of the Special Conditions shall govern.

1.0 SUMMARY OF WORK

A. The Work under the Contract consists of:

1. Furnishing all labor, materials, tools, equipment and supervision necessary to accomplish the work described herein,in accordance with all specifications and requirements of the Project Manual.

2. All work either shown on the Drawings (if any) or included in the specifications unless specifically indicated as not to be done.

B. In addition, the work under the Contract includes:

1. Work outside the Project Site as called for in the Contract Documents and as required for the performance of the Work.

2. The restoration of any items damaged or destroyed by encroaching upon areas outside the Project Site.

3. Providing and restoring, where appropriate, all temporary facilities.

C. The Proposed Contract Price shall be complete costs, including overhead, profit, insurance, transportation, and all other costs connected with, or incidental to, the work described.

2.0 PROJECT SITE

A. Work for this project manaual shall include the Base Bid and any accepted Alternates for Netting at the Newton Commonwealth Golf Course.

3.0 NOTICE TO PROCEED/FAILURE TO COMMENCE WORK

A. From time to time during the term of this Contract, the Contractor shall be issued notice to proceed in the form of a written Work Order issued by the Public Works Department listing specific work items to be performed in accordance with this Contract. The Contractor shall commence performance of the work within the time specified in the Work Order, and in no event within less than the time limits stated in the Work Specifications contained in the Project Manual.

B. In the event the contractor fails to commence performance within the specified time, and/or notifies the City of its inability to do so, the City shall call upon the second Contractor awarded pursuant to this bid (if any) to perform the required work.

C. In the event the second Contractor awarded pursuant to this bid is unable to commence performance within the required time, or if there is no second Contractor, the City reserves the right to contract for the work on the open market at the then prevailing rate and to deduct from any monies due or that may thereafter become due to the contractor the difference between the price stated for the work in the contract and the actual cost thereof to the City.

D. In the event of Contractor's repeated failure to commence work within the time required by these specifications, the City shall exercise all provisions contained in the General Conditions regarding default, suspension or termination of this contract.

4.0 PAYMENT

A. Once each month, on a date estabished by the City, the Contractor may submit an Application for Payment (Invoice) for the work performed during the preceeding month.

The Contractor may invoice for all Work Orders completed and accepted during the preceeding month, and for all Work Orders either partially completed or not yet accepted by the City.

B. Upon receipt of the Application for Payment, the City will, within fifteen days, make payment in full for all Work Orders completed and accepted during the preceeding month. For Work Orders partially completed or not yet accepted, the City will make payment for the value of the Work Order completed during the preceeding month, less a retainage of 5% of the estimated total of the Work Order. The City will make final payment for partially completed Work Orders, including any retained amounts, upon completion and acceptance of the work and receipt of an Application for Payment at the end of the month in which the work is completed and accepted.

5.0 COMMUNICATIONS

A. All notices, demands, requests, instructions, approvals and claims must be in writing.

B. Any such notice shall be deemed to have been given as of the time of delivery, or of actual receipt in the case of telegrams or, in the case of mailing, when it should have been received in due course of post.

C. For communicating purposes, the office address of the Contractor shall be that stated on the signature page of the contract; that of the City shall be as stated in the Invitation for Bids. Any subsequent change in address of either party shall be communicated to the other in writing.

6.0 PLANS AND SPECIFICATIONS

A. The City will furnish to the Contractor, without charge, all copies of the specifications reasonably necessary in the performance of the contract work.

7.0 COORDINATION

The Contractor shall:

A. Supply to the City the name and telephone number of a responsible person who may be contacted during off-hour emergencies during the term of the Contract.

B. Cooperate at all times with the City and the Project Manager, and ensure the cooperation of his key personnel and that of his subcontractors.

8.0 CONDUCT OF THE WORK

A. The work must be completed in a continuous uninterrupted operation. The Contractor must use sufficient workforce and adequate equipment to complete all the necessary work requirements within a minimum period of time.

B. The work shall be conducted between the hours of 8:00 a.m. and 5:00 p.m. on Monday through Friday. No work shall be done on holidays, Saturdays or Sundays except as specifically requested and authorized by the City.

C. Under no circumstances will the contractor be paid at a premium or overtime rate for any work performed without the express advance authorization of the City.

D. The Contractor is responsible for the security of partially completed work until the project is finally accepted by the City.

9.0 ALTERATION

A. The Contractor shall patch, repair and/or replace all existing materials and surfaces remaining exposed after installation of new work which have been affected by alteration or removal of existing work. All patch and repair work shall match existing.

10.0 GENERAL DIRECTIONS

A. Damage to Persons and Property

Any damage to buildings, roads, public roads, bituminous concrete areas, fences, lawn areas, trees, shrubbery, electric or telephone poles, underground utilities, etc., shall be repaired by the Contractor at his own expense. Damaged property shall be returned to its original condition prior to the damages within a reasonable time period, except all utility outages shall be repaired immediately.

B. Protection of Persons and Property

The Contractor shall, at all times, leave an unobstructed way along the roadways and walks, and shall maintain barriers and lights for the protection of all persons and property in all locations where he has materials stored or work going on, and during the entire time such work is going on or material is stored.

C. Shutdown of Services

The Contractor's attention is especially called to the fact that continuous operation of building utilties and services is mandatory. During the period of construction of the new work and/or alterations to the existing work, the progress and sequence of installation shall be carefully planned and approved by the City. If any building is to be left without heat, hot water, city water, electricity, gas, sanitary facilities, or any other services, the Contractor shall provide reasonable written notice to the City before proceeding.

D. Care of Work

All work is to be carefully protected so that no injury will come to it from water, frost, accident, or any other cause and any injury which may come to any of the work shall be repaired immediately by the Contractor at his own expense and without additional cost to the City. This shall also apply to any abutting or adjoining work on premises. The Contractor shall be responsible for any damage and in the event of such damage, the Contractor shall repair the damage immediately at his own cost and without additional cost to the City.

E. Removal of Debris

Debris of any nature shall be completely removed from the site at the end of each days work and disposed of in accordance with all Federal, State and local regulations.

F. The Contractor is responsible for the security of all work until it is accepted by the City.

11.0 TEMPORARY UTILITIES

A. Prior to execution of the Work, the Contractor shall confer with a representative of the Public Works Department regarding the use of utilities and facilities at the worksite. No City utilities or facilities are to be used by the Contractor in the performance of this Contract without the prior approval of the City.

12.0 SUBMISSION OF PAYROLLS

A. The Contractor shall, with each invoice submitted during the term of this Contract, submit to the City two (2) legible copies of his payrolls documenting the wages paid to all employees performing on site labor relating to the work of this Contract. These copies shall be prepared on forms supplied by the City.

13.0 DRAWINGS (IF APPLICABLE)

A. The drawings attached herein and such drawings as may be issued per addendum, shall constitute an integral part of this section and shall serve as the working drawings.

B. Drawings shall not be scaled. Field verification is directed since actual locations, dimensions and levels are existing.

C. All items not specifically mentioned in the specifications or noted on the drawings, but which are obviously necessary to make a complete working installation, shall be included.

14.0 MATERIALS

A. Unless specifically so stated to the contrary the use of a manufacturer's name or style number is not restrictive, and is intended solely as an identification of the type and quality of the materials and services required. In all cases, the words "or approved equal" if not inserted are implied.

B. An item equal to that named or described in the specifications may upon written approval of the City be furnished by the Contractor. An item shall be considered equal to the item so named or described if (1) it is at least equal in quality, durability, appearance, strength and design; (2) it will perform at least equally the function imposed by the general design for the public work being contracted for or the material being purchased; (3) it conforms substantially, even with deviations, to the detailed requirements for the item in the specifications.

C. The name and identification of all materials other than the one specifically named shall be submitted to the City in writing for approval, prior to purchase, use or fabrication of such items. Approval shall be at the sole discretion of the City, shall be in writing to be effective, and the decision of the City shall be final. The City may require tests of all materials so submitted to establish quality standards at the Contractor's expense.

D. For the use of material other than the one specified, the Contractor shall assume the cost of and responsibility for satisfactorily accomplishing all changes that may be required in the work as shown. All directions, specifications and recommendations by manufacturers for the installation, handling, storing, adjustment, and operation of their equipment shall be complied with and responsibility for proper performance shall continue to rest with the Contractor.

E. The Contractor shall not have any right of appeal from the decision of the City condemning any materials furnished if the Contractor fails to obtain the approval for substitution in accordance with these provisions. If any substitutuin is more costly, the Contracotr shall pay for such costs

15.0 WARRANTY AND INDEMNIFICATION

A. In addition to other guarantees or warranties required under law or other sections of the specification, the Contractor warrants all materials furnished and labor performed under this Contract to be free from defects or errors in workmanship or installation for a period of one year from the date of Completion of the work, as certified by the Project Manager. The Contractor shall indemnify the Authority for the full cost of any damage to the property that may result by reason of such defects or errors and shall indemnify the Authority from and against any and all claims, demands. losses, costs, expenses, liabilities and damages, including reasonable attorney's fees and expenses, arising out of or on account of this Contract, including but not limited to claims brought against the Authority for alleged infringement of patents based upon any methods of construction or application of materials furnished under the Contract.

B. The Contractor shall indemnify, hold harmless and defend the City and its departments, officers, employees, servants, and agents from and against all actions, causes of actions, claims, demands, damages, costs, loss of services, expenses and compensation, including attorney's fees and interest arising out of or resulting directly or indirectly from the services rendered pursuant to this Contract, provided that any such action, cause of action, claim, demand, damage, cost, loss of service, expense, compensation (1) in any way grows out of bodily injury, sickness, disease or death, or to injury to or destruction of tangible property, which (2) is caused in whole or in part by any act or omission of the Contractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, regardless of whether or not it is caused in part by a party indemnified hereunder.

16.0 PROTECTION OF PROPERTY

The Contractor shall take all reasonable precautions to prevent damage to property, visible and concealed, and shall restore to substantially the same condition existing prior to the Contractor's entry any disturbance or damage to property caused by the Contractor or any person acting under its control.

END OF SECTION

IRRIGATION SUPPLEMENTARY CONDITIONS

I. The course will remain open during construction and the aesthetic features of the course must be maintained. Keeping this in mind, the successful Contractor will be required to install the irrigation system under the following requirements:

1. All open trenches and excavations must be marked and protected on a daily basis to prevent players and members from entering excavated areas. Protection will include barriers and plywood covers over excavations and other necessary procedures to protect the members, guests and maintenance personnel from the danger of construction activities. No open trenches will be allowed over weekends.

2. Plywood for under equipment tires shall be available to be used over turf areas when wet conditions are prevalent, sensitive areas such as greens are being installed and where the possibility of rutting can take place. Plywood shall be supplied by the Contractor and used whenever fairways or approaches are being crossed with a mainline/trencher. Plywood shall also be used where directed by the Owner's Representative.

II. The Contractor shall stake or mark out the locations of all sprinklers, valves, mainline and wire paths in the immediate area to be worked on prior to starting installation. In the event there are discrepancies from the work shown in the plan, the Contractor shall verify the dimensions with the Owner's Representative before work may begin in that area.

Routing of the pipe and wire and locations of sprinklers are diagrammatic and the Contractor will be expected to make field adjustments. Newton Commonwealth Foundation reserves the right to make pipe and/or wire routing changes from those shown in the plans in cases where ledge, boulders or other obstacles impede the path. Minor changes of this nature shall not affect the cost or time limits of the work.

It is the intent of the drawings to keep all mainline piping and valves for all tees and greens outside of the cutting area. Valve boxes should be located to the back, back left or back right of all greens, where the supply line to the greens are indicated on the drawings. Valve boxes shall not be located at the golfers entrance/exit walking path to the greens. Pipe shall not be run through bunkers or tees and an effort should be made to keep all sprinklers approximately 5 feet from the putting surface. No tee sprinklers shall be located on the cut surface of the tee. No green or tee sprinklers shall be installed on the green or tee slope. No valve boxes shall be located within the fairway cut or in the greens approach area.

III. Ledge rock, shale, stones, organic matter or trash not suitable for use as backfill shall be dug and hauled to an accessible dump site on the property. Determination of unusable backfill material shall be made by the Contractor and the Owner's Representative.

All off site replacement backfill and gravel shall be supplied by the Contractor in the quantities required. Bedding sand, if required, shall be supplied by the Contractor per unit prices for deleterious material excavation only.

IV. The Contractor shall be responsible for all damage to underground utilities of which they are aware, including, but not limited to; gas, water, electricity, cable, telephone, irrigation, under-drains & drains. Damaged drainage lines that are not marked shall be repaired by

Newton Commonwealth Golf Course. The Contractor shall be responsible for marking and reporting the location of the damaged drainage line for repair by Newton Commonwealth Golf Course.

The Contractor shall be responsible for notifying each utility of the proposed work and for coordinating the marking and location of all utilities in the field prior to any excavation. Newton Commonwealth Foundation shall provide the successful Contractor and have available for review during the bid process a set of plans with existing information and records of the location of known irrigation equipment to the extent to which it is available. However, Newton Commonwealth Foundation will not be responsible for nor does Newton Commonwealth Foundation guarantee the accuracy or correctness of said information and records. Almost all utilities will need to be located in the field. The Contractor shall be responsible for toning and locating existing wires for which there is an origination or termination point, but no routing as directed by the Owner's Representative. The Contractor shall be responsible for contacting Dig Safe and have the site marked. A copy of the Dig Safe registration number shall be provided to the Owner's Representative before work may begin. The Contractor shall fully inform themselves of all existing conditions and various easements and utilities running through the golf course.

V. The Contractor shall keep the existing irrigation system operational at all times until it is winterized.

VI. The Contractor shall maintain a minimum of one (1) 40 foot storage trailer on site for storage of materials other than piping. The only materials that are accepted to be stored outside are; pipe valve boxes, ductile iron fittings and mainline gate valves. All other materials shall be stored in trailers including prefabricated sprinkler swing joint, quick coupler and lateral isolation valve assemblies.

VII. Contractor shall hold all pricing, including pipe and wire pricing until completion of the project.

VIII. All electrical work shall be done in accordance with NEC, Massachusetts and Newton Codes.

END OF SECTION

IRRIGATION SYSTEM TECHNICAL SPECIFICATIONS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. The CONTRACT GENERAL and SUPPLEMENTARY CONDITIONS apply to the work of this Division, as well as the drawings.

1.02 DESCRIPTION OF WORK

A. Work to be done includes furnishing all labor, materials, equipment and services required to complete all irrigation work indicated on the drawings, as specified herein, or both.

B. This work shall include furnishing and installing all sprinklers, nozzles, PVC pipe and fittings, quick coupling valves, valve access boxes, electric wire, etc., as required for a completely operating golf course irrigation system as shown on the Drawings, called for in these Specifications or as may be required for proper operation of the system.

C. All materials to be incorporated in this system shall be without flaws or defects and of quality and performance as specified and meeting the requirements of the system. All material overages at the completion of the installation are the property of the Contractor.

D. All electrical work within the irrigation system is the responsibility of the Contractor.

1.03 SCOPE

A. The irrigation system shown on the drawings and described within these specifications represents renovations to an existing a multiple row, central computer controlled golf course irrigation system.

B. Applicable requirements of accepted Standards and Codes shall apply to the Work of this Section and shall be so labeled or listed:

1. American Society for Testing & Materials (ASTM)
2. National Standard Plumbing Code (NSPC)
3. National Electric Code (NEC)
4. National Sanitary Foundation (NSF)
5 American Society of Agricultural & Biological Engineers (ASABE)
6. Institute for Electrical and Electronic Engineers (IEEE)
7. Underwriters Laboratories, Inc. (UL)
8. Occupational Safety and Health Authority (OSHA)
9. American Society of Owner's Representatives (ASIC)

1.04 PERMITS AND INSPECTIONS

A. Obtain and pay for any and all permits required for the execution of work under this Division.

B. Furnish copies of Permits and Approval Notices to Newton Commonwealth Foundation prior to requesting final payment.

C. Post, monitor, and maintain permits as required.

D. The following permits may be required:

1. Electrical

1.05 CONTRACTOR QUALIFICATIONS

A. Installer: A firm with at least five (5) years experience in installation of 18 hole golf course irrigation systems on existing golf courses with at least three (3) projects of similar size (18 holes) in the last three years on established turf (not new construction), which meets the criteria required by this specification and which is acceptable to the Newton Commonwealth Foundation and the Owner's Representative.

B. References: The Contractor must supply a minimum of three (3) references for irrigation work of this type with their Bid Form including names and phone numbers of the Golf Course Manager and Superintendent, the type equipment installed, the year which it was installed, cost and whether the course was new or existing.

C. Foreman: The Contractor will supervise and direct the Work. He will be solely responsible for the means, methods, techniques, sequences and procedures of construction. Except where the Contractor is an individual and gives his/her personal superintendence to the Work he/she will employ and maintain on the Work a qualified supervisor or superintendent who shall have been designated in writing by the Contractor as the Contractor's representative at the site. The supervisor shall have full authority to act on behalf of the Contractor and all communications given to the supervisor shall be as binding as if given to the Contractor. The supervisor shall be present on the site at all times to provide adequate supervision and coordination of the Work. Irrigation installation foreman/supervisor shall have demonstrated experience with installation of the selected equipment on an existing golf course. Irrigation Contractor shall submit a Resume of such experience with their Bid Form. The Irrigation Contractor shall make every attempt to maintain the same foreman for the duration of the irrigation system installation. The foreman shall represent the Contractor, and all directions given to him in writing shall be as binding as if given to the Contractor. There shall be no middleman. The Contractor's foreman shall supervise construction and communicate with the Owner's Representative directly including approval of change orders and materials.

D. The Contractor shall appoint a job foreman for all components of the work to communicate with the Owner's Representative. Separate foreman for pulling, trenching and controls will not be acceptable.

E. The Contractor shall have on site at least one trained and certified pipe "solvent weld" trained and certified by the solvent weld manufacturer or their local representative. This individual shall be responsible for the supervision of solvent welding of pipe and fittings on the project. It is suggested that as many of the Contractor's personnel as possible go through this training.

F. The Contractor shall have on site at least one trained and certified "electrical" person trained and certified by the wire manufacturer, Paige Electric or approved equal certification program. This individual shall be responsible for the supervision of all electrical connections and grounding installations on the project. It is suggested that as many of the Contractor's personnel as possible go through this training.

1.06 TESTS

A. Observation: The Owners Representatives shall be on site at various times to insure the system is being installed according to the specifications and manufacturer's requirements.

B. Operational Test: After completion of the system, test operation of the entire system and adjust sprinklers as directed by the Owner's Representative. Demonstrate to the Owner's Representative that all irrigated areas are being covered, and that all control systems are operating as required.

1.07 SUBMITTALS

A. The Contractor shall maintain schematic Record Drawings of the system as the project proceeds. Record Drawings shall specify type sprinkler <u>and nozzle</u> for <u>each sprinkler</u> along with the field controller and zone on which it operates. The Contractor shall submit a complete to date Record Drawing to the Owner's Representative when monthly payment vouchers are submitted. Isolation valves, quick coupling valves, wire splices and air vacuum/relief valves shall show measured distances from two permanent locations on a triangular pattern. All wire and pipe routing shall be shown with distance measurements every 250 feet. Controller station assignments shall be shown for each sprinkler. A final Record Drawing of the installation shall be given to the Owner's Representative upon completion of the project for approval and use in GPS mapping.

B. The Contractor shall provide, within a minimum of fourteen (14) days before materials are ordered, four (4) copies of product specification sheets on all proposed equipment to be installed to the Owner's Representative. These submittals shall include, but not be limited to:

1. Fairway Sprinklers/Nozzles
2. Tee and Green Sprinklers/Nozzles
3. Quick Coupling Valves
4. Swing Joints
5. PVC Pipe and PVC Fittings
6. Ductile Iron Fittings
7. Power Wire
8. 24 Volt Wire
9. Communication Cable – Control
10. Valve Boxes
11. Materials/methods of waterproofing electrical connections below ground
12. Isolation Valves (Lateral)
13. Electric Valves
13. Miscellaneous Materials

C. Submittals must be complete and shall indicate model numbers, flow rates, electrical characteristics, valve sizes, pressures, and optional features provided. Submittals which are not properly "marked-up" shall be returned without action.

1.08 DELIVERY, STORAGE AND HANDLING

A. Store and handle all materials in compliance with manufacturer's instructions and recommendations. Protect materials from all damage. On-site storage is available at the staging area in the required trailer. Coordinate with the Owner's Representative.

B. The Contractor shall be solely responsible for off-loading materials. Newton Commonwealth Golf Course shall not unload any irrigation or related equipment. Approval of materials shall be the responsibility of the Contractor and the Owner's Representative.

1.09 GUARANTEE

A. The Contractor shall obtain, in Newton Commonwealth Golf Course's name; the standard written manufacturer's guarantee of all new materials furnished under this Division where such guarantees are offered in the manufacturer's published product data. All these guarantees shall be in addition to, and not in lieu of, other liabilities, which the Contractor may have by law.

B. The Contractor shall warranty the new work, materials and installation for a period of one (1) year from date of acceptance by Newton Commonwealth Foundation and the Owner's Representative.

C. Newton Commonwealth Golf Course shall maintain the system in working order during the warranty period performing necessary minor adjustments and maintenance including grass mowing/trimming and repairs due to damage during regular ground maintenance or vandalism as outlined in the "Acceptance of Operation" section.

1.10 COORDINATION

A. The Contractor shall at all times coordinate his work closely with the golf course superintendent and the Owner's Representative to avoid misunderstandings and to help lessen the impact of construction on the course and members. The Contractor shall also closely coordinate their work with their approved Subcontractors and the materials supplier.

PART 2 - PRODUCTS

2.01 GENERAL

A. The Contractor shall use the materials specified unless the term "or approved equal" applies. It is the intent of the specifications and Newton Commonwealth Foundation to have all irrigation control equipment (i.e., sprinklers, valves and control systems manufactured by one company (Toro) to match the existing equipment providing the material meets the specifications. This equipment shall include:

1. Sprinklers
2. Field Controllers
4. Electric Valves

B. For warranty purposes, irrigation products shall be supplied from the local authorized distributor of those products.

C. Provide manufacturers' products called for "or approved equal" in which case Contractor may submit a substitution to the Owner's Representative for approval. Certain manufacturer's names and model numbers are used throughout these specifications to denote a standard. Alternate manufacturer's products are acceptable when products of equal or better quality and performance are submitted and approved as outlined below. Alternative products must be equal to, or better, to qualify as an "or approved equal" product.

D. For each item proposed as equal, submit a request which includes:

1. Drawings and samples as appropriate.
2. Comparison of the qualities of the proposed item with that specified.
3. Changes required in other elements of the work because of the substitution.
4. Name, address and telephone number of vendor.
5. Manufacturer's literature regarding installation, operation and maintenance.

E. A request for approval constitutes a representation that the Contractor:

1. Has investigated the proposed items, products, materials, etc. and has determined that it is equal or superior in all respects to that specified.
2. Will provide at least the same warranties for the proposed item as for the item specified.
3. Has determined that the proposed item is compatible with interfacing items.
4. Will coordinate the installation of the approved item and make all changes required in other elements of the work because of the substitution.

2.02 PVC IRRIGATION PIPE

A. PVC lateral pipe sizes 2-1/2 inch and smaller shall be Class 200, SDR 21, Solvent-Weld PVC, ASTM No. D2241, nsf-pw as manufactured by Cresline, Ipex, JM or approved equal.

B. PVC mainline pipe sizes 3 inch shall be Class 200, SDR 21, Gasketed Joint PVC, ASTM No. D1784, nsf-pw as manufactured by Cresline, Ipex, JM or approved equal.

2.03 PVC IRRIGATION FITTINGS

A. Directional change fittings for PVC pipe, sizes 2-1/2 inches and below shall be Schedule 40 gasketed fittings as manufactured by the Harrington Company or approved equal.

B. PVC tees for attachment of swing joints shall utilize gasketed joints with ACME threads and end plugs for attachment of ACME swing joints as manufactured by Lasco, the Harrington Company or approved equal.

C. Directional change fittings for PVC pipe, sizes 3 inch and above shall be ductile iron fittings as manufactured by the Harrington Company or approved equal.

D. For fairway and tee lateral tap lines and individual sprinkler swing joints, Harrington Company or approved equal ringtite ductile iron tap tees with **swivel** attachment shall be used. Saddles: strap, bolt down, snap shall not be approved for installation.

E. For the connection from the lateral to mainline at all fairway, green and tee laterals, Harrington Company or approved equal ductile iron swivel Lateral 90's shall be used as shown on the details. Where quick couplers are installed on the lateral at the same location, 1 inch threaded taps shall be included in the Lateral 90 as shown on the details.

F. All threaded PVC connections shall be made using Schedule 80 toe nipples and Schedule 40 couplers or socket fittings (see details). Schedule 40 threaded fittings will not be approved for installation.

G. PVC solvent shall conform to ASTM D2564 and be NSF approved. Solvent shall be appropriate for gluing of pipes and fittings from 1-1/2 inches to 6 inches. Pipe solvent shall be as manufactured by IPS, Rectorseal, Uni-Weld or approved equal and shall be used in conjunction with the appropriate primer. Cements not requiring primer will not be approved. Primers and cements shall be intended for new installations, not repairs. Glue shall be medium, not fast set (no wet and dry). Primers and cement shall include their expiration date, and will be used before that date. Primers and solvents shall not be stored in trailers, but in an area with a constant temperature over 45 degrees.

2.04 SPRINKLERS

A. All sprinklers installed as new as indicated on the drawings.

B. BUNKER SPRAY SPRINKLERS – Full and part circle pop up spray sprinklers shall be plastic construction with ratcheting riser and check valve. (Nozzles shall be MP2000 Rotators (Hunter Industries) for the appropriate Toro body. Necessary arcs shall be determined in the field.) Pop-up height shall be 6 inches. Sprinkler shall carry a 3-year exchange warranty against defects. Sprinklers shall be as manufactured by Toro G590Z-6P-COM.

2.05 ELECTRIC CONTROL VALVES (PRESSURE REGULATING)

A. Electric control valves with pressure regulation shall be one, one and one half or two inch remote control (bunkers and pond fills), diaphragm type, plastic body, contamination proof valves with flow control. Valves to be capable of manual operation and to have 24v solenoid with adjustable pressure regulator. Pressure rating shall be minimum 200 psi. Toro P220-27-06or approved equal.

B. Existing valves shall be reused where shown.

2.06 VALVE BOXES

A. All valve boxes shall be manufactured from unformed resin with a tensile strength of 3,100-5,500 psi conforming to ASTM D638. All box bodies shall be green or black in color. Covers shall be colored as indicated.

B. Valve boxes for quick coupling valves (other than greens), and manual drains shall be 10 inch round valve boxes, T-top lids with detectable disks as manufactured by Armor, Part 181104 or 181112 or approved equal.

C. Valve boxes for wire splices shall be 10 inch round valve boxes, T-top lids with detectable disks as manufactured by Armor, Part 181104 or 181112 or approved equal. All splices shall be in separate valve boxes and not included with isolation valves. 220 volt splices shall have black lids; 24 volt splices shall have gray lids.

D. Valve boxes for fairway isolation laterals and individual sprinkler isolation valves shall be 6 inch PVC sleeve with 10 inch round valve boxes with T-top lids as manufactured by Armor, Part 181104 or approved equal with detectable disk.

E. Valve boxes for single electric valves with isolation (bunkers) shall be "standard" valve box. Standard valve boxes shall be as manufactured by Armor, with T-top lids and detectable disk.

F. Valve box extensions shall be provided as required.

G. Valve box cover colors shall be as follows:

24 volt splices/communication	Gray
220 volt splices	Black
Lateral Isolation	Green
Quick Couplers	Tan
Electric Valves w/isolation	Green

H. Detection for valve boxes shall consist minimally of a #10 stainless steel washer and screw installed on the underside of the valve box cover. **Detection shall be provided by the manufacturer. Field applied detection shall not be accepted or allowed.**

I. Valve box covers shall have a 10 year lid warranty.

J. Reuse existing valve boxes unless damaged. Install new valve boxes where required.

2.07 COMMUNICATION CABLE

A. The cable for the communication paths shall be double jacketed, two conductor cable intended for control of the Communications Signal and Feed-Back Signal for the specified Site Pro 2000 computerized control system. The cable shall be suitable for direct burial in the earth and also may be installed in ducts or conduits.

The conductors shall be PVC/nylon insulated copper conductors. Conductors shall be UL listed type TFN cable with fillers having an aluminum shield and drain wire to drain off electrical, magnetic or RF interference, and a direct burial sunlight resistant PVC jacket overall. The cable shall be rated 30 volts. Conductors shall be UL Type TFN. The two conductors shall be seven strand, #16 AWG, 0.015 PVC/0.005 NYLON Mils insulation wall.

The two conductors shall be color coded yellow and grey and shall be soft annealed copper conforming to ASTM B-3 and B-8. Insulation shall be Polyvinyl Chloride and Nylon conforming to UL Type TFN rated at 90 degrees Centigrade dry and 75 degrees Centigrade wet. Insulated conductors are to be cabled with fillers to ensure roundness.

Shield shall be 2 mils aluminum backed polyester shielding with a #18 AWG solid tinned copper drain wire in contact with the aluminum side with a 25% minimum overlap.

Outer jacket shall be sunlight resistant PVC conforming to ICEA S-61-402, NEMA WC5 and UL 1277. Nominal thickness to be 0.050 inch.

The communication type cable shall be marked on the jacket as follows: "Paige P7162D-2 16 30V direct burial - Type TC (UL)", Tuf-Hide or approved equal.

Wire shall be as manufactured by Paige Electric, P7162D-2", "Tuf-Hide" or approved equal..

2.08 WIRE

A. All solenoid wire shall be single strand, soft drawn, solid copper, utilizing a low density high molecular weight PE insulation and UL listed suitable for direct burial and shall meet all state and local codes for this service. Wire shall meet the requirements of ASTM B-3 or B-8.

B. Individual colored wires must be used for each zone valve. Control wire to be minimum #14 AWG. Common wire for fairways to be minimum #12 AWG and yellow in color. Common wire for greens and tees shall be #12 AWG and brown in color. Yellow and brown wires shall be used for common wires only.

C. All green and tee valve control wire shall be purple in color. All fairway and rough sprinkler control wire shall be orange in color. Multiple sprinklers for each station shall be tied together at the controller. **ALL** individual control wires for valves and sprinklers shall "homerun" to the appropriate controller.

D. All controllers shall have separate commons. No tying together of common wires will be allowed during installation.

E. **All** in-ground 24v and 220v wire connections shall be waterproofed with 3M DBY-6, DBR-6 or 82-A or approved equal splice kits per 3M or approved equal recommendations for the wire voltage and size being used (no 3M #3570 or #4 connectors shall be allowed on tray cable). All wire splices shall be made in valve boxes or at a controller. All wire connectors and splices shall be UL Listed for direct burial.

F. All 220 volt power wire for field controllers shall be "Tray Cable" in sizes as indicated on the drawings. Wire shall be UL listed, type TC, 600 volts, VW-1 rated, 90 degree centigrade dry, 75 degree centigrade wet. Wire shall be high dielectric PVC insulation with a nylon

insulation armor and overall PVC jacket. All 220 volt wire shall consist of a single jacketed three wire combination. Three individual jacketed conductors shall not be allowed for 220 volt wire. All bundled wire paths shall include a #6, solid, bare copper wire installed above the power wire as shown on the details and plans, and connected to the service of each power source as per NEC and IEEE requirements and standards respectively.

G. No red, white or green wire shall be used in the installation of this project.

H. WIRE SCHEDULE:

USE:	AWG SIZE:	COLOR:
Power (240v, Controllers)	#10/3-P7266D-Rev 1	Black Tray Cable
Fairway Power Wire	#14/1	Orange
Fairway Common Wire	#12/1	Yellow
Green & Tee Power Wire	#14/1	Purple
Green & Tee Common Wire	#12/1	Brown
Toro Communication Cable	#16/3	Black
Shielding Wire	#6	Bare Copper

I. Wire shall be as manufactured by Paige Electric or approved equal.

2.09 LATERAL ISOLATION VALVES

A. Isolation gate valves, 2-1/2 inch in size where indicated on the drawings and 2 inch for pond fills, electric valves, individual sprinklers on the mainline and drains shall be of bronze construction, threaded, US Manufacture, 600 WOG with cross handle and 200 psi rating. Gate valves to be as manufactured by Nibco, model T-113-irr.

B. Isolation gate valves, 2-inch in size where indicated on the drawings shall be of bronze construction, push on type with lugs to mate with Harco swivel lateral 90's, US Manufacture, 600 WOG with cross handle and 200 psi rating. Gate valves to be as manufactured by Nibco, model T-113-har.

C. Reuse existing valves, unless damaged.

2.10 SWING JOINTS

A. All 1 inch and larger sprinklers shall be installed on three (3) elbow, 12 inch, PVC unitized body ACME x ACME swing joints with one piece riser assembly. Swing joints to be factory assembled with 360 degree O-ring seals as manufactured by Dura, Lasco, Spears or approved equal. All connections to be threaded o-ring, no glued connections shall be allowed on the swing joints.

B. All non-valve in head sprinklers shall be installed on three (3) elbow, PVC, NPT x NPT swing joints with one piece riser assembly. Swing joints to be factory assembled as manufactured by Lasco or Spears. All connections to be threaded, no glued connections shall be allowed on the swing joints.

C. Quick couplers to be installed on 1 inch brass swing joints with minimum three (3) brass

elbows and two (2) brass nipples. Minimum swing joint length to be 12 inches. Quick coupler swing joints to include anti-rotation wing.

D. Reuse existing swing joints, unless damaged.

2.11 PIPE SLEEVES/CONDUITS UNDER PAVEMENTS & WALKS

A. Provide sleeves and conduits where directed by the Owner's Representative or as indicated on the Drawings.

B. New pipe sleeves shall be minimum two sizes larger than the pipe passing through them. PVC plastic, minimum 10 inch, Class 160 water pipe shall be used.

C. Provide separate conduits for electrical wiring at sleeve locations (minimum size to be 2 inch). 220 volt and communication wiring to be installed in separate conduits.

2.12 QUICK COUPLING VALVES

A. All quick coupling valves shall be 1 inch inlet and outlet mounted on 1 inch brass swing joints with anti-rotation wings. The quick coupling valve shall be a two piece type. The valve body shall be constructed of heavy cast brass. The cover shall be a durable, protective self-closing yellow vinyl cover. The valve shall be opened and closed by a brass key of the same manufacturer having a MNPT and FNPT outlet. The valve throat shall have a ACME key way with detent positions for regulating water flow.

B. All quick coupling valves to have yellow, non-locking vinyl covers.

C. New Quick coupling valves shall be as manufactured by Buckner Model QB44RCATAR10 or approved equal.

D. Reuse existing quick couplers, unless damaged..

2.13 ELECTRICAL CONDUIT

A. Polyvinyl Chloride (PVC) conduit shall be heavy wall, rigid Schedule 40 non metallic utility conduits and sweeps, 1 inch as a minimum and shall meet in all respects the requirements of UL 651, standards for Schedule 40 PVC conduits installed outdoors. Conduit and sweeps shall be rated for direct burial, 90 degrees Centigrade. All fittings shall meet the UL standard for PVC fittings for use with rigid PVC conduit as manufactured by Carlon or approved equal.

2.14 SAND

A. Shall consist of well-graded natural sand, free from organic, other weak or compressible materials, or frozen materials, conforming to the following gradation:

U.S. SIEVE NO.	% PASSING BY WEIGHT
#8	100
#50	15-40
#100	2-10
#200	0-5

2.15 CONCRETE

A. Cement concrete for thrust blocks shall be 3,000 psi, 1-1/2 inch aggregate.

PART 3 - EXECUTION

3.01 GENERAL

A. Examine all Project Documents noting any discrepancies and bringing same to the attention of the Owner's Representative for timely resolution.

B. Make all field measurements necessary for the work. Project shall be laid out essentially as indicated on the plans, making minor adjustments for variations in the topography and for field changes. Major changes shall be reviewed with the Owner's Representative prior to proceeding. Staking shall be done by the Contractor. Contractor to supply all staking materials.

C. At all times, protect existing work including landscaping, trees, water courses, paving, structures, walls, etc. from damage. Any inadvertent damage to any of these items shall be reported to the Owner's Representative at once.

3.02 EXCAVATION AND INSTALLATION OF PIPE, CONDUIT AND FITTINGS

A. Contractor shall lift and reuse/replace the sod for all trenches where it is to be reused as per specifications. Contractor shall be responsible for cutting, reusing and installing the sod. Where sod is not salvageable, the area shall be seeded by the Contractor or sodded at Newton Commonwealth Foundation's discretion. Sod shall be paid for by Newton Commonwealth Foundation as an extra for these areas. Coordinate sod type with the Owner's Representative.

B. The Contractor shall do all excavating, vibratory plowing, backfilling and compaction required for the proper installation of the work.

C. Mechanical trenchers or backhoes shall be used for the installation of all mainline pipe and conduit and shall provide trenches with straight sides. Trenches shall be no wider at any point than is necessary to lay and bed the installed pipe. Using proper width trencher chain and/or backhoe bucket or rock saw, excavate a straight and true trench to a depth of +/- 2 inches of pipe invert elevation.

Pipe shall be laid on undisturbed trench bottom provided suitable base is available - no rock larger than 1 inch or sharp edges; if not, excavate to 2 inch below pipe invert and provide sand base or stone dust (furnished by the Contractor) upon which to lay pipe.

D. Backfilling shall be accomplished as follows: the first 10 inches of backfill material shall contain no foreign matter and no rock larger than 1 inch in diameter. Carefully place material under, around and above pipe and wire so that it is hand tamped to a point 10 inches above the pipe. Remainder of backfill shall be laid-up in 6 inches (maximum) lifts and tamped to compaction with mechanical equipment matching adjacent undisturbed area, keeping in mind the location of the shield wire. Frozen material shall not be used for backfill. Backfill can be accomplished in one lift following tamping around the pipe with the first 10 inches of soil if compaction is completed with a wheel mounted Vermeer sheeps foot roller. Machine placed backfill shall be compacted minimum of 95 percent Modified Proctor Maximum Density. Proctor testing may be ordered by the Owner's Representative as necessary and performed by an independent soil testing company at Newton Commonwealth Foundation's request and cost.

E. Clean bell and spigot ends and make all gasketed joints in strict accordance with manufacturer's recommendations, making certain not to apply an excess of lubricant, and wiping off any excess lubricant from each connection. Maximum deflection per joint shall not exceed manufacturer's recommendations.

Make all solvent-weld joints in strict accordance with manufacturer's recommendations, making certain not to apply to little or an excess of primer or solvent, and wiping off excess solvent from each connection. Allow connections to set minimum 24 hours before pressure is applied to the system or the pipe is pulled.

Provide for expansion and contraction as recommended. Wire shall be laid in same trench and at pipe invert (see "Wire Installation").

F. Mainline pipe shall have minimum 22 inches of COVER (excavate to invert as required by pipe size).

Lateral pipe shall have minimum 16 inches of COVER (excavate to invert as required by pipe size).

G. Cut plastic pipe with hand saw or pipe-cutting tool, removing all burrs at cut ends. All pipe cuts are to be square and true. Bevel cut end as required to conform to manufacturer's specifications.

H. Every precaution shall be taken to prevent foreign material from entering the pipe while it is being placed in the trench. At times, when installation of the piping is not in progress, the open end(s) of the pipe shall be closed by a watertight plug or other means. All piping which cannot temporarily be joined shall be sealed to make as watertight as possible. This provision shall apply during the lunch hour as well as overnight. Pipe not to be installed that day shall not be laid out. Should water enter the trench during or after installation of the piping, no additional piping may be installed or backfilled until all water is removed from the trench. Pipe shall not be installed when water is in the trench (trenching), or when the ambient

temperature is at 35 degrees Fahrenheit or below (pulling). PVC pipe shall be snaked in the trench to accommodate for expansion and contraction due to changes in temperature.

I. In installing irrigation pipe the Contractor shall route the pipe as necessary to prevent damage to tree roots. Where trenching must occur near trees or within drip lines, the Contractor shall provide proper root pruning and sealing methods to all roots 1 inch and larger.

J. All pipe shall be installed such that its curvature does not exceed manufacturer's recommendations. Pulling of pipe shall be accomplished in as straight a line as possible, using 45 and 22-1/2 degree fittings where necessary.

K. If during installation, it is necessary for one pipe to cross another pipe, at no time shall the pipes come within 6 inches of each other.

L. Throughout the guarantee period it will be the responsibility of the Contractor to refill any trenches that have settled due to incomplete compaction. It shall not be Contractors responsibility to refill and re-compact trenches that have been eroded by natural rainfall and runoff after acceptance of the system.

M. Pulling of pipe sizes 2 inches and smaller shall be allowed provided soil is suitable and specified depth of bury is maintained. The bullet attachment to the plow blade shall be larger than the outside diameter of the pipes belled end. If pulling of fairway laterals is not possible, trenching will be required and sod shall be stripped before trenching. Sod shall be carefully replaced by the Contractor at no additional cost to Newton Commonwealth Foundation.

N. Contractor shall be responsible for repairing all existing cart paths to their original condition and level. Paved areas must be cut and patched, not trenched, pulled or dug with a backhoe.

O. All pull lines across fairways and around greens and tees shall be rolled or compacted to original grade with a self-propelled, ride-on mechanical roller, 3-5,000 pounds.

P. Before pressurization, all piping shall be flushed with a proper amount of water to flush all dirt and debris from the piping system so that it will not end up in the sprinkler nozzles. Contractor shall install flush points as needed for this task at no additional cost to Newton Commonwealth Foundation.

Q. Pipe routes have been located for optimum system performance. The Contractor shall not deviate from the design as shown, unless he has notified the Owner's Representative, in writing, of any change requests to the design prior to irrigation system installation. The Contractor shall not commence work on that section of the mainline until he has received written approval from the Owner's Representative.

3.03 CONDUIT INSTALLATION

A. Conduit shall be installed under all cart paths over 10 feet wide and where directed by the Owner's Representative or as indicated on the drawings. Separate electrical conduit, 2 inch minimum shall be installed with all communication and power wires.

B. Where conduit is required UNDER PAVED AREAS: conduit shall be installed by cutting and patching and compaction shall be 95%. Required depth of bury is to be maintained. The

same day as installation, repair the cut with a cold asphalt patch. Before acceptance replace all cold paving patches with a hot, square, straight patch at grade.

C. Where conduit is required in UNPAVED AREAS (e.g. across dirt roads), open-trenching or boring method shall be used and compaction shall be to minimum 90%. Required depth of bury is to be maintained. Repair settling as necessary.

D. Seal enclosure sweep holes with expandable foam installation.

E. No wire connection shall be made inside conduits or under paved areas.

3.04 ROCK/UNSUITABLE MATERIAL EXCAVATION

A. Rock is considered to be unclassified for the irrigation work on this project.

3.05 THRUST BLOCKING

A. All ringtite pipe fittings including reducers shall be blocked with an adequately sized thrust block as per ASABE Standard S376.2 and as depicted in the details. Blocking shall be in accordance with pipe and fitting manufacturer's recommendations. Thrust blocks shall be installed against undisturbed soil in all cases. Concrete thrust blocks shall utilize 3,000 psi concrete mixture. Bricks, stones, boulders, etc. will not be accepted as thrust blocks or thrust block material. Sackcrete will not be permitted as a thrust blocking material. Sackrete may be used as the base concrete mix, however the bag cannot be put in the trench and water added. The sackrete must be taken out of the bag, mixed and then formed for the thrust block. Contractor to supply all material needed for thrust blocking.

B. Concrete thrust blocks shall be placed so as not to interfere with any pipe joint or connection.

C. Under no circumstances will concrete block be approved for thrust blocks, including: 2 inch fittings, laterals, tap tees and lateral 90’s .

3.06 WIRING INSTALLATION

A. All wire shall be laid in pipe trenches and shall be carefully back-filled to avoid any damage to the wire insulation or wire conductors themselves. All wire shall be tied with wire ties at intervals of 12 feet. All wire shall be installed with at least 1% slack and have a 36 inch expansion loop at each change of direction of 45 degrees or more, and have at least a 36 inch wire coil at each solenoid. In areas of unsuitable material, the trench shall have a 6 inch layer of select fill on the bottom before the wires are laid into the trench and back-filled. The valve power and common wires shall have a minimum of 12 inches of cover. 220 volt and communication wire, 24 inches. Wire not to be installed that day shall not be laid out. Where wire passes under roadways, walls or other paved or graveled areas, it shall be installed in a separate PVC conduit, minimum 2 inch. In these instances, conduit shall extend 5 feet beyond said area and depth of cover shall be 24 inches. Pipe ends shall be plugged with duct seal or equal. Power wire (220 volt) and communication wire shall be in separate conduits, minimum 24 inches of cover and shall be installed on separate sides of the trench. Sufficient slack for expansion and contraction shall be maintained and wiring shall at no point be installed tightly. Provide an additional 8 inches to 12 inches of slack at all changes of

direction. Wire in valve boxes shall be of sufficient length to permit connections to be brought to the surface for servicing. Slack in valve boxes shall be coiled for neatness. Wire may be laid with a vibratory plow providing proper laying equipment is employed and wire is not pulled directly off the roll. The pulling blade shall contain the appropriate attachment provided by the manufacturer for laying of wire so the wire is pulled in with slack. Specified depth of burial is to be maintained. Following pulling all pull lines shall be compacted using a ride on, self propelled, vibratory 3000-5000 pound roller. All pull lines shall be compacted and repaired to the satisfaction of the Owner's Representative.

B. All wires shall be spliced in accordance with local minimum requirements or the following procedure. Make all splices baring ¾ inches to 1 inches of copper conductor, twisting the leads together, fasten with the wire nut and insert into the waterproof compound. The waterproofing compound shall cover all bared copper surfaces. At the splice location there shall be a minimum of 24 inches of slack so that the splice can be raised for inspection. All underground splices not located at a control valve site shall be housed in a valve box and marked on the Record Drawing. All splices at the controller locations shall be made in the controller pedestal or enclosure. All in-ground wire connections shall be waterproofed with 3M DBY-6, DBR-6 or 82-A or approved equal splice kits of the appropriate size for the voltage being carried and the wire sizes involved (no 3M #4 or 3M #3570 connectors are allowed on the tray cable). The spare wires shall have a 3M DBY-6 or approved equal waterproof splice kit placed on the end in the valve box. The wire shall be clearly labeled at the controller as to which green or tee it can be located at.

C. Wire paths have been located for optimum performance. The Contractor shall not deviate from the design as shown, unless he has notified the Owner's Representative, in writing, of any change requests to the design prior to the irrigation system installation. Contractor shall not commence work in that area until he has received written approval from the Owner's Representative.

D. Wires in trench shall follow the following protocol:

1. All 24 volt wire shall be installed on one side of the trench and extra wires shall be installed on the other side.

2. All communication and all power wire (220 volt) shall be installed on separate sides of the trench.

3. All wire shall be installed under/beside the pipe, not on top of the pipe.

3.07 COMMUNICATION CABLE WIRE SPLICES

A. All communication cable wire splices or connections, either in valve boxes or at field controllers where the connection is not being made to the terminal strip, shall be made using 3M series 82-A or approved equal epoxy wire connector kits. Where one wire connector is being used for both conductors of the communication cable wire paths and using the 3M series 82-A or approved equal epoxy wire connector kits, the actual joints of each conductor shall be staggered in the connector so as to avoid any possibility of shorting from one conductor to the other. Care shall be taken with each wire joint or connection to assure that a completely good, waterproof connection will result. It is important that all wire connections

be absolutely watertight and with no leakage to ground nor shorting from one conductor to the other.

B. After each communication cable wire path has been installed and before connections are made to the field controller terminal strips, temporarily wire nut the communication cable wire path together or connect to the terminal strip terminals, at each field controller cluster, in order to make the communication cable wire path continuous from the interface unit to all ends of the given communication cable wire path. Each conductor shall be individually tested for leaks to ground by using an Ohm meter. With nothing connected to the communication cable wire path (not connected to the output module or to any field controllers) check each wire individually using a good VOM meter. Set meter to the 10K Ohm (1000) scale. Measure from each wire to earth ground, one at a time. Use the earth ground network or drive a metal probe into the ground for the meter connection to earth ground. Also check from one conductor to the other, using the same Ohm scale. In all cases the meter reading should show no connection or leakage to ground - showing a meter reading of 1 Mega ohm or higher. If any lower reading is experienced, the wire fault shall need to be corrected before connecting field controllers to it. All underground splices, in valve boxes must be buried in the soil, during the test and water settled. After the test is completed, splices shall be removed from the soil and left exposed in the valve box for future access.

3.08 VALVE BOX INSTALLATION

A. The Contractor is expected to remove sod for all valve box areas and shall have sod cut and valve box installed where applicable. Sod is to be replaced so that no bare soil areas are present around the valve box. Sod shall be set back to original grade.

B. Furnish and install a valve access box for each isolation gate valve, quick coupling valve (except greens) and wire splice as specified.

All valve access boxes shall be installed <u>on</u> a minimum 4-inch crushed stone base. Finish elevation of all boxes shall be at grade. All crushed stone to be supplied by the Contractor and installed before valve box. Crushed stone shall <u>not</u> be simply poured into previously installed valve boxes.

D. Valve boxes shall be installed neatly at all times. Boxes shall be parallel or perpendicular to hard-scape edges and to other valve boxes installed in the same location. A sufficient amount of turf shall remain in place between each valve box and between valve boxes and hard-scapes

E. Valve box extensions shall be provided as required on all valve boxes in order to install valve box covers at grade. This shall include air vacuum/relief valves.

F. Bricks, stones, etc. shall not be used to support valve boxes.

3.09 SPRINKLER INSTALLATION

A. The Contractor is expected to remove sod for all sprinkler areas and shall have sod cut and sprinkler installed where applicable. Sod is to be replaced so that no bare soil areas are present around the sprinkler. Sod shall be set back to original grade.

B. All sprinklers shall be mounted on unitized three-ell PVC swing joints per the specifications. Minimum swing joint length to be 12 inches.

C. Install all sprinklers as per details. Sprinkler grade shall be as agreed to with the Owner's Representative.

D. Adjust sprinkler and zone pressures with pressure regulator sprinkler.

E. The Contractor shall properly flush all piping before installation of sprinklers. Any sprinklers found to have broken rock screens shall be replaced by the Contractor at no additional cost to Newton Commonwealth Foundation.

3.10 QUICK COUPLING VALVE INSTALLATION

A. Install new or reused quick coupling valves where indicated on the drawings.

B. Quick coupling valves for greens shall be installed as per green detail, flush to grade without valve box next to a sprinkler. See detail. Quick Coupling valves shall be installed a maximum of 10 feet from the putting surface. Quick couplers for tees shall be installed in 10 inch round valve box. See detail.

C. Quick coupling valves to be mounted on 1 inch brass swing joints. Use minimum three (3) elbows and two (2) nipples. Minimum swing joint length to be 12 inches.

D. Quick couplers where not installed on the lateral 90 shall be installed with a line size x 1 inch PVC tapped tee.

E. Quick coupling valves shall be stabilized with anti-rotation wing. Area around the stabilizer and three quarters of the valve box shall be filled with crushed stone.

F. Height of quick couplers shall be set so that the key is easily useable with room left to get the operators fingers under the handle.

3.11 ISOLATION VALVE INSTALLATION

A. All installed mainline sprinklers, fairway, laterals and green and tee sprinkler groups shall have the ability to be individually isolated. Gate valves shall be used on all mainline taps except for quick coupling valves.

B. Shut off valves shall be installed in the closed position and shall not be opened until the mainline piping has been pressurized and flushed.

3.12 BUNKER IRRIGATION INSTALLATION *(No Bunker Work Planned within current bid)*

A. Some bunkers as indicated on the drawings shall have installed a supplemental irrigation system of sprinklers to water bunkers as indicated in the detail.

B. The bunker system shall consist of one zone per bunker as indicated on the drawings. All piping shall be PVC and shall be sized so that velocities do not exceed 5 fps. Maximum flow is 25 gpm.

C. The number of sprinklers to be used on each bunker will vary from 5 to 15. Sprinkler spacing shall be 10 to 12 feet and the layout of each collar shall be staked by the Owner's Representative before installation.

D. All sprinklers and swing joints shall be new unless otherwise indicated.

3.13 FIELD ADJUSTMENT

A. Adjust sprinklers, valve boxes, and quick coupling valves to grade as required so that they will not be damaged by mowing operations.

B. Utilize existing equipment unless damaged where equipment must be moved.

C. Height adjustments to equipment shall be performed as required by settlement, etc., throughout the guarantee period.

D. Each new or changed control zone shall be operated for a minimum of five (5) minutes and all sprinklers checked for consistency of water application.

E. Check each sprinkler for proper nozzle size.

F. Entire system shall be adjusted to assure compliance with manufacturers' recommendations and the intent of the Project Documents.

3.14 REPAIR OBLIGATION

A. The Contractor is responsible for the immediate repair of any system malfunction prior to the acceptance of the system by Newton Commonwealth Foundation including clogging or malfunctioning of the existing irrigation system due to improper flushing.

B. During the execution of the Contract, the Contractor shall keep a technically qualified person on the job full time, and maintain adequate labor and equipment on site, so immediate repairs can be performed in the event of a break or component failure.

GOLF COURSE CONSTRUCTION TECHNICAL SPECIFICATIONS

Holes 3-4 Tee Complex Construction

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PREFACE

1. The General Conditions of the Contract for Construction, Special Conditions, the Golf Course Construction Technical Specification Section and the Golf Course Construction Plans prepared by the GOLF COURSE ARCHITECT shall govern construction of the various items of work to be done.

2. The word "FOUNDATION" shall herein refer to **Newton Commonwealth Foundation**. The FOUNDATION will be represented on the project by **Chairman, Mr. Steven Meyer** or his representative.

3. The word **"Chairman**" shall herein refer to the **Foundation Chairman, Mr. Steven Meyer.**

4. The word "ARCHITECT" or "GOLF COURSE ARCHITECT" shall herein apply to ***The Northeast Golf Company*** represented by **Mr. Robert McNeil, ASGCA**.

5. The words "IRRIGATION CONSULTANT" shall herein refer to ***Irrigation Consulting, Inc.*** hired by the FOUNDATION represented by **Mr. Brian Vinchesi**.

7. The words "AGRONOMIC CONSULTANT shall herein refer to the individual/firm hired by the FOUNDATION to handle said agronomic consultation tasks. (may be Golf Course Superintendent)

8. The words "CONSTRUCTION MANAGER" shall herein refer to Sterling Golf Management represented on the project by Mr. David Stowe and Mr. Kevin Osgood.

9. The words "DIRECTOR OF MAINTENANCE" or "GOLF COURSE SUPERINTENDENT" shall herein refer to employed and titled Golf Course Superintendent at Newton Commonwealth, **Mr. David Stowe, CGCS.**

10. The word "CONTRACTOR" shall mean GOLF COURSE CONTRACTOR and all SUBCONTRACTORS.

11. Additional technical specification or changes to the golf course construction plans will be established through addendum **prior to bid**.

12. **All Change Orders and/or Change Directives shall be submitted by the CONTRACTOR and prior to execution approved and signed by The FOUNDATION REPRESENTATIVE, The GOLF COURSE ARCHITECT, PROJECT ENGINEER AND/OR IRRIGATION CONSULTANT (depending upon the nature of the CO/CD).**

PROJECT PREPARATION

SCOPE OF WORK

The Scope of Work at Newton Commonwealth shall include:

1. **Holes 3 and 4 Tee Complex Construction (as shown on Construction Plans)**

    - **Silt Fence Installation**
    - **Tree and Stump Removals**
    - **General Removal of Specified Existing Materials**
    - **Stripping and disposal of all deleterious material**
    - **Import, placement of and shaping of fill material**
    - **Tee Construction (installation of fill as needed)**
    - **Cart Path Removals**
    - **Cart Path Construction**
    - **Cart Path Sawcut and Reparations**
    - **Curbing Installation**
    - **Drainage Installation**
    - **Irrigation Installation**
    - **Finishing of all areas**
    - **Fertilization of all areas to be planted**
    - **Grassing of all disturbed areas**
    - **Reparation of all damaged and traffic areas**

Bid Alternates: See Construction Bid Form included

GENERAL GUIDELINES

The start and completion dates as outlined in the Notice to Bidders section must be followed. Failure to adhere to these dates for reasons other than weather, natural occurrence, or written extension from the FOUNDATION shall result in the enforcement of a $500.00 per day penalty until completion.

In order to maintain a responsible relationship with the surrounding community, work hours will be from 7AM to 5PM when it is foreseen that noise will penetrate these communities in a negative manner unless otherwise approved by the FOUNDATION. In all cases local work hour ordinances shall apply.

The CONTRACTOR shall contain his work to holes within the outlined scope of work on holes 3 and 4 only to limit damage to the course and to limit the interruption to daily play, **unless granted permission by the FOUNDATION and the GOLF COURSE ARCHITECT.**

The CONTRACTOR shall present the FOUNDATION with a certificate of insurance before commencing work and will be bonded for the entire amount of the agreed amount of the contract.

The CONTRACTOR will supply the FOUNDATION, CONSTRUCTION MANAGER and the GOLF COURSE ARCHITECT with a weekly construction progress report to be used for work completion approvals and payment approvals.

Work proposed shall not commence until which time all necessary permits have been secured by the FOUNDATION and a Notice to Proceed has been issued by the FOUNDATION.

MOBILIZATION

It is the responsibility of the CONTRACTOR to furnish materials, labor, equipment, etc., required to begin all operations necessary for the development of the golf course improvements in accordance with the contract drawings, and specifications within terms of the contract.

The FOUNDATION is responsible for any permits necessary to do the work. The CONTRACTOR shall display such records for review by any jurisdictional agencies and shall maintain copies of such permits on record.

The CONTRACTOR is responsible for the purchase and storage of all construction materials including, but not limited to; (sand, rootzone, topsoil, drainage pipe, stone, irrigation materials and equipment, specified seed and sod, and all other necessary materials to complete the enhancement project). Storage locations shall be identified by the FOUNDATION and all materials must be stabilized per Soil Erosion and Sediment Control Plans developed by the PROJECT ENGINEER.

The CONTRACTOR shall provide a Construction Trailer at the work site for the purposes of project administration, communications and storage.

The CONTRACTOR shall provide portable lavatory facilities for employee use. The CONTRACTOR shall be responsible for weekly service of said facility.

The CONTRACTOR is responsible for all equipment and labor necessary to efficiently complete the work; the FOUNDATION'S equipment and manpower are not to be used for the completion of the work unless agreed upon between the CONTRACTOR and the FOUNDATION.

The FOUNDATION shall provide the CONTRACTOR with an area to store materials and equipment throughout the duration of the work period. This area is to be restored to its original condition by the CONTRACTOR upon completion of the work.

The FOUNDATION shall not be responsible in any way for the equipment stored on the FOUNDATION'S property; this will be the responsibility of the CONTRACTOR.

The CONTRACTOR shall provide a dumpster of ample size on the work site as needed for the disposal of all project related refuse to be serviced in a **timely manner** throughout the course of the project.

ACCESS

The project may be accessed via the main entry road to the club. All access points including those listed, must be reviewed and approved by the FOUNDATION prior to use to ensure any necessary coordination and scheduling.

STAGING

Material/equipment staging shall be at specified areas within the golf course as defined in the field by the FOUNDATION, GOLF COURSE ARCHITECT and CONSTRUCTION MANAGER. These areas include specified section(s) within the main parking lot and the maintenance facility. In all instances, the FOUNDATION shall review and approve material and equipment staging areas. CONTRACTOR shall coordinate with the FOUNDATION to assign a section of the main parking lot for such use. Travelways to and from the staging area shall be closely managed by the CONTRACTOR and returned to original condition upon completion of the project or use of such areas.

LAYOUT AND STAKING

The CONTRACTOR shall establish all significant layout points from the Golf Course Construction Plans supplied by the GOLF COURSE ARCHITECT. The GOLF COURSE ARCHITECT shall verify all points prior to construction in the field with the CONTRACTOR and CONSTRUCTION MANAGER. These points shall define and direct the placement of all features and shall be maintained by the CONTRACTOR throughout construction.

Work Areas are defined in the construction drawings by the GOLF COURSE ARCHITECT and are to be established in the field by the CONTRACTOR. These points are to be marked with 2X2X4 LATHE STAKES or approved equivalent, appropriately labeled with semi-permanent marker and flagged with surveyor's ribbon. The maintenance of these points is the responsibility of the CONTRACTOR and is to be maintained throughout construction. The GOLF COURSE ARCHITECT reserves the right to adjust the staking in the field as the project proceeds.

All feature delineations shall be made by the GOLF COURSE ARCHITECT in the field with semi-permanent spray paint. All critical elevations shall be determined in the field by the GOLF COURSE ARCHITECT and/or the CONSTRUCTION MANAGER working in concert with the CONTRACTOR. In all cases field markings shall be made permanent by the CONTRACTOR utilizing pin flags, lathe or equivalent materials.

The CONTRACTOR shall furnish all stakes, equipment, tools, materials and labor as may be required in layout of any part of the work from established control points.

The CONTRACTOR will supply appropriate Pin Flags, Marking Paints, Paint Gun, Ribbon, and Lathe Stakes which must be immediately available on site <u>at all times</u> for use by the GOLF COURSE ARCHITECT.

The CONTRACTOR will have on site at all times an appropriate grade surveying instrument and capable operator for use in field verification situations. It is the intent of the GOLF COURSE ARCHITECT to field verify any and all grades considered of importance to the success of the project. Areas verified will include tee and green surfaces and subgrades and constructed swales and basins.

Benchmark elevations may be available throughout the property. If these elevations are not available the CONTRACTOR shall work off of surveyed spot elevations as shown on the original topographical survey included within the construction plans and develop the feature work relative to these elevations. The CONTACTOR, GOLF COURSE ARCHITECT and CONSTRUCTION MANAGER will work closely to ensure the elevations are consistent with the intent of the design.

SOIL EROSION SEDIMENT CONTROL

Erosion control measures shall be practiced and maintained as called for in Golf Course Construction Plans and in the Soil Erosion and Sediment Control Plans and Specifications provided by the **PROJECT ENGINEER**. ***(See Attached Plans and Specifications)*** and approved by Newton Conservation Commission and all necessary jurisdictions.

Description.

This work shall consist of the construction and maintenance of various temporary soil erosion and sediment control measures, including relocating them as required for stage construction.

MATERIALS

Materials.

Haybales shall be bound with wire or baling twine. The twine shall be an ultraviolet light stabilized polypropylene that has a knot strength of 170 pounds and straight break strength of 300 pounds.

Wood stakes, posts, and boards shall be solid, reasonably knot-free lumber conforming to the nominal size specified on the Plans.

Temporary riprap stones shall consist of a designated median stone (d_{50}) size in the range of 6 to 9 inches.

Coarse aggregate shall consist of broken stone or washed gravel.

Embankment shall be Zone 3.

Pipe for temporary slope drains shall be a minimum size of 8 inches. End sections and elbows shall be of the same material as the pipe to which they are to be joined.

CONSTRUCTION

Construction Requirements.

The Contractor shall incorporate all permanent pollution control features into the Project at the earliest practicable time. Temporary soil erosion and sediment control measures shall be coordinated with the permanent pollution control features and with the construction of pavement, drainage facilities such as pipes, culverts, headwalls, channels, or ditches to the maximum extent practical to ensure economical, effective, and continuous erosion control throughout the life of the Contract.

Before all grubbing operations, soil erosion and control measures shall be installed. When unstabilized areas caused by site development, grading, or other earth disturbing activities exist beyond 14 calendar days, the areas disturbed shall be seeded and mulched. These requirements pertain to perimeter controls, berms, dams, swales, ditches, and slopes. Upon completion of the grading or construction, disturbed areas shall be permanently stabilized within seven calendar days.

When excavation or embankment construction reaches the finished subgrade, those areas on which paving is to be placed are exempt from the above stabilization requirements. Roadways and haul roads actively being used for daily conveyance of equipment, as well as areas between temporary berms, except median areas, are also exempt.

Streams shall be protected from soil erosion and sediment. Streams being diverted shall be protected through the use of silt fences. Temporary diversion channels shall be lined with geotextile fabric and temporary riprap.

The turbid discharge from dewatering construction activities shall be contained in a dewatering basin to control sediment and provide filtration of water before it being released into adjacent streams or other watercourses.

Soil being stockpiled shall be placed in well-drained areas no closer than 50 feet from streams, wetlands, floodplains, and other watercourses, unless otherwise directed. The stockpiles shall be seeded and mulched. Adequate temporary soil erosion and sediment controls shall be provided around the stockpiles until such time as vegetation is established on the piles.

Temporary soil erosion and sediment control measures shall be used to correct conditions that develop during construction that were not foreseen during design, and may include construction work outside of the Project limits.

In the event that temporary soil erosion and sediment control measures are required due to the Contractor's failure, for any reason, to install or maintain soil erosion and sediment controls, either as part of the work or as directed, such work shall be performed by the Contractor at no cost to the State.

If the Contractor is not in compliance with soil erosion and sediment control provisions, corrective actions shall be taken immediately. The Engineer may suspend the work, wholly or in part, until such time as the Contractor is fully in compliance. All corrective and remedial work required to bring the Contractor into compliance shall be performed at no cost to the State.

Temporary soil erosion and sediment control measures shall be removed when necessary to allow for the installation of permanent control features, or as permanent controls become functional. Before Acceptance, all items used for temporary soil erosion and sediment control shall be removed unless the Engineer directs that specific items remain in place.

Soil Erosion and Sediment Control Manager.

The Contractor shall assign to the Project a supervisory-level employee to serve in the capacity of soil erosion and sediment control manager. This employee shall be thoroughly experienced in all aspects of soil erosion and sediment control and construction. The Contractor shall submit the name and applicable experience of this employee to the Engineer for approval at least fourteen calendar days before commencing any work on the Project. Any change in the appointment of the soil erosion and sediment control manager during the term of the Contract shall require a written submission and approval.

The soil erosion and sediment control manager shall have the primary responsibility and sufficient authority for implementing the approved soil erosion and sediment control schedules and methods of operations. The soil erosion and sediment control manager shall coordinate its operations with the Engineer, and shall oversee and supervise all aspects of soil erosion and sediment control on the Project. This includes both on-site and off-site activities, including those involving subcontractors. The soil erosion and sediment control manager will be required to attend all soil erosion and sediment control meetings held during the life of the Project.

Limitations of Operations.

Clearing and grubbing operations shall be so scheduled and performed that grading and mulching, seeding, and other permanent pollution control features can follow immediately thereafter according to the approved progress schedule. Should seasonal limitations make such coordination unrealistic, additional temporary soil erosion and sediment control measures shall be required between successive construction stages, as directed.

The amount of surface area of erodible earth material exposed at one time by clearing and grubbing, excavation, borrow, or fill operations, without stabilization, shall not exceed 17 acres for clearing and grubbing operations, or 17 acres for grading operations without prior approval. The Engineer may increase or decrease these amounts commensurate with the Contractor's capability and progress in keeping the construction current with the approved progress schedule.

Soil Erosion and Sediment Control Measures.

A. Silt Fence. Silt fence shall consist of geotextile fabric at least 3 feet wide to provide for a 2-foot high fence after 1 foot of fabric is buried in the existing soil. Heavy duty silt fence shall consist of geotextile fabric at least 4 feet wide to provide for a 3-foot high fence after 1 foot of fabric is buried in the existing soil. Sections of fabric shall be overlapped a minimum of 1 foot - 6 inches then joined in such a manner that, when in operation, the sections work effectively as a continuous fence. Fence posts shall be installed at a slight angle toward the anticipated runoff source.

Heavy-duty silt fence shall include a welded wire mesh backing for the geotextile fabric. This welded steel wire mesh shall be galvanized and contain 6-inch openings. The geotextile fabric shall be secured to the welded wire mesh.

B. Haybale Check Dams With Temporary Stone Outlets. Haybales shall be embedded 4 inches into the ground and anchored in place with two wood stakes per bale. The temporary stone outlets, consisting of riprap stones conforming to the requirements for temporary riprap, shall be placed in the center of each flow line. Coarse aggregate size No. 2 shall be placed immediately upgrade of each stone outlet.

The riprap stones and coarse aggregate shall be placed on geotextile fabric that shall be buried in the soil. When sections of geotextile fabric need to be joined, the sections shall be overlapped a minimum of 1 foot - 6 inches in the direction of flow.

C. Temporary Stone Check Dams. Temporary stone check dams shall be constructed in ditches to reduce flow velocity.

The check dams shall consist of riprap stones conforming to the requirements for temporary riprap. Coarse aggregate size No. 2 shall be placed immediately upgrade of each check dam.

The riprap stones and coarse aggregate shall be placed on geotextile fabric that shall be buried in the soil. When sections of geotextile fabric need to be joined, the sections shall be overlapped a minimum of 1 foot - 6 inches in the direction of flow.

D. Temporary Slope Drains. Temporary slope drains shall be installed on embankment slopes to intercept surface runoff where concentrated runoff will cause excessive erosion of the slope.
The drainpipe shall be staked to the slope or secured with riprap stones to prevent movement or displacement. A flared end section shall be attached at each end of the pipe, and elbows shall be installed as required to conform with the existing changes in slopes.

A temporary earth berm and haybales shall be constructed at the top of slope in the vicinity of the slope drain to intercept runoff and channel the runoff to the slope drain. The haybales shall be embedded 4 inches into the ground and anchored in place with two wood stakes per bale.
Riprap stones, conforming to the requirements for temporary riprap, shall be placed loosely at both ends of the pipe to prevent scour. The riprap stones shall be placed on geotextile fabric that, at the top of slope, shall be draped over the earth berm. When sections of geotextile fabric need to be joined, the sections shall be overlapped a minimum of 1 foot - 6 inches in the direction of flow.

E. Inlet Filters. Inlet filters, consisting of welded wire mesh and geotextile fabric shall be installed to control sedimentation at new inlet drainage structures. Inlet filters of geotextile fabric alone shall be installed to control sedimentation at existing inlet drainage structures.

For new inlet structures, welded steel wire mesh shall be molded around the inlet frames and grates, or inlet structures, and extend a minimum of 6 inches down each side of the new structures. Geotextile fabric shall then be secured to the welded wire mesh. Coarse aggregate size No. 8 shall be placed against the inlet structures to hold the inlet filter in place.

For existing inlet structures, geotextile fabric shall be placed under the grates, over the curb pieces, and extend a minimum of 6 inches beyond. Coarse aggregate size No. 8 shall be placed behind each curb piece and on the geotextile fabric to secure the fabric in place.

Openings required in new inlet walls to provide for temporary drainage shall be covered with welded wire mesh, geotextile fabric, and coarse aggregate size No. 8.

Inlet filters shall be removed the same day as scheduled paving operations.

F. Inlet Protection, Haybale Barrier. Inlet protection, haybale barrier shall consist of haybales that completely encircle inlet drainage structures. The perimeter length of the haybale barrier shall be at least four times the perimeter length of the inlet structure. Haybales shall not encroach into the traveled way.

Haybales placed around inlet structures within earthen areas shall be embedded 4 inches into the ground and anchored in place with two wood stakes per bale. Haybales placed around inlet structures within pavement areas shall only be placed on top of the pavement and tied together to prevent movement. Haybales placed on pavement areas shall not be anchored in place.

G. Inlet Sediment Traps. Inlet sediment traps, consisting of silt fence and temporary stone inlets, shall be constructed to control sedimentation at existing and new inlet drainage structures.

The silt fence shall consist of geotextile fabric whose width shall be at least 3 feet to provide for a 2-feet high fence after 1 foot of fabric is buried in the existing soil. Sections of fabric shall be overlapped a minimum of 1 foot - 6 inches then joined in such a manner that, when in operation, the sections work effectively as a continuous fence. The silt fence shall

be installed around the drainage structure and meet into the stone inlets. Fence posts shall be installed at a slight angle toward the anticipated flow.

The temporary stone inlets, consisting of coarse aggregate size No. 2, shall be placed in each flow line upgrade of the inlet structure. The coarse aggregate shall be placed on geotextile fabric that shall be buried in the soil. When sections of geotextile fabric need to be joined, the sections shall be overlapped a minimum of 1 foot - 6 inches in the direction of flow.

H. Floating Turbidity Barriers. Floating turbidity barriers, consisting of 10 mil thick polyethylene plastic sheets suspended from floats, shall be installed in streams or other watercourses to intercept silt outletting from drainage pipes, or caused by construction operations within the waterways.

Barriers shall be located 50 feet from the point of discharge of drainage pipes, or from construction operations affecting the waterways. The barriers shall extend across the entire waterway or radially from the shore line.

I. Temporary Stone Outlet Sediment Traps. Temporary stone outlet sediment traps, consisting of temporary basins and riprap spillways, shall be constructed within existing, new, and temporary ditches.

The spillways shall consist of riprap stones conforming to the requirements for temporary riprap. Coarse aggregate size No. 2 shall be placed immediately upgrade of the spillways.

The riprap stones and coarse aggregate shall be placed on geotextile fabric that shall be buried in the soil. When sections of geotextile fabric need to be joined, the sections shall be overlapped a minimum of 1 foot – 6 inches in the direction of flow.

J. Dewatering Basin. Dewatering basins shall be constructed within the ROW of the Project and outside of any undisturbed wetland area, and areas not affected by roadway construction, as a dewatering containment measure to control sediment and provide filtration of water.

The Contractor shall size the dewatering basins to entirely contain the expected discharge of water and sediment based on the flow rate of the pump to be used and the volume of area to be dewatered. The material to be used to form the basin is at the discretion of the Contractor. The outfall of the basin shall be such that the water exiting the basin does not cause erosion to or scour the area onto which the water is being discharged.

Dust and Dirt Control Measures.

A. Dust Control. The Contractor shall employ construction methods and means that keep flying dust to the minimum. The Contractor shall also sprinkle water on the Project and on roads, streets, and other areas immediately adjacent to the Project limits, wherever pedestrian or vehicular traffic, or buildings that are occupied or in use are affected by such dust caused by the Contractor's hauling or other construction operations.

B. Dirt Control. The Contractor shall provide for prompt removal from existing roadways of all dirt and other materials that have been spilled, washed, tracked, or otherwise deposited thereon by its hauling and other operations whenever the accumulation is sufficient to cause the formation of mud, interfere with drainage, damage pavements, or create a traffic hazard.

To minimize tracking of dirt and other materials onto existing roadways, a construction driveway shall be constructed at locations where vehicles exit a work site.

The construction driveway shall consist of a layer of broken stone which shall be a minimum 4 inches thick and 100 feet long where practical, and of sufficient width to serve the intended purpose. The broken stone shall be 2½ inches nominal size, the driveway shall be maintained by top dressing with additional stone, as directed, and shall be removed when no longer required.

Soil Erosion and Sediment Control Maintenance.

Soil erosion and sediment control measures shall be maintained during the construction season as well as during winter months and other times when the Project is closed down, throughout the life of the Project, to ensure that the measures function properly. Soil erosion and sediment controls shall be immediately inspected after each rain, and any corrective work shall immediately be

performed to return the soil erosion and sediment control measures to proper function, as directed. Riprap stones, coarse aggregate, silt fence, or haybales damaged due to washouts or siltation shall be replaced as directed.

Sediment traps and basins shall be cleaned out when they are 50 percent filled. Silt fences, stone outlet structures, dams, and haybales shall have sediment removed when the sediment reaches 50 percent of the height of the soil erosion and sediment control measure. Sediment removed shall be disposed of as directed on site.

The Contractor shall maintain the floating turbidity barrier by cleaning it periodically and keeping it free from debris to ensure its proper function throughout the duration of the Project, at no additional cost to the State.

COMPENSATION

Method of Measurement.

Silt fence of the various types will be measured by the linear foot.
Haybale check dams with temporary stone outlets will be measured by the linear foot.
Temporary stone check dams will be measured by the cubic yard.
Temporary slope drains will be measured by the linear foot.
Inlet filters will be measured by the unit.
Inlet protection, haybale barriers will be measured by the unit. A unit shall consist of the total number of haybales necessary to encircle the inlet structure.
Inlet sediment traps will be measured by the unit.
Floating turbidity barriers will be measured by the linear foot.
Temporary stone outlet sediment traps of the various sizes will be measured by the unit.
Dewatering basins will be measured by the unit.
Construction driveway will be measured by the ton.
Roadway excavation, temporary erosion control, required for the construction of temporary berms and ditches, and required for maintenance clean-out of the various soil erosion and sediment controls will be measured by the cubic yard.
Embankment, temporary erosion control, required for the construction of temporary berms and ditches, will be measured by the cubic yard.
Temporary riprap for ditches and channels will be measured by the cubic yard. Geotextile for ditches and channels will be measured by the square yard.
Haybales required as directed and for maintenance replacement of bales for the various soil erosion and sediment controls will be measured by the unit.

Basis of Payment.

Payment will be made under:

Pay Item	*Pay Unit*
SILT FENCE	LINEAR FOOT
HEAVY DUTY SILT FENCE	I & WD *
STOCKPILE TEMPORARY SOIL STABILIZATION	UNIT
TREE PROTECTION	PER TREE
CONSTRUCTION DRIVEWAY	UNIT
HAYBALES	UNIT
DRAINAGE OUTFALL WITH RIP RAP	I & WD *
MAINTENANCE OF SE&SC DEVICES	LUMP SUM

* IF AND WHERE DIRECTED

Payment for silt fence or heavy duty silt fence, for maintenance replacement for the various soil erosion and sediment controls, will be made under their respective “Silt Fence” Pay Item.
Payment for top dressing of construction driveways with additional stone will be made under the Pay Item “Construction Driveway.”

Separate payment will not be made for dust control. All costs thereof shall be included in the prices bid for the various Pay Items scheduled in the Proposal.

LIMITS OF DISTURBANCE

SCOPE

The CONTRACTOR shall remove all sod, sand, brush and stockpile all topsoil within the limits of disturbance as delineated on the Golf Course Construction Plans. The CONTRACTOR shall remove fences, shrubs, other vegetation, rubbish, and any perishables or objectionable matter, in the areas to be disturbed. All debris shall be disposed of in a legal manner. Other obstructions shall be removed to the limits of the disturbed area of work as shown on the Construction Plans.

LIMITS OF DISTURBANCE

It is the intent of the GOLF COURSE ARCHITECT to disturb as little of the existing conditions as possible. The limits of disturbance is defined in the Golf Course Construction Plans, and must be clearly marked in the field by the CONTRACTOR with the CONSTRUCTION MANAGER, as well as approved by the GOLF COURSE ARCHITECT before general clearing and/or stripping for feature work can begin.

The CONTRACTOR may not excessively disturb areas beyond the limits of disturbance in any way. It should be understood that tie-in work necessary beyond the limits of disturbance is acceptable, but does not entitle the CONTRACTOR to any additional compensation. If circumstances occur where the CONTRACTOR feels excessive disturbance is necessary approval by the GOLF COURSE ARCHITECT and the FOUNDATION must be obtained. In the event the CONTRACTOR does not receive approval, a fine of $2.00 per square foot of disturbed area will be assessed to the CONTRACTOR, and revegetation or restoration of the impacted area to its original state will be necessary, at the CONTRACTOR'S expense. This restoration will coincide with the seeding and sodding of the improved areas.

The intent of the fine and required restoration or revegetation is to inform all involved in the project that the areas that are to remain undisturbed stay that way. Our desire is to ensure that the golf course blends perfectly with the existing terrain of the site. All vehicular movement around the golf course shall be along the existing cart paths only and along approved traffic areas as delineated in the field by the GOLF COURSE SUPERINTENDENT. Access to work areas within fairway areas shall be over ½ to ¾ inch plywood or utilizing wide tire equipment so as to minimize damage to the existing turf. **Any damage caused by vehicles or construction equipment traveling in all areas of the golf course will be restored to the original condition, at the CONTRACTOR'S expense, including access roads.** Areas to be repaired, if damaged, include turf areas, cart paths, curbing, or any other areas on the golf course.

Before the commencement of each phase, the CONTRACTOR, CONSTRUCTION MANAGER, GOLF COURSE SUPERINTENDENT and GOLF COURSE ARCHITECT will review entry, exits and traffic areas for each hole. Under no circumstance will the CONTRACTOR be allowed to choose a path to accomplish his work.

REMOVALS

TREE REMOVAL

SCOPE

The work to be performed under this contract consists of general/selective clearing, trimming, removals and stump removal and grinding of designated trees within the work areas at Hole 1 at Newton Commonwealth Golf Course. An outline of the work to be accomplished is included herein. This bid calls for specific trees to be addressed as well as areas of either general or selective clearing. General clearing will remove all trees, trunks, stumps and roots from the area. Selective clearing will remove the majority of trees 6" in diameter and less and all underbrush, leaving some of the smaller trees to mature over time. The specifics will be determined in the field.

In the event that a specific tree on this list has been removed prior to an award of contract, the Foundation reserves the rights to substitute a tree of similar size for trimming or removal. Should a listed tree fall, the vendor shall be responsible for the removal of said tree.

Item A. Clearing and Grubbing (C&G)

The clearing of trees shall be accomplished in three phases.

The limit of clearing is defined on the Tree Management and/or Construction Plan, and must be clearly flagged in the field by the Contractor, as well as approved by the FOUDATION's authorized representative and GOLF COURSE ARCHITECT before general clearing can begin.

Phase 1 General/Selective Clearing:
General Clearing will include removal of all trees painted and/or flagged including stump removal and grubbing of cleared area (as described below). All trees removed shall be taken off the site for disposal or to the designated storage area and reduced to wood chips and removed from the site or redistributed as directed by the FOUNDATION.

Local tree removal ordinance shall govern all tree removal on the site.

Selective Clearing will include removal and/or pruning of trees individually marked by the GOLF COURSE ARCHITECT and/or FOUNDATION's authorized representative. This will occur on a hole by hole basis and the Contractor is not to proceed with any tree clearing until which time marking of trees to be saved (or removed) is complete.

After the general clearing is complete, the golf course architect may require additional selective clearing along the sides of the fairways and around greens and tees. This work will require the use of small machines or may be required to be done by manual labor. The material removed has to be hauled away.

Phase 2- Grubbing of Tree Roots and Clearing of Debris:
The CONTRACTOR shall grub all tree roots and debris from general clearing areas leaving the native topsoil for stripping. All leaves, branches, and other debris shall be cleaned up and removed from the site as directed by the FOUNDATION.

Phase 3- Underbrushing:
Where marked on the plans and/or where identified in the field with the FOUNDATION and the FOUNDATION's authorized representative, the Contractor shall underbrush ±30 feet under trees and a minimum of 10' up the trunk line along all hole corridors. This will include small shrubs, saplings, and select trees under 6" in caliper.

This material shall be passed through a chipper and broadcast within the area of clearing unless otherwise directed by the FOUNDATION.

Item B. Trimming of trees (Abbreviated as P-pruning, CP-prune canopy)

Trimming of trees shall consist of the following classes of pruning as developed by the National Arborist Association and described as "Pruning Standards For Shade Trees."

Class II - Standard pruning shall consist of the removal of dead, dying, diseased, decaying, interfering, objectionable, obstructing, and weak branches, as well as selective thinning to lessen wind resistance. The removal of such described branches is to include those on the main trunk, as well as those inside the leaf area.

Class III - Hazard pruning shall consist of the removal of dead, diseased, decayed, and obviously weak branches.

Class IV - Grown reduction pruning shall consist of the reduction of tops, sides, and individual limbs. It involves the removal of a parent limb or dominant leader at the point of attachment of a lateral branch.

With all classes of pruning all cuts shall be made as close to the trunk or parent limb as possible, without cutting into the branch collar or leaving a protruding stub.

Item C. Removal of Trees (R)

The complete removal of trees shall include the removal of stumps and all exposed roots to a minimum depth of 6" below the adjacent existing ground surface, at the direction of the DIRECTOR OF MAINTENANCE, or his authorized representative. The ground surface shall then be leveled with soil and all wood chips from the stump grinding must be removed.

Item D. Stump Removal (SR)

Removal of existing stumps and all exposed roots from trees that were not trimmed or removed as work performed under Item B. Stumps shall be removed to a minimum depth of 6" below the adjacent existing ground surface. The ground surface shall then be leveled with soil and all wood chips from the stump grinding must be removed. Stumping shall be done at the direction of the DIRECTOR OF MAINTENANCE, or his duly authorized representative.

Item E. Clearing Underbrush(U)

Where marked on the plans and/or where identified in the field with the FOUNDATION and the FOUNDATION's authorized representative, the Contractor shall underbrush ±30 feet under trees along hole corridors. This will include small shrubs, saplings, and select trees under 6" in caliper.

This material shall be passed through a chipper and broadcast within the area of clearing unless otherwise directed by the FOUNDATION. Large stumps shall be removed. Smaller stumps shall be painted with a basal treatment to inhibit growth. Clearing shall be done at the direction of the DIRECTOR OF MAINTENANCE, or his duly authorized representative. The areas of concern are included in the list of work to be accomplished.

All such work shall include the pick up and disposal of all branches, limbs, logs, stump grindings and other debris at the conclusion of each workday. The FOUNDATION reserves the right to claim all wood chips which shall be void of all limbs and unchipped pieces of wood.

The CONTRACTOR must remove all dead wood from designated areas including wood that exists on the ground at the onset of the project.

The CONTRACTOR shall carefully protect against any damage to existing vegetation and other site features. He shall be liable for any damage to such vegetation, site features, and other property (including turf areas). If damage occurs property shall be replaced or restored to the satisfaction of the DIRECTOR OF MAINTENANCE or his designee without cost to the FOUNDATION.

Vehicle restrictions may exist. The DIRECTOR OF MAINTENANCE and the GOLF COURSE ARCHITECT will map a route for vehicular traffic. This route will avoid tee, greens, bunkers, fairways and irrigation pipes. The route must be strictly adhered to in order to minimize damage to course features.

Equipment and Crew

A crew shall include both staff and equipment. As a minimum, the following number of staff will be required to report with the said equipment in good working condition to the designated work site with each assignment:

Item A, B and C: Clearing, Tree Trimming and Removal

One (1) foreperson-crew leader, one (1) journeyman climber, one (1) ground staff, one (1) tree truck with aerial lift bucket having a minimum reach of not less than 50', automatic unloader and power tools, brush chipper, two (2) power saws with a minimum 20 inch cutting bars, one (1) stump removing machine, and any other incidental tools required to complete this type work including warning signs and safety devices as may be required and necessary.

Item D: Stump Removal Only:

One (1) foreperson - crew leader, one (1) ground staff, one (1) stump removal machine, and any other incidental tools required to complete this work, including warning signs and safety devices as may be required and necessary.

Item E: Clearing Underbrush:

One (1) foreperson - crew leader, one (1) ground staff, and any other incidental tools required to complete this work, including warning signs and safety devices as may be required and necessary.

The CONTRACTOR is to check in with the DIRECTOR OF MAINTENANCE at the golf course before beginning work. If the CONTRACTOR will not appear at the assigned location on any given day notification must be made to the FOUNDATION's designated representative, which would be the DIRECTOR OF MAINTENANCE unless otherwise stated.

Inspection and Commencement of Work

Equipment will be inspected by the DIRECTOR OF MAINTENANCE or his designated representative prior to awarding of contracts.

Inspection will take place between the hours of 7:00 am and 3:30 p.m. during the FOUNDATION's regular working days. All equipment offered for inspection shall be located within the state of Massachusetts and in one place at the time of inspection. The bidder shall give the DIRECTOR OF MAINTENANCE 72 hours notice as to the location of the equipment and when the inspection can be made.

After award of contract, supervision and inspection on the site will be assigned to the DIRECTOR OF MAINTENANCE or such other individuals as may hereafter be designated. All inquires and correspondence shall be directed to the DIRECTOR OF MAINTENANCE:

Mr. David Stow
Director of Maintenance, Sterling Golf Management
Newton Commonwealth Golf Course
212 Kenrick Street
Newton, MA 02458
(617) 789-4631
email: newtonmaint@aol.com

Unless otherwise directed, the CONTRACTOR shall forward all communications to the DIRECTOR OF MAINTENANCE and the GOLF COURSE ARCHITECT. Where communications are directed to persons other than the DIRECTOR OF MAINTENANCE, a clear copy shall be sent to the DIRECTOR OF MAINTENANCE.

The CONTRACTOR shall cooperate with the utility owners concerned and shall notify them not less than 1 day in advance, except immediately in advance during emergency operations, of the time he proposes to perform any work that will endanger or affect their facilities.

Project Schedule

Time Frame
All tree work is to be completed within project timeframe. **10/15/16 through 12/15/16 or as directed by Golf Course Architect and dictated by weather and ground conditions.**

Normal Work Schedule:

The FOUNDATION or her duly authorized representative will notify the contractor upon award of the contract. The FOUNDATION will then designate the work site and assignment to the CONTRACTOR who must then commence work operations at the designated site no later than the third business day thereafter. The CONTRACTOR will be required to conduct his operations, unless otherwise approved by the FOUNDATION, on consecutive business days, full eight (8) hours shifts, until the designated work assignments are completed.

The quantity of crew hours for tree trimming and tree removal for which payment will be made will be the quantity of hours a full crew, as defined elsewhere herein, is actually working at the designated work site in accordance with the provisions of this proposal.

Working Hours:

Normal working hours are from 7:00 am to 3:30 p.m., with a one-half (1/2) hour lunch break, Monday through Friday, exclusive of official FOUNDATION holidays. All other hours the contractor is required to work in addition to FOUNDATION holiday time will be considered as overtime work hours. The following FOUNDATION holidays will be observed:

Labor Day Thanksgiving Day Christmas New Year's Day

The CONTRACTOR's time will begin when he reports to the DIRECTOR OF MAINTENANCE, or designee, at the work site fully equipped, as required in these specifications, to commence work. On a normal schedule the contractor is expected to be at the designated work site from 7:00 am until 3:30 p.m..

Inclement Weather

In inclement weather, it will be the opinion of the DIRECTOR OF MAINTENANCE whether the required operations of the contractors would be hazardous to the general public or to the property of the FOUNDATION. If the DIRECTOR OF MAINTENANCE determines conditions are such that it is hazardous and not expected to improve for some time, he/she shall suspend operations for that day. The CONTRACTOR will be compensated as follows:

a. If the contractor reports to the designated work site but does not commence work operations, he will be credited with a minimum of two (2) crew hours.

b. If the contractor commences work operations but it is necessary to suspend work prior to 12:00 noon, he will be credited with a minimum of four (4) of crew hours.

c. If the contractor commences work operations but it is necessary to suspend work after 12:00 noon, he will be credited with the actual number of crew hours worked up to the time work is suspended.

Suspension of Work:

The FOUNDATION and the DIRECTOR OF MAINTENANCE reserve the right to stop, and/or suspend all work immediately if services provided are not performed to the satisfaction of the using agencies.

SPECIAL REQUIREMENTS (as needed see highlighted area below)

Certified Tree Expert

All bidders must submit documentation stating the bidder is a Certified Tree Expert. The Certified Tree Expert must be present during all work.

References

All bidders must submit, on a separate sheet, three references for work similar in scope to the project described herein.

Time To Complete

The contract shall cover the period specified on the price sheet of the specifications. Contracts shall begin with the date of award and run for **60 working days not to exceed December 15, 2016**.

Penalty

In the event the service is not complete within 60 working days a penalty of $500 per day or as otherwise defined by the FOUNDATION will be imposed.

Procedural Requirements and Amendments:

Should the contractor find at any time that existing conditions make modification in requirements desirable, he shall promptly report such matters to the FOUNDATION Purchasing Agent for consideration and decision.

There may be a meeting with the successful CONTRACTOR and the FOUNDATION immediately following the award of the contract. At this time the FOUNDATION will discuss the sequence of service.

By submitting a proposal, the bidder agrees that he is satisfied, from his own investigation of the conditions to be met, with the explanation of the scope of work outlined herein. The bidder agrees that he will not make any claim for, or have right to cancellation or relief because of any misunderstanding or lack of information.

Contact Person

The CONTRACTOR will supply the FOUNDATION with the name of the designated contact for this project and a phone number that is attended during regular business hours.

Quantity and Payment (ONLY IF TREE BID IS SEPARATE-as subcontractor invoice submission shall be within General Contractor protocol, 25th of the month for previous month's work)

The CONTRACTOR may submit invoices bi-weekly, upon satisfactory completion of said invoice. Final determination and confirmation of amount of work completed shall be the responsibility of the DIRECTOR OF MAINTENANCE and the GOLF COURSE ARCHITECT.

The quantity of crew hours for tree trimming and tree removal for which payment will be made will be the quantity of hours a full crew, as defined elsewhere herein, is actually working at the designated work site in accordance with the provisions of this proposal.

All invoices shall include the following information:

Vendor Information:
- Vendor Name
- Contract Number
- Contact Person
- Contact Phone Number

Site:
Superintendent:
Date of service provided:

Type of Service:

A. Clearing	# of hours_____	per hour price_____	Extension_____
B. Tree Trimming	# of hours_____	per hour price_____	Extension_____
C. Tree Removal	# of hours_____	per hour price_____	Extension_____
D. Stump Removal	# of hours_____	per hour price_____	Extension_____
E. Clearing Underbrush	# of hours_____	per hour price_____	Extension_____
Totals			

Send invoice to:

Mr. David Stow

Director of Maintenance, Sterling Golf Management
Newton Commonwealth Golf Course
212 Kenrick Street
Newton, MA 02458

The FOUNDATION may be contracting with a Tree Management Company for Tree Removal and Pruning Services. This will be under separate contract and will be executed prior to and/or in concert with the improvements to the golf course. The GOLF COURSE CONTRACTOR may be responsible for coordinating tree clearing with the schedule of improvements on the golf course if the tree clearing is not complete when construction on the golf course begins.

All trees removed by the CONTRACTOR shall be taken off the site for disposal or to the designated storage area and reduced to wood chips and removed from the site as directed by the FOUNDATION. All logs shall be no longer than 24" long. All stumps shall be removed and tub grinded or hauled off site. All leaves, branches, and other debris shall be cleaned up and removed from the site as directed by the FOUNDATION.

Local tree removal ordinance shall govern all tree removal on the site.

REFUSE/CONSTRUCTION MATERIALS

The CONTRACTOR is responsible for disposal of their own refuse, i.e. old pallets, paper materials, packaging material, lumber, and other construction related material. This material must be removed from the site by truck or project dumpster and disposed of at the CONTRACTOR'S expense.

ASPHALT and CONCRETE

The CONTRACTOR is responsible for the disposal of all asphalt or concrete removed during construction. This material must be removed from the site by truck or dumpster and disposed of at the CONTRACTOR'S expense. Existing asphalt may be milled and millings reused as subbase for new cart path work.

EXCESS FILL

Any excess fill shall be hauled to the designated storage area as directed by the FOUNDATION. At the expense of the CONTRACTOR (included within bid).

GRAVEL CART PATH

The material of existing gravel cart pathways to be paved with asphalt may be reused as subbase if said material meets the construction specifications outlined within (CART PATH CONSTRUCTION). Millings from existing cart path removal may be used for subbase material. All gravel shall be removed from areas to be finished graded and grassed.

SPLIT RAIL FENCE

The CONTRACTOR is responsible for the disposal of all split rail fence removed during construction. This material must be removed from the site by truck or dumpster and disposed of at the CONTRACTOR'S expense. The CONTRACTOR may be required to stockpile removed split rail fencing at the Maintenance Area, at the request of the FOUNDATION, for future use.

RAILROAD TIMBERS/TIMBER FENCING/KEYSTONE BLOCK

The CONTRACTOR is responsible for the disposal of all railroad timber, timber fencing, keystone block and other related wall or fencing material to be removed from the site. The material must be removed from the site by truck or dumpster and disposed of at the CONTRACTOR'S expense. The CONTRACTOR may be required to stockpile removed material at the Maintenance Area or staging area, at the request of the FOUNDATION, for future use.

UNFORESEEN MATERIALS

The CONTRACTOR is responsible for disposal of unforeseen/buried materials including logs, concrete, debris, garbage, fencing, asphalt, wood and bricks within the work areas. This material must be removed from the site by truck or project dumpster and disposed of at the CONTRACTOR'S expense. **There will be no additional compensation for the removal of such material when found within excavation areas.**

TOPSOIL MATERIAL MANAGEMENT

SCOPE

The work covered under this section consists of furnishing all labor, equipment, materials, and performing all operations in connection with the stripping, stockpiling, screening and replacing of topsoil material within the work areas or designated topsoil stockpile area on site or importing from on or off-site locations, and hauling of fill material from designated borrow areas on the site.

MATERIALS

Topsoil Materials - Topsoil material shall be a good quality sandy loam soil, free from lumps, sod, stones or debris of any kind, satisfactory to the GOLF COURSE ARCHITECT and CONSTRUCTION MANAGER, and shall be the best available on the site. If quality material is not available within work limits or on-site, see (Shortage) section below. Topsoil material shall contain no stone larger than one-half (1/2) of an inch in diameter. **Screening of the site topsoil material will be necessary to eliminate rock and debris inconsistent with the desired specification. The following criteria for screened topsoil material must be met:**

U.S. Standard Sieve	Percent (%) Retained
Size #4 (4.00mm)	0.0
Size #7 (2.83mm)	No More Than 20%
Size #8 (1.00mm)	No More Than 20%
Size #140(0.11mm)	No More Than 85%
Silt - 0.002-05mm	Less Than 8%
Clay	Less Than 2%

STRIPPING AND STOCKPILING

Overall, the grading intent is to disturb a minimum of area. It is also the intent of the design to utilize existing material from within work areas where possible. In all work areas, the CONTRACTOR must salvage any topsoil material available stockpile and screen such material, accomplish the grading, and respread the topsoil material at a depth of six (6) inches. Any topsoil material that must be stockpiled or stored while work is conducted shall be done so in an area that does not impair drainage or construction of the golf feature and is in accordance with the local Soil Conservation requirements. Should additional fill material or topsoil material be needed, the GOLF COURSE ARCHITECT and FOUNDATION will determine a borrow location on site. **Hauling from any designated borrow area on the site to the work areas is included within the itemized bids for each feature.**

SHORTAGE

It is the CONTRACTOR'S responsibility to salvage all of the fill and topsoil material available within the work limits. It is also the responsibility of the CONTRACTOR to develop accurate calculations of all required materials needed to meet any shortage of fill or topsoil material. The FOUNDATION and/or the CONTRACTOR will investigate all reasonable sources of on-site and off-site material. The CONTRACTOR shall include within the bid the quantity of import and unit cost necessary to complete the project. This includes all fill material and topsoil. All off-site topsoil and fill material shall meet the specification standards set forth within this and the Shaping and Feature Construction Sections of this document. All available borrow locations has been identified in the field by the FOUNDATION. Borrow pits may be generated in out of play areas to serve as disposal areas for rock overburden.

Costs associated with shaping and feature construction shall be inclusive of all material handling {excavation, rough earthwork, hauling/delivery (*on site*)}. This includes work beyond the Limits of Disturbance as shown on the plans and marked in the field deemed necessary to execute proper tie-ins to existing grades. The CONTRACTOR shall not be entitled to additional compensation for this tie-in work unless determined as extensive following review by the FOUNDATION and GOLF COURSE ARCHITECT prior to the commencement of said work.

ROUGH EARTHWORK

SCOPE

The work covered under this section consists of furnishing all labor, equipment and materials, and performing all operations in connection with the manipulation of soil or dirt throughout the site and rough grading as required by the plans and following specifications.

BEFORE ANY GRADING IS TO OCCUR ON EACH AND EVERY HOLE, THE GOLF COURSE ARCHITECT, THE FOUNDATION, THE CONSTRUCTION MANAGER AND THE CONTRACTOR MUST REVIEW THE WORK THAT IS TO BE DONE. This should be done on a hole by hole basis based on the schedule of execution. The intent is to further insure that the CONTRACTOR understands the design intent prior to the commencement of work. By reviewing the work prior, it may be possible to lessen the grading in some areas. The real advantage is that the GOLF COURSE ARCHITECT, the FOUNDATION and CONTRACTOR are working together to properly build each feature. The result should be a well-coordinated effort.

MATERIALS

Fill - Fill, when and as required, shall be a good quality fill material, free from debris of any kind, shall be of a type suitable for the purpose intended, satisfactory to the GOLF COURSE ARCHITECT, and shall be the best available on the site. A possible borrow location has been indicated on the Plans between holes 5 and 9.

EXCAVATION

Excavation areas are to be completed in accordance with the Construction Plans supplied by the GOLF COURSE ARCHITECT. The material excavated shall be used as fill on the golf course if suitable for the purpose, and satisfactory to the GOLF COURSE ARCHITECT. If the material is determined to be unsuitable as fill, the CONTRACTOR shall regrade the test area to its original condition or an acceptable condition that is properly tied into surrounding grade and seed.

Reparation of all excavation (borrow areas) not within the limits of disturbance shall be completed by the CONTRACTOR and included within the bid proposal. All excavation areas shall be regraded to tie into existing surrounds, finished and seeded to match the preexcavation conditions as closely as possible.

All excavations shall be executed in accordance with project engineering plans and specifications and Soil Erosion and Sediment Control Plans provided by Project Engineering and shall not commence until all necessary permits have been secured by the FOUNDATION.

GRADING

Grading consists of the mechanical manipulation of existing land or soil to achieve the limits of cut, fill, and required elevations as designated in the Construction Plans or in the field by the GOLF COURSE ARCHITECT.

Fills shall be free of debris and properly compacted. Fill shall be placed in six (6) inch lifts and compacted with equipment approved by the GOLF COURSE ARCHITECT. The top twelve-(12) inches of the fill shall contain no stones more than two (2) inches in diameter. The soil shall be treated and worked so as to be damp but not wet. Fill in areas under roads or paved areas shall be compacted to not less than ninety-five percent (95%) maximum density at optimum moisture as determined by ASTM D-698. Borrow areas, if required, in addition to proposed cuts shown on the plans, shall be approved by the GOLF COURSE ARCHITECT.

It is the intent of the FOUNDATION and GOLF COURSE ARCHITECT that all work areas be well-drained, playable, and fit comfortably within their surroundings. The CONTRACTOR shall maintain adequate drainage of surface water during construction from all areas on the site, **whether included in his work or not.**

IMBALANCE IN DESIGNATED CUT AND FILLS

Should the grading plan reflect an imbalance in cut and fills, the GOLF COURSE ARCHITECT shall indicate a "borrow area" to overcome a shortage of cut and/or a "disposal area" to accommodate any excess of fill. It is the intent to have no import or export from the site. **Hauling and movement of material from and within the property is included within the bid proposal and shall not result in additional cost incurred by the FOUNDATION. (see Excavation above/ see Limits of Disturbance above)**

GOLF COURSE ARCHITECT'S LICENSE

All work areas affecting the appearance and function of the course may be lowered or raised upon the request of the GOLF COURSE ARCHITECT. The meaning of the above sentence is that after feature has been rough graded, it may have to be rebuilt to satisfy the design objectives of the GOLF COURSE ARCHITECT. Material cut in such adjustments will be placed as directed by the GOLF COURSE ARCHITECT. No additional costs shall be incurred by the FOUNDATION for such adjustments, when given on a timely basis, following the initial grading. Prior to acceptance of any feature by the GOLF COURSE ARCHITECT, the feature must adhere to the GOLF COURSE ARCHITECT'S design intent. Each and every phase of work must be approved prior to the next phase of work beginning.

DENSITY REQUIREMENTS

Compact each layer of embankment and fill material to the following percentages of maximum density at or slightly above optimum moisture content as determined by ASTM-D698 (Standard Proctor Density).

Golf Course Corridors (except as modified herein)	= 80 percent
Lakes, Ponds and Dams	= 95 percent

ADJUSTMENT FOR AN ERROR IN CONTOURING

In figuring depths of cuts or fills, contours shown in the drawings shall be assumed to be correct unless the CONTRACTOR notifies the GOLF COURSE ARCHITECT to the contrary before any cut, fill or excavation is made. The CONTRACTOR shall make contour adjustment as may be required and approved by the GOLF COURSE ARCHITECT to correct an error at no additional cost.

All plans have been developed based on the topographical mapping provided by the FOUNDATION. Aerial mapping can be referenced for all existing feature locations and tree lines. Existing irrigation mapping is available from the Irrigation Consultant and/or the FOUNDATION water elevations and spot elevations. There was no confirmation as to the accuracy of the mapping.

UTILITIES

The CONTRACTOR shall seal all utility lines or tile lines broken in the course of excavation and not required for service thereafter. If there are tile lines, which need to be extended, the CONTRACTOR shall get the approval of the FOUNDATION and GOLF COURSE ARCHITECT to proceed.

All existing utilities will be clearly marked through a coordinated effort between the FOUNDATION and the CONTRACTOR. It will be the responsibility of the CONTRACTOR to avoid damaging marked utilities. All costs associated to damaged utility lines as a result of construction activities by the CONTRACTOR shall be paid by the CONTRACTOR. The CONTRACTOR must obtain a Dig Safe Number prior to any excavation within a potential utility area.

ROCK EXCAVATION

SCOPE

The work covered in this section consists of furnishing all labor, equipment and materials, for the identification, excavation, blasting, and removal of all rock encountered while executing the Golf Course Construction Plans. Rock may be defined as ledge rock to be removed through blasting or loose boulders as defined below.

ROCK ESTIMATE

Should rock be encountered, the total amount of rock in place to be excavated shall be determined as herein specified. Adjustment for the excavation of such rock will be made as provided by the Contract Documents.

ROCK CLASSIFCATION

Rock is defined as stone or hard rock in original ledge, that cannot be broken and removed or dislodged by a D-8 Caterpillar tractor, or equivalent, equipped with a hydraulically operated power ripper (or CAT 235 hydraulic backhoe or equivalent), without the use of explosives or drills, or boulders over ½ cubic yard in volume. This classification does not include materials such as loose rock, concrete or other materials that can be removed by means other than drilling and blasting or drilling and wedging, but which, for reasons of economy in excavating, the Contractor prefers to remove by drilling and blasting.

ROCK SURVEY

Before excavating any material for which the Contractor may claim classification as rock excavation, such material shall be uncovered and exposed so as to permit accurate measurements and the Engineer shall be notified before proceeding further. No payment will be allowed for rock or cemented materials, which have not been uncovered and measured as specified, nor for boulders, which have not been separated from earthwork for proper measurements. The material uncovered shall then be cross-sectioned and measured and the quantities within the rock payment lines hereinafter specified shall be computed under the supervision of the Engineer.

> **Recording-** Complete current records of quantities of rock excavated, methods of excavation used and extent of labor and equipment involved shall be submitted by the Contractor for approval. Such records shall also include plot plans at suitable scale showing all elevations and other measurements of rock excavation and the location and measurements or computed volumes of boulders encountered. The Contractor shall furnish all labor and equipment necessary to make these records. No payment will be considered for rock, which has been removed without obtaining the specified data.

ROCK EXCAVATION IN UTILITY TRENCHES

Blasting and excavation of rock in utility trenches outside of general excavation areas, without first uncovering rock, will not be permitted. Elevations and measurements of rock surfaces shall be taken as hereinbefore specified from rock profiles appearing in trenches after excavation. Rough or sloping rock shall be brought to level beds in steps for foundations as required. In pipe spaces or other unfinished areas, low spots shall be filled and leveled off with earth, sand or other acceptable material.

ROCK BLASTING

Blasting shall be done carefully, and such work shall be entirely at the Contractor's own responsibility for any resultant damage. The transportation, handling, storage and the use of explosives shall be performed in accordance with the provisions of local, state and federal laws and authorities having jurisdiction. Perform blasting so as not to disturb rock at or below finished grade levels.

Blasting will be permitted subject to the following restrictions:

1. CONTRACTOR is responsible for any resultant damage due to blasting operations.

2. All blasting operations and use of explosives shall conform to the requirements of federal and state laws, local ordinances, and regulations relative to rock blasting and the storage and use of explosives.

3. The use of explosives shall be limited to labor skilled and licensed in its use.

4. No larger quantity of explosives shall be stored at the site at any time than will be required for one day's work. Unused explosives shall be removed from the site at the end of each day.

5. Maintain a daily log for each blast detonated on each working day. The log shall include the date, exact time of firing, number of holes, depth of holes, total poundage used, the distribution of instantaneous and delay caps, poundage's per delay, and location and spacing of drill holes.

6. All blasting operations shall be conducted so that the resulting vibrations either adjacent to or on the lowest level of the nearest structure do not exceed a maximum particle velocity of 2 in./sec. When specific site conditions preclude the ability to achieve this criterion. The CONTRACTOR must propose alternative criteria and excavation methods and demonstrate that such procedures will not cause damage to the structures.
7. The CONTRACTOR is responsible for preventing rock throw and for protecting the work. Use woven wire cable mats, or other means, over all blast holes.

8. Blasting procedures shall be subject to the review of the local authorities having jurisdiction.

ROCK HAMMERING/CHIPPING

Rock Hammering and/or chipping shall consist of removal of rock through mechanical means utilizing a rock hammer attachment to an excavator or other necessary implements to allow for rock to be broken to a point where it can be removed with standard equipment.

Excavation beyond the limits of disturbance specified herein shall be considered unauthorized excavation. Do not excavate rock beyond the limits specified in "Rock Payment Lines" below.

ROCK PAYMENT LINE

Payment will be made for actual quantity of rock removed but no payment will be allowed for rock excavated beyond the limits shown on the plans or marked in the field (penalty shall apply if out of delineated work area) and/or the following limits:
In pipe trenches and utility trenches, 6 inches below invert elevation of pipe and 2 feet wider than the inside diameter of the pipe but not less than 3 feet minimum trench width.

6 inches below invert of building drainage pipe when subgrade is in soil or rock.

6 inches beyond sides of building drainage pipe.

All rock shall be stockpiled at an agreed upon location within the work site and measured in the field by the DIRECTOR OF MAINTENANCE to determine quantities to be paid for.

ROCK DISPOSAL

All rock encountered within the work area shall be disposed of in one of two ways:

1. **Hauled to stockpile or bury location designated by the FOUNDATION and DIRECTOR OF MAINTENANCE.**
2. **Removed from the site via on and off site trucking. This includes gathering the rock in the work areas, loading designated trucks, delivering rock to stockpile area, loading off-site trucks.**

Rock included in this section can be defined as boulders or rubble greater than 12" in diameter.

In the case where walls are called for on the site, rock shall be gathered from on site and delivered to location of walls. The itemized bids for walls shall include delivery of all rock to the location of the proposed wall.

Deleterious Material
Rock Debris not acceptable as fill or finish material will be gathered and disposed of on site as directed by FOUNDATION in dump area. (also see Irrigation Specifications for Deleterious Material)

SHAPING AND FEATURE CONSTRUCTION

SCOPE

The work covered in this section consists of furnishing all labor, equipment and materials, for the shaping and construction of the Golf Course Features including greens, tees, bunkers, cart paths, water features, grass hollows, mounds and swales. The location, size, and elevations of these features are found in the Construction Plans. Development of all golf features including, but not limited to those listed above, shall be inclusive within the shaping costs provided by the Contractor.

SHAPING

Shaping consists of the artistic manipulation of rough graded or existing land or soil to obtain the features designated by the GOLF COURSE ARCHITECT in the plans, and as directed in the field.

The intent of shaping is to match closely the location and intent of design of the features (i.e., tees, mounds, swales) as shown on the plans. The GOLF COURSE ARCHITECT reserves the right, on a timely basis, to refine these features in the field as they affect the appearance, playability and aesthetic quality of the golf course. The maximum grading slope ratio in mowable turf areas will be 3:1, unless otherwise directed in the field by the GOLF COURSE ARCHITECT.

MATERIALS (surrounds of tees and bunkers)

Topsoil Material - Topsoil/seedbed material used at and adjacent to the features mentioned in this section shall be the best available from the site and may need to be screened, if inconsistent with the desired specifications as established in the Topsoil/Plating Material Management Section.

Fill Material - Shall be a good quality fill taken from the site and approved by the GOLF COURSE ARCHITECT.

TEES

Intent

The GOLF COURSE ARCHITECT and the CONTRACTOR will work to achieve the intended laser leveled traditional box tee styling with 4' corner radius. It is the attention to this detail that will bring aesthetic consistency to the golf course.

Construction

Tees shall be constructed to the size and elevation shown on the Construction Plans or as sized and positioned in the field by the GOLF COURSE ARCHITECT. Tees must be properly aligned towards the landing area. Tee elevations are outlined on the construction plans in each corner. Tee surface shall be sloped at 0.75% to 1% as directed by the GOLF COURSE ARCHITECT or DIRECTOR OF MAINTENANCE in the field at time of construction. Where the irrigation system passes through the tees, this system shall be installed prior to placing of the sand layer.
Tee surfaces shall consist of a six (6) inch 70-20-10 rootzone layer. Sand shall meet USGA quality specifications and shall be approved by the GOLF COURSE ARCHITECT and FOUNDATION. All topsoil if used shall be screened through a 3/8" sieve to remove all rock and debris. The tee surface shall be **laser leveled** as described in FINISHING.

The GOLF COURSE ARCHITECT reserves the right to alter the construction of any tee or surrounding feature on a timely basis when, in his opinion, such alteration is necessary to improve the design of these features. Any such alteration shall not entitle the CONTRACTOR to extra compensation. The maximum grading slope ratio in mowable turf areas will be 3:1.

The CONTRACTOR shall be careful to preserve the natural lines and tie-ins as shown on the plans or as directed by the GOLF COURSE ARCHITECT. The artistic and aesthetic shaping of mounds, support and slopes shall be directed by the GOLF COURSE ARCHITECT. It is to be expected that most of this work will be accomplished by machine and then hand-worked as directed by the GOLF COURSE ARCHITECT.

Mixing of the Tee Rootzone- Mixing shall be done at the sand pit facility. The tee mixture shall be blended utilizing a mechanical blending process. Loader mixing is not allowed as a substitute. **Organic clumping and incomplete blending will not be accepted.**

Placing of the Tee Mixture- The surface of this layer shall be brought to elevation as shown on the Golf Course Construction Plans. The mixture shall be properly moistened and compacted while placing in the tee area. Sufficient consideration shall be given to settling of this layer, being sure that the ultimate grades shall be those specified on the Construction Plans or subsequently altered in the field by the GOLF COURSE ARCHITECT. The tee mixture throughout the project shall match in every aspect the recommendations of the GOLF COURSE ARCHITECT.

Tee Materials

Tee Rootzone Mixture- Mixture shall consist of 70% approved sand, 20% approved topsoil, 10% percent organic material. The tee rootzone mix is to be tested by Hummel Labs and approved by the GOLF COURSE ARCHITECT. All test results must be delivered to David Stow, the Golf Course Superintendent and ***The Northeast Golf Company*** prior to construction.

Sand - Sand shall be clean, washed sand, tested by Hummel Labs and approved by the GOLF COURSE ARCHITECT. Samples of available sands are to be submitted to Hummel Labs within 10 days after award of the contract. The CONTRACTOR will be responsible for the cost of testing of each sample until a sample is approved. The proposed tee rootzone mixture shall fall within the following general specifications:

1. Silt content less than or equal to 5%.
2. Clay content less than or equal to 3%.
3. Gravel content less than or equal to 3% for (2mm) Less than or equal to 10% combined with (V. Coarse 1mm)
4. Greater than or equal to 60% of all particles in the .5 to .25 mm range
5. Fine content less than or equal to 20%
6. Very fine (.10mm) and Very Fine (.05mm) less than or equal to 5%

Bulk Density (g/cc)-	1.2-1.6
Saturated Conductivity (in/hr)-	6-24
Total Porosity (%)-	35-55
Aeration Porosity (%)-	15-30
Capillary Porosity (%)-	15-25
%OM-	0.7-3.0

Topsoil – 3/8 sieve screening of the site topsoil material will be necessary to eliminate rock and debris inconsistent with the desired specification. The following criteria for screened topsoil must be met:

U.S. Standard Sieve	Percent (%) Retained
Size #4 (4.00mm)	0.0
Size #7 (2.83mm)	No More Than 20%
Size #8 (1.00mm)	No More Than 20%
Size #140 (0.11mm)	No More Than 85%
Silt - 0.002-05mm	Less Than 8%
Clay	Less Than 2%

Organic Materials - Shall be a USGA recommended organic material approved for use by a pre-qualified testing lab and the GOLF COURSE ARCHITECT, including Dakota Reed Sedge, Sphagnum, and Irish Peat.

FILLING TO REQUIRED SUBGRADE LEVELS

Where more than one (1) foot of subsoil fill is required, the fill shall be accomplished in six (6) inch layers and compacted as specified in ROUGH GRADING.

FINISH GRADE

After the tee mixture has been allowed to settle, the CONTRACTOR shall fine grade the tee to the grades specified. Identical rootzone material shall be supplied to add or subtract as may be necessary to bring the surface to the specified grade and contour. It is necessary that the CONTRACTOR keep the tee mixture wet and firm, as a settled surface. The CONTRACTOR is expected, when planting, to have six (6) inches of rootzone material under the tee surface. (+.5 inch acceptable, minus unacceptable)

DRAINAGE

SCOPE

The work covered under this section includes all labor, material, tools and equipment necessary to furnish and install the golf course drainage systems as specified and shown on the drawings for the golf course. The CONTRACTOR shall verify that the pipe has proper fall before beginning the backfill operation.

MATERIALS

Reinforced Concrete Pipe (if used) - Shall meet ASTM Specification C-76-41, latest Revisions and all requirements specified by the PROJECT ENGINEER.

Corrugated Metal Pipe (if used) - Shall be ARMCO corrugated metal pipe or equal, conforming to AASHO Specifications M-136 and all requirements specified by the PROJECT ENGINEER.

Frames, Covers and Grating - Frames, covers and gratings shall be of a type and duty as shown on the plans. Iron casting shall conform to standard specifications for gray iron casting, ASTM Specifications A-48-41, Class 20. All castings shall be true to pattern, in form and dimensions, free from faults, sponginess, cracks, blow holes and other defects affecting their strength. Bearing surfaces between cast iron frames, covers and grates shall be machined, fitted together, and match-marked to prevent rocking. As specified by PROJECT ENGINEER.

Drain Basins - Shall be eight (8), twelve (12) or eighteen (18) inch ***Nyloplast®*** drain basins or approved equivalent with size specified on plans. **(12" riser in stone may be used in place of Nyloplast basins- as specified)**

Inline Drains - Shall be eight (8) inch or twelve (12) inch ***Nyloplast®*** inline drains or approved equivalent.

Drain Pipe - Shall be ***ADS N-12®, Hancor Hi-Q®*** or any other approved high density polyethylene, corrugated, smooth interior wall pipe. ***Hancor Hi-Q®*** or approved equivalent shall be used at all drain basins where lateral pipe is tying into basin. All connections shall be concrete sealed.

Perforated Drain Pipe - Shall be ***ADS N-12®*** or ***Hancor Hi-Q®*** high density polyethylene, perforated, corrugated, smooth interior wall pipe or approved equivalent. No lesser quality pipe will be considered.

Bunker Dry Well/Sump - Shall be constructed according to the detail specifications prepared by the GOLF COURSE ARCHITECT.

Concrete - All concrete shall have a minimum compressive strength of 3000 psi at 28 days. Reinforcing steel shall be grade 40 or 60 as may be required by the drawings.

Gravel - Shall be washed and screened pea gravel or crushed stone approximately one-quarter (1/4) inch in diameter. Gravel must be approved by the GOLF COURSE ARCHITECT upon recommendation from a pre-qualified testing lab.

TRENCHING

Bunkers - Trenches will be cut into the subgrade so that the perforated polyethylene pipe will slope uniformly. The minimum acceptable slope shall be 0.5%. The trench shall be eight (8) inches wide to contain a four (4) inch pipe over two (2) inches of acceptable gravel. Bunker trenches shall be cut approximately ten (10) feet apart.

Other Areas - Trenches for drain lines shall be excavated to a width equal to the outside diameter of the pipe plus eight (8) inches, and to a depth as required to maintain grade eighteen (18) inches to top of pipe. All trenches shall maintain a minimum slope of 0.5% and shall be free of any debris.

INSTALLATION OF GOLF COURSE DRAINAGE PIPE

Bunkers - Pipe shall be installed in open trenches, true to line and grade over two (2) inches of gravel. A gray tracer wire shall be attached to all drain pipe along the length of the run for future detection. All perforated polyethylene pipe shall be backfilled with washed gravel to the top of the trench with additional gravel heaped on top to allow for settling. Perforated pipe will extend to the bunker or green's edge where it will be picked up by non-perforated pipe to extend to an outfall or point of discharge into an adjacent drainage system. Flushouts are required as shown on the Golf Course Construction Plans. All flushouts shall consist of a vent cap placed on the end for air flow and clean out. The exact location of all runs of pipe, flushouts and color of tracer wire is to be accurately shown on the CONTRACTOR'S As-Built drawings.

Other Areas - Pipe shall be installed in open trenches true to line and grade. A gray tracer wire shall be attached to all drainage pipe along the length of the run for future detection. Trenches shall be backfilled with fill material in six (6) inch layers and each layer thoroughly tamped to the top of the ground for pipe laid under paving. Pipe outside the limits of paving shall be tamped in nine (9) inch layers to the top of the ground. The top six (6) inches of backfill material shall consist of topsoil equivalent to the surrounding area with no stones or debris directly around pipe. Any solid or perforated pipe 12" or larger shall be bedded in 6" of gravel.

No back filling shall be commenced before the GOLF COURSE ARCHITECT or FOUNDATION'S REPRESENTATIVE has inspected and approved the line. The CONTRACTOR acknowledges that, at his sole cost and expense, he shall correct and repair all settlement of ditch backfill including but not limited to, all filling, leveling, regrassing with sod or seed as may be required, as directed by the GOLF COURSE ARCHITECT or FOUNDATION'S REPRESENTATIVE.

ALL TRENCHES WILL BE WATER-SETTLED AND COMPACTED TO AVOID LATER SETTLEMENT.

Major storm drainage system requirements shall be designed by the PROJECT ENGINEER and will be specified within construction documentation under separate cover. The FOUNDATION has the discretion to bid any and all major drainage improvements as separate. All storm drainage installations including but not limited to, culvert extensions, culvert replacements and tie ins to existing RCP or CMP pipe shall be bedded and encased in ½ -3/4" pea gravel with a minimum of 6" of topsoil on the top layer and finish grade.

INSTALLATION OF INLINE DRAINS AND DRAIN BASINS

Nyloplast® drain inlets or approved equivalent, shall be constructed and installed in accordance with the plans prepared by the GOLF COURSE ARCHITECT. **All inline drains and drain basins must be set level and true to line and grade**.

All drain pipes shall be brought to a level 2-3 feet above final grade and capped during period following installation and prior to installation of basins or inlets. The pipe shall be capped to avoid any debris clogging the installed system and painted with highly visible spray paint (orange or equivalent) to maintain visibility during ongoing construction.

The CONTRACTOR shall be responsible for keeping all drain basins clean and clear of debris siltation and standing water until which time these basins are turned over to the DIRECTOR OF MAINTENANCE.

INSTALLATION OF FRAMES, COVERS, AND GRATINGS

Frames, covers, and gratings shall be placed as shown on the plans and true to surface grades. Where castings are to be installed at curbs and paved areas, they shall be aligned properly with same.

INSTALLATION OF POLYETHYLENE PIPE

Polyethylene pipe shall be installed in open trenches, true to line and grade. The excavation of trenches shall not advance more than three hundred (300) feet ahead of the complete pipe work except upon the permission of the GOLF COURSE ARCHITECT. After the pipe is laid and inspected by the GOLF COURSE ARCHITECT or FOUNDATION'S REPRESENTATIVE, the CONTRACTOR shall immediately refill the trench to the surface of the ground, making sure that the upper six (6) inches consists of approved topsoil, a full six (6) inches of depth after compaction. Perforated polyethylene pipe shall be encased in ¼" pea gravel.

INSTALLATION OF SUMPS/DRY WELLS

All sumps/dry wells shall be constructed as illustrated in the Construction Details and where indicated on the Drainage Plans.

INSTALLATION OF STONE CATCHMENT BASINS

Stone catchment basins shall be located at the outfall point of all stormwater piping on the golf course. The basins shall be shaped in a concave manner so as to receive and dissipate water flow. Basins shall be lined with 6" clean rip rap stone material, bedded into the floor of the basin at a minimum of 2 courses and typically 12x10 with 3:1 slopes. Golf Course drainage shall outfall into dissipation pads a minimum of 4x4 lined with filter fabric and 1 coarse of 6" clean rip rap stone.

MAINTENANCE

All drainage installations shall be flushed and maintained in good working order previous to final acceptance. Erosion control practices shall be applied at all inline drains and drain basins to reduce sediment build up throughout the construction and grow in period including the installation of silt fencing and haybales.

GRADES

Grades for the drainage pipes and basins must be strictly adhered to in accordance with the drawings, or as may otherwise directed by the GOLF COURSE ARCHITECT.

AS-BUILT

The CONTRACTOR shall provide the FOUNDATION and GOLF COURSE ARCHITECT accurate scaled progress drawings of all installed drain lines. Locations shall be accurate with reference to existing site features and drainage drawings. These working As-Builts shall be submitted to the GOLF COURSE ARCHITECT and CONSTRUCTION MANAGER on a hole-by-hole basis, as described in Special Provisions. Also, a final As-Built plan in acceptable GPS format denoting all drainage system locations shall be supplied by the CONTRACTOR to the FOUNDATION and GOLF COURSE ARCHITECT. The final payment will be withheld until the final As-Builts are received. The As-Builts must be concise and well-documented, completed by Massachusetts Licensed Land Surveyor, showing all components, including but not limited to:

1. Name of individual preparing the drawing, and the date.

2. All tee, green, bunker and cart path locations and dimensions to be documented on As-Built drawings.

3. Drainage of bunkers, tees, and greens (if piped) will be scale 1" = 30'. Drain inlets, catch basins and junction boxes will be scale 1" = 100'. Locations will be referenced from two (2) fixed, permanent points from flushout to tie-ins. Length of distances can be rounded to the closest foot, with notations of pipe size being used.

4. Irrigation As-Builts shall be delivered to the FOUNDATION in accordance with the As-Built requirements outlined within the Irrigation Specifications Attached.

5. Specific notes detailing unique installation information.

The following features on the golf course shall be included in a comprehensive As-built developed in acceptable GPS format:

1. **Golf Course Features (tees, fairway lines, greens, bunkers, cart paths)**
2. **Golf Course Drainage**
3. **Golf Course Irrigation (location and database set up in accordance with software requirements or as directed by Irrigation Consultant)**

As-built information shall be set up as an overlay on the existing topographical and vegetation surveys.
These As-Builts will be kept clean, dry and safe from damage at all times. It will be kept up to date and available for reference at each planning meeting. **The As-Builts and their supporting evidence will be used to process payment requests**. **No payment will be authorized without submission of the proper As-Built documentation.**

CART PATH CONSTRUCTION

SCOPE

The work covered in this section includes furnishing all materials, labor, and equipment to shape cart path routing, roll path subbase, install aggregate gravel base, roll aggregate base material, install asphalt cart path surface at specified width, and cleaning, regrading and topsoiling along edges after such installation.

This work also includes milling of existing asphalt to a 1" minus product for reuse as or supplement to 4" base material as noted on the Construction Plans.

INSTALLATION

Cart path alignment shall generally follow the course as shown on the Construction Plans. Centerlines and grades of the cart paths shall be approved by the GOLF COURSE ARCHITECT and PROJECT ENGINEER and are subject to change in the field by the PROJECT ENGINEER and GOLF COURSE ARCHITECT prior to pouring of asphalt layer.

Unless otherwise directed by the GOLF COURSE ARCHITECT, cart paths shall be kept out of play and shall be installed at the base of the slopes of all golf course features. Cart path shaping shall include associated mounds and depressions which will screen the view of the path from tees and landing areas where possible.

GOLF COURSE ARCHITECT reserves the right to widen the path from 8-10' as needed at specific points on the routing including tees, greens, landing areas or maintenance access areas.

MATERIALS (asphalt)

Three (3) Inch Thick Asphalt Cart Path - Upon completion of routing approval by the GOLF COURSE ARCHITECT and cart path grading, the CONTRACTOR shall construct an asphalt cart path eight (8) feet wide to ten (10) feet wide at areas specified. In the installation of the asphalt cart path there will be areas where the GOLF COURSE ARCHITECT will widen the paths for turn outs. Cart path shall be 10' wide at all tees and greens where noted.

The completed asphalt cart path shall consist of a three (3) inches asphalt wearing course spread (1/2" nominal maximum aggregate size). Underneath the asphalt layers is a **mechanically compacted** four (4) inch aggregate gravel base at a width of nine (9) feet. The aggregate gravel base shall consist of three-eighths (3/8) inch gravel, graded so that the finished asphalt surface will blend into the surrounding grades. The completed path shall also contain a smooth rolled surface, free of all "bird baths" or low points, and is to be approved by the GOLF COURSE ARCHITECT and the FOUNDATION. In all instances, the slope of the cart path

should match the existing grade of the surrounding ground. Topsoil shall be backfilled to the edge of the cart path and prepared for seed as specified in Grassing. Any areas found to be defective shall be replaced at no additional cost to FOUNDATION. The CONTRACTOR shall be responsible to blend back to existing turf on either side of the cart path or as directed in the field by the GOLF COURSE ARCHITECT.

Asphalt Cart Path with Four (4) Inch Asphalt Curbing – Curbing will be added to the cart path where indicated on the plans. The curbing shall consist of a four (4) inch monolithically poured asphalt curb set on a bituminous tack coat placed on top of the asphalt wearing course. Where curbing is present, the cart path will be eight (8) feet wide plus the four (4) inch width of the curb.

MATERIALS (aggregate)

Four (4) Inch Thick Aggregate Cart Path - Upon completion of routing approval by the GOLF COURSE ARCHITECT and cart path grading, the CONTRACTOR shall construct an aggregate cart path eight (8) feet wide. In the installation of the asphalt cart path there will be areas where the GOLF COURSE ARCHITECT will widen the paths for turn outs.

The completed aggregate cart path shall consist of a four (4) inches of **mechanically compacted** ½" to ¾" inch road mix over a mechanically compacted subgrade at a width of eight (8) feet. The completed path shall also contain a smooth

rolled surface, free of all “bird baths” or low points, and is to be approved by the GOLF COURSE ARCHITECT and the FOUNDATION. In all instances, the slope of the cart path should match the existing grade of the surrounding ground. Topsoil shall be backfilled to the edge of the cart path and prepared for seed as specified in Grassing. Any areas found to be defective shall be replaced at no additional cost to FOUNDATION. The CONTRACTOR shall be responsible to blend back to existing turf on either side of the cart path or as directed in the field by the GOLF COURSE ARCHITECT.

FINISHING

SCOPE

Work under this section shall consist of furnishing all materials, labor, and equipment for the cleaning and finish grading of tees, greens, bunkers, fairways, rough areas so as to produce a proper planting bed for seed or sod. Work shall also consist of finish grading so as to countersink sod at grass depressions, drain inlets, and around bunkers and greens; adjustment of soil pH, and fertilization of all golf course areas. CONTRACTOR shall purchase all fertilization material according to specifications established by the DIRECTOR OF MAINTENANCE.

Testing of all construction materials and native soil conditions shall be completed prior to the start of construction and or delivery of the product to the site. All test results shall be communicated to the GOLF COURSE ARCHITECT and FOUNDATION.

MATERIALS

Fertilizer – The DIRECTOR OF MAINTENANCE shall determine all fertilizer types, application rates and equipment. Generally the fertilizer shall be a complete commercial fertilizer of high quality grade. It shall be free flowing with uniform particle sizes and suitable for turf grass applications. The nitrogen source shall be either a methylene urea or polymer encapsulated urea base. The fertilizer shall be delivered to the site in bags or other convenient containers with labeled proof of conforming to applicable state fertilizer laws with the name, trademark and warranty of the producer. Fertilizer rates and specifications will be set according to the soil analysis on a hole-by-hole basis and shall be supplied upon completion of the soil analysis.

Sulphur or Lime - Based on soil tests, if the soil ph level needs to be adjusted, then either sulphur or lime shall be used. The CONTRACTOR shall submit a one cubic foot sample of sulphur to the FOUNDATION'S REPRESENTATIVE for approval, if necessary. Source of the material shall be stated on the container.

FINISH GRADING

All areas graded throughout the course are to be finish graded to achieve a superior planting and playing surface as herein described. All areas to be sodded are to be countersunk in areas of tie-ins for a proper transition. Areas of steep slopes including bunker, tee, and green slopes are to be adequately watered and tamped to insure proper settling and stability of the soil.

When suitable soil has been placed and other site work has been substantially completed, and when notified to proceed by the GOLF COURSE ARCHITECT, the CONTRACTOR shall finish grade all areas to be seeded or sodded under this contract. Finish grading is to consist of the work necessary to bring the surface of the soil to a smooth, true and even surface free of "bird baths and scalp areas," and acceptable to the GOLF COURSE ARCHITECT.

Areas to be finish graded shall be brought to a smooth and harmonious grade by the use of approved mechanical means and handworked as necessary. The surface shall be cleaned of stones or other objects larger than one (1) inch in maximum dimension, and of all roots, brush, wire, grade stakes and other objects. Any undulations or irregularities in the surface resulting from tillage, fertilizing or other operation shall be leveled out by hand before seeding or sodding operations are begun.

PRIOR TO JOB COMPLETION, ANY PERMANENT OR TEMPORARY REMOVAL OF GRADING EQUIPMENT MUST BE REVIEWED BY THE GOLF COURSE ARCHITECT. THE INTENT OF THIS STATEMENT IS TO INSURE THAT PROPER PERSONNEL AND EQUIPMENT REMAIN THROUGH THE COMPLETION OF THE PROJECT, AND THAT THE GOLF COURSE DOES NOT SUFFER DUE TO CHANGES IN PERSONNEL AND EQUIPMENT.

PROCESS

Greens (NOT APPLICABLE) - The seed bed shall be raked and rolled until it is firm, smooth and settled. All bumps, stones and depressions shall be removed. Contours in the collar and the seam areas shall be blended into the contours of the adjacent features so as to appear natural. All surface grades will be surveyed for approval by the GOLF COURSE ARCHITECT and the FOUNDATION prior to planting to ensure adequate depth to a variance of plus one inch is achieved. Green surfaces shall be elevated 1" to allow for proper key in with sod surrounds.

Tees - Shall be first mechanically raked then handworked to smooth any ridges, fill any depressions and bring the surface to elevation and contour shown on the grading plan. All stones, sticks and other rubble shall be raked out of the tee surface and removed from the site. All tee surfaces shall be laser leveled and are subject to refinishing upon the direction of the GOLF COURSE ARCHITECT or the FOUNDATION'S REPRESENTATIVE.

Fairways, Roughs, Green and Tee Surrounds - After topsoil/plating material has been replaced, all the areas of the site to be seeded shall be finish graded as herein specified. All sticks, stones, boulders, tree roots, brush, wire, grade stakes and all other foreign matter shall be disposed of on the site at the direction of the GOLF COURSE ARCHITECT. **Surface drainage shall be maintained and given special attention throughout the FINISHING process**.

Rough Areas - After topsoil/plating material has been replaced, rough areas of the site to be seeded shall be finish graded as herein specified. All sticks, stones, boulders, tree roots, brush, wire, grade stakes and all other foreign matter shall be disposed of on the site at the direction of the GOLF COURSE ARCHITECT.

Prior to pH adjustment, fertilization, and planting, all areas shall be inspected by the CONTRACTOR, GOLF COURSE ARCHITECT and GOLF COURSE SUPERINTENDENT to assure that the planting bed has been properly prepared. The CONTRACTOR, the GOLF COURSE ARCHITECT and the FOUNDATION must be in agreement on the acceptability of the planting bed. Inadequate preparation of the planting bed shall result in the CONTRACTOR'S reworking of the area to the complete satisfaction of the GOLF COURSE ARCHITECT and FOUNDATION.

SOIL PH ADJUSTMENT

Upon completion of the finish grading, if required, fairway and rough areas shall be pH adjusted at the rate dictated by soil test recommendations. Because soil conditions may vary from hole to hole, it is advisable that several soil samples be taken from each fairway and that those samples be mixed and tested on an individual hole basis so that proper rate of soil amendments may be applied. Green putting surfaces and their surrounding areas and tees shall be pH adjusted at the rate dictated by soil test recommendations.

FERTILIZER TYPES, RATES AND METHOD OF APPLICATION

After the finish grading and before seeding, all areas shall be lightly raked (spring-toothed Harrow or equivalent) until the finished grade is smooth, loose and pulverized. The commercial fertilizer as specified by the DIRECTOR OF MAINTENANCE, following proper testing procedures, shall be applied at the recommended rates and be thoroughly incorporated into the top three (3) or four (4) inches of the surface of the seedbed in all areas with the recommended equipment.

FENCING (If requested by the FOUNDATION)

Upon approved completion, the CONTRACTOR shall erect a rebar and nylon rope barricade or other approved fencing material around the perimeter of all reconstructed greens as marked in the field by the FOUNDATION. Once the fence has been erected, the FOUNDATION shall maintain and enforce traffic restrictions. (Fencing material shall become the property of the FOUNDATION upon completion of the project.)

GRASSING

SCOPE

Work under this section shall consist of supplying all labor, equipment and materials and performing all operations in connection with the planting, seeding sodding) of greens, tees, tee surrounds, fairways, roughs, native areas, bunker edges and slopes, grass depressions, and or hydras seeding any other slopes designated by the GOLF COURSE ARCHITECT.

ACCEPTANCE BY THE GOLF COURSE ARCHITECT AND THE FOUNDATION

Prior to grassing, all worked areas are to be accepted as completed by the FOUNDATION. The following items are to be judged as complete by the FOUNDATION and GOLF COURSE ARCHITECT in the determination of an acceptable seedbed:

1. Irrigation system complete and tested/verified as functioning with all heads, valve boxes and quick couplers properly set. All splices must be water resistant, in junction boxes and deemed functional. (*to be deemed complete by Irrigation Consultant and the Director of Maintenance.*)

2. The tees to be floated and smoothed with a light roller to a consistently sloped plane in the proper direction, free of undulations, and low points and tied into the surrounding ground.

3. All bunkers should contain piled bunker sand. Sand to be spread at a water settled depth of six (6) inches on the bottom and four (4) inches on the face following rooting of sod surrounds. Preliminary bunker edges should be marked to allow proper sodding limits.

4. All drainage system components checked and approved as functioning.

5. Throughout the remaining golf areas <u>no undesirable low points, ridges, bumps or "bird baths" should be present. All trenches checked for settling problems</u>.

6. Areas adjacent to the cart path should be compacted and tied-in evenly to the cart path edge creating proper drainage and traffic patterns throughout the golf course.

7. All debris including refuse, rocks, sticks, wire, and weeds should be cleared from all areas to be grassed and disposed of appropriately.

8. All previously existing turf eradicated entirely within the areas to be grassed.

9. Fertilizers applied according to the specified types and rates.

10. All areas of sod limits countersunk for proper grade transitions.

GRASS TYPES, RATES AND METHOD OF INSTALLATION

<u>Tees</u> – Tees shall be sodded or seeded at a rate of 170#/acre with an approved blend of:

Low-Mow Kentucky Bluegrass

(If seeded) **Immediately after seeding the tee surface, the seed shall be dimpled in with a sandpro then watered in to ensure proper seed to soil contact.**

(If seeded) **A ring of sod shall be planted and counter sunk around the edge of the <u>tee surface</u> at a width of one sod strip (minimum 18"), immediately following seeding to prevent erosion.**

<u>Tee Entries, Bunker Surrounds and Primary Roughs</u> – Shall be sodded with an approved blend of:

Turf Type Tall Fescue

Fairways – Shall be sodded with an approved variety of:

Low-Mow Kentucky Bluegrass

Secondary Roughs – Shall be seeded at rate of 170#/acre or appropriate rate with an approved blend of:

100% Low Maintenance Fescue/Ryegrass Mixture (80-20)

THE GOLF COURSE IS TO BE SODDED UPON APPROVAL BY GOLF COURSE ARCHITECT AND MAY BE SEEDED NO EARLIER THAN **See Memorandum at time of contract** AND NO LATER THAN **See Memorandum at time of contract**, SCHEDULE PERMITTING. THE SUBCONTRACTOR WILL BE FINED $1,000. PER DAY FOR ANY AREAS THAT DO NOT MEET THE PLANTING TIME FRAME. AREAS READY FOR SEEDING OR SODDING BEFORE THE PLANTING TIME FRAME CAN BE PLANTED WITH THE APPROVAL OF THE GOLF COURSE ARCHITECT AND THE FOUNDATION, CONTINGENT UPON THE WEATHER AND THE TEMPERATURE AND ANY DOCUMENTED DELAYS IN THE PROJECT.

Sod - Sod is required on all disturbed areas including, green surrounds, bunker perimeters and faces, support mounding, around all tees, minimum 18 inches and around all drain inlets a minimum of 18 inches, along all lake edges, and at any other steep slopes or drainage areas as may be determined by the GOLF COURSE ARCHITECT.

Native Areas - All areas that are disturbed, but not grassed, shall be hydroseeded and mulched with a native mix approved by the GOLF COURSE SUPERINTENDENT and GOLF COURSE ARCHITECT.

HYDROMULCHING

All seeded areas shall be hydromulched with an acceptable blend (heavy gauge) wood fiber (70/30) and tackifier so as to efficiently stabilize all areas through germination. All erosion rivulets shall be repaired by the CONTRACTOR within one day of occurrence according to seeding and mulching specifications. CONTRACTOR shall be responsible for all seeded areas through the germination of the turf (up to 14 days inclusive of weekend days). Rivulet and erosion repair during this time shall be the responsibility of the CONTRACTOR.

SODDING

IT IS THE INTENT THAT FOLLOWING THE SATISFACTORY FINISHING OF ALL THE FEATURES (except greens) AS HEREIN DESCRIBED, ALL DISTURBED AREAS SHALL BE SODDED WITH APPROVED SOD BLENDS AS DESCRIBED ABOVE. IN THE EVENT THAT SODDING IS NOT POSSIBLE, BASED ON THE DIRECTION OF THE FOUNDATION OR GOLF COURSE ARCHITECT, THE FOLLOWING MINIMAL SODDING REQUIREMENTS WILL APPLY:

Sod laying must occur immediately upon delivery of material to site from farm.

All bunker perimeters are to be **sodded over the peak of face slopes**. Only strongly rooted, sand or topsoil-based sod will be used, not less than one year old in vigorous condition and free from uncontrollable weeds and grasses. **No sod grown on peat will be used**.

All tees require sod around the perimeter of the surface. Slopes exceeding 3 1/2% and drainage areas may require sodding and will be designated in the field by the GOLF COURSE ARCHITECT.

In the installation of sod, no gaps, spaces, voids or openings will be allowed between strips of sod. Strips will be placed to be tight together so as to appear knitted, minimizing the need for follow-up top dressing and filling of interstices. Any top dressing, required within 14 days of laying sod, will be the responsibility of the CONTRACTOR. CONTRACTOR shall be responsible for watering all sodded areas through the 1st 5 days, whichever comes first.

Sodding occurring on bunker slopes as well as any areas exceeding 3:1 slope is to be pinned with 1 x 1 x 6 pine sod pins (minimum of 2 stakes per strip). During and immediately after laying, all sod is to be watered to avoid stress related to high temperatures that may be associated with the sodding schedule for the job. Any sod may be rejected if, in the judgment of the GOLF COURSE ARCHITECT or FOUNDATION, its survival after placing is doubtful.

Upon completion of the above work, the surface of the sodded areas shall coincide with finish grade, be flush with other seeded or grassed areas, and shall meet the established grade around buildings and at cart paths. *** It is the responsibility of the CONTRACTOR to water all newly seeded or sodded areas for (5) five days after which the watering shall become the responsibility of the FOUNDATION. At this critical time of germination a coordinated effort between the CONTRACTOR and the DIRECTOR OF MAINTENANCE is imperative. New sod should never remain unwatered (depending on current precipitation) for any 24 hour period. Attention must be paid to the local weather reports for up to the minute information. The CONTRACTOR and DIRECTOR OF MAINTENANCE must coordinate watering schedules with ongoing work schedules to ensure sod is never left unattended.**

Care should be taken in sodding to preserve the finish grade elevations so that there will be no depressions or uneven places in the surface of the sod. As soon as sod has rooted down enough to support a tractor and spreader, it should be top-dressed with an approved soil mixture by the FOUNDATION. All sod must be delivered to the job within twenty-four (24) hours after being cut, unless circumstances beyond the CONTRACTOR'S control make it necessary for the sod to be placed in temporary storage, in which case permission shall be obtained from the GOLF COURSE ARCHITECT.

During wet weather, the sod shall be allowed to dry sufficiently to prevent tearing, and during dry weather, it shall be watered before being lifted to insure its vitality and to prevent the soil from dropping off in handling. Any sod permitted to dry out or rot may be rejected if, in the judgment of the GOLF COURSE ARCHITECT or FOUNDATION, its survival after placing is doubtful.

GRASSING LIMITS

The limits of grassing shall be coincidental with the areas that are disturbed and are shown per the Golf Course Construction Plans and labeled as Limits of Disturbance and/or as delineated in the field by the GOLF COURSE ARCHITECT.

GRASSING SCHEDULE

The CONTRACTOR shall begin grassing immediately following approval of the finish grading notification to do so by the GOLF COURSE ARCHITECT, and once work has begun shall press forward toward completion of the planting as rapidly as weather conditions permit. The CONTRACTOR will be expected to plant all areas within five (5) working days for the segment prepared and made ready, and other areas at the minimum rate of five (5) acres per day (if seeding). When delays in operations carry the work into less than favorable conditions (drought, high winds, excessive moisture or other factors that may influence unsatisfactory results), grassing operations will be stopped by the CONTRACTOR and the FOUNDATION or the FOUNDATION'S REPRESENTATIVE shall be immediately notified.

All seeded areas shall be hydro-mulched with an approved wood/tackifier product allowing enough coverage to reduce erosion and promote germination.

COMPLETION OF SEEDING

After seedbed preparations, acceptance by the GOLF COURSE ARCHITECT, planting of any area, acceptable stabilization through germination (up to 14 days), the maintenance of such areas becomes the responsibility of the FOUNDATION. However, the CONTRACTOR will be fully responsible for watering until such time as the irrigation system is accepted by the FOUNDATION. CONTRACTOR shall guarantee germination of all areas and shall reseed any areas which do not show seed germination at no additional cost to the FOUNDATION. Cutting of grass shall be the responsibility of the FOUNDATION.

Immediately after completion of planting and seeding of any specific area, the CONTRACTOR shall commence a regular germination watering program. In no case shall a planted area be allowed to remain for more than four (4) hours before watering is initiated. After initial water, the planted surface shall be watered frequently with light applications as necessary to keep soil surface sufficiently moist to ensure maximum germination and growth.

CONTINUATION OF WORK

Areas which do not obtain the performance criteria listed herein shall be redone following the same procedure initially required at the CONTRACTOR'S expense.

CONTRACTOR must repair any turf damaged by himself or his subcontractors during subsequent work in planted areas.

SEED QUALITY

All seed must be labeled in accordance with USDA rules and regulations under the Federal Seed Act and State Seed Laws. Seed standards are to be based on a minimum thirty (30) gram test.

All grasses must be certified by an independent registered seed laboratory of the CONTRACTOR'S choice, stating as to its genetic purity (free of insects, noxious weeds, other varieties of grasses, any foreign matter; material or animal residue). Seed types shall be true to name and shall be delivered to the site in sealed bags of the vendor, bearing seed analysis and the date of the seed testing. The testing shall be within a period of six (6) months prior to commencement of planting operations. The seed shall be stored in such a manner as not to impair its effectiveness.

Listed below are the minimum grass standards:

Pure Seed, minimum	97.00%
Germination, minimum	85.00%
Inert, maximum	1.50%
Weed Seed, maximum	0.00%
Other Crop Seed, maximum	0.00%
Noxious Weed	0.00%

PROJECT COORDINATION & TEAMWORK

A well-established protocol of communication is the key ingredient toward exceptional results. The FOUNDATION, GOLF COURSE ARCHITECT, DIRECTOR OF MAINTENANCE, and CONTRACTOR must all work as a team to achieve our desired objective. Communication and cooperation during the busier times of the construction process will give all parties concerned a product of which we can all be proud.

END OF SECTION

Bid Form Definitions

1). TEE CONSTRUCTION:
Includes shaping clean core to grade and dimension, tie in of surrounds to adjacent elevations, drainage installation, rootzone installation and laser leveling. **Includes hauling of fill on-site to work areas as needed.**

2). SUB-SURFACE DRAINAGE
Includes all associated trenching, installation and backfill for sub-surface piping, outfalls, stone in perforated and gravel trench areas, stone catchment basins, biofiltration pads and culvert replacements and extensions.

3). CART PATH CONSTRUCTION (for newly routed Cart Paths)
Includes coring path, rolling/clean subbase, installation /roll gravel layer, installation of asphalt, edge clean up, topsoil tie in of cart path edges post installation. **Includes hauling of spoils to designated area.**

4). ASPHALT CART PATH DEMOLITION AND REMOVAL (for old Cart Paths not within Cart Path Rerouting)
Includes demolition and removal of asphalt hauling OFF-SITE or to Disposal location determined by FOUNDATION. Regrading of cart path removal area including installation of topsoil, tie in to surrounding grades and finishing.

5). GRAVEL CART PATH DEMOLITION
Includes removing gravel cart path and re-placing material (if suitable) as base for new cart path installation. Installing topsoil and seeding/sodding in area of removal.

6). OFF SITE FILL/SHAPING MATERIAL ALLOWANCE
Includes cost of materials, trucking, and delivery to work area.

7). ON SITE TRUCKING OF MATERIAL (Fill, Topsoil, Spoils, Rock, etc.)
Included within itemized bid form. <u>No extra compensation</u>.

8). GRASSING
Includes all finishing and preparation of seeded and sodded areas, seeding, hydromulching and sodding per project specifications.

9). BID ALTERNATES NOT INCLUDED IN PAGE TOTALS.

10). SUBMIT BID WITH SUPPORTING DOCUMENTATION AS REQUIRED IN PROJECT SPECIFICATIONS (refer to bidder's checklist within FOUNDATION Documents)

11). IRRIGATION IMPROVEMENTS
Refer to plans (separate) and specifications (included) provided by Irrigation Consulting, Inc.

12). SOIL EROSION AND SEDIMENT CONTROL (as needed)
Refer to silt fence/haybale plans notations on plans and specifications.

13). ROUGH SHAPING/EARTHWORK
Applicable to all feature and tie in work.