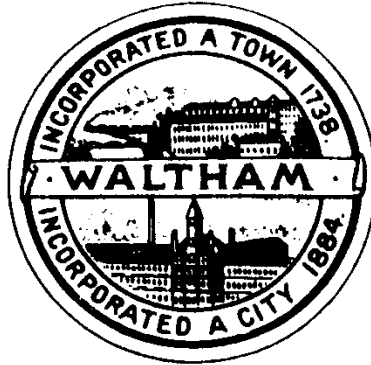


City of Waltham, Massachusetts



BID PACKET

For Construction of:

**Lazazzero Park and Monsignor McCabe
Playground**

Owner:

City of Waltham
610 Main Street
Waltham, MA 02453
Tel: (781) 314-3244

Designer:

Weston & Sampson
100 Foxborough Boulevard - Suite 250
Foxboro, MA 02035
Tel: (978) 977-0110 - Fax: (508) 698-0843

PROJECT MANUAL
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Bidding and Contract Requirements

SECTION 00020

INVITATION TO BID

The City of Waltham will receive General Bids for the construction of Lazazzero Park and McCabe Playground at the offices of Purchasing Agent at City Hall until **10:30 AM., December 15, 2011** at which time they will be opened and read.

A pre bid meeting will be held Wednesday December 7, 2011, 2:30 pm starting at Lazazzero Park - 7 Shore Road, Waltham, MA 02451 followed by site visit at Mons. McCabe Playground – 90 Charlotte Road, Waltham, MA 02453

Bids shall be received only on the Bid Forms provided in the Specifications and the Bid shall be properly filled out and together with the Specifications shall be placed in a sealed envelope and addressed to the Purchasing Agent, Waltham, Massachusetts, and labeled “Lazazzero Park and McCabe Playground”. The Bidder’s name should also appear on the envelope. Submit to:

Mr. Joseph Pedulla, Purchasing Agent
City of Waltham Purchasing Department
City Hall, 610 Main Street
Waltham, MA 02452

A complete set of bid documents consists of the Project Manual and the Plans. Additional sets are available at the office of the Purchasing Agent.

Each bid must be accompanied by cash, certified check, a treasurer’s or cashier’s check issued by a responsible bank or trust company of the Bidder, or his/her bid bond, duly executed by the Bidder as principal and having as surety thereon a responsible and reliable surety company authorized to do business in the Commonwealth of Massachusetts and approved by the Owner. Cash, Certified Check or bid bond shall be in the amount of five (5) percent of the bid. Checks and bid bond shall be made out in the name of City of Waltham.

If the Bidder selected as the Contractor on any such work fails to execute the Contract therefore within five days, Sundays and holidays excluded, after presentation thereof, the amount so received as bid deposit from such Bidder through his/her cash, certified check, treasurer’s or cashier’s check, or bid bond shall become and be the property of the said City of Waltham as liquidated damages; provided, that in the case of death, disability or other unforeseen circumstance affecting the Bidder, such bid deposit may be returned to him/her.

City of Waltham reserves the right to reject any and all bids and to waive any informalities in the bidding if it be in their interest to do so. City of Waltham reserves the right to accept the best bid as determined by City of Waltham.

The successful Bidder will be required to furnish a performance bond and labor and materials payment bond of an approved surety company in an amount not less than the full amount of the Contract.

Specifications and blank forms of Bids may be obtained by e-mail request at Jpedulla@city.waltham.ma.us or by visiting the City's web site at www.city.waltham.ma.us/open-bids on or after 2:00 p.m., November 23, 2011.

The successful Bidder will be required to carry liability insurance in an amount not less than \$1,000,000, property damage insurance in an amount not less than \$1,000,000, and workers compensation insurance in an amount not less than The Statutory limits.

The City of Waltham Supplemental Equal Employment Opportunity, Anti-Discrimination and Affirmative Action Program, apply to this Invitation to Bid. The Forms included in the Compliance section must be completed, signed and submitted with the bid.

Attention is called to the fact that minimum wage rates are established for the project as set forth in the Contract Documents.

The successful Bidder shall observe faithfully all statutory requirements and local ordinances.

The City of Waltham specifically reserves the right to delete from the Contract any of the items stipulated in the Bid should, in its opinion, such action be necessary. The City of Waltham further reserves the right, should funds be available, to add to the Contract items stipulated in the Bid should, in its opinion, such action be in the best interest of the City of Waltham.

CITY OF WALTHAM

Joseph Pedulla
Purchasing Agent

- - - END OF SECTION - - -

SECTION 00100

INSTRUCTIONS TO BIDDERS

PART 1- GENERAL:

1.01 THE WORK

The work of this Contract involves renovations of facilities and other related site improvements located within the confines of Lazazzero Park and Monsignor McCabe Playground and includes, but is not necessarily limited to the following:

1. Significant modifications to both parks
2. Construction of a basketball court
3. Construction of a playground
4. Construction of terraced seating and concrete walls
5. Excavation, backfill and grading
6. Improvements to skinned infield, player's benches and bleachers
7. Installation of chain link fencing and protective netting systems
8. Installation of expanded irrigation systems
9. Installation of drainage pipe, underground storage system and leaching catch basins
10. Seeding and or sodding of field and lawn areas as designated
11. Installation of an asphalt walking paths
12. Landscaping and tree planting
13. Installation of other miscellaneous site improvements as designated in the Contract Documents

1.02 SECURING DOCUMENTS

Copies of the proposed Contract Documents may be obtained from:

City of Waltham Purchasing Department
City Hall, 610 Main Street
Waltham, MA 02452

1.03 BID FORM

In order to receive consideration, make bids in strict accordance with the following.

- A. Make bids upon the forms provided therefore, properly signed and with all items filled out. Do not change the wording of the bid form, and do not add words to the bid form. Unauthorized conditions, limitation, or provisions attached to the bid will be cause for rejection of the bid. If alterations by erasure or interlineations are made for any reason, explain over such erasure or interlineations with a signed statement from the bidder.
- B. No telegraphic bid or telegraphic modification of a bid will be considered. No bids received after the time fixed for receiving them will be considered. Late bids will be returned to the bidder unopened.

- C. Address bids to the Owner, and deliver to the address given in the Invitation to Bid on or before the day and hour set for opening the bids. Enclose each bid in a sealed envelope bearing the title of the Work, the name of the bidder, and the date and hour of the bid opening. Submit only the original signed copy of the bid. It is the sole responsibility of the bidder to insure that his bid is received on time. **Bids are due Dec 15, 2011 at 10:30 AM.**

1.04 BONDS

- A. Prior to signing the Contract, the Owner will require the successful bidder to secure and post a Labor and Materials Payment Bond and a Performance Bond, each in the amount of 100% of the Contract Sum, and each on the form provided therefore in the Project Manual. Such bonds shall be issued by a Surety acceptable to the Owner. Costs of such bonds will be added to the agreed Contract Sum.
- B. The Owner may require the Contractor to execute a lien bond in order to discharge liens initiated by a subcontractor in the event that a subcontractor institutes such a lien.

1.05 EXAMINATION OF DOCUMENTS AND SITE WORK

Before submitting a bid, each bidder shall examine the Drawings carefully, shall read the Specifications and all other proposed Contract Documents, and shall visit the site of the Work. Note that the drawings may not reflect the true existing topographic conditions in some cases due to work performed subsequent to the topographic survey. Each bidder shall fully inform himself prior to bidding as to existing conditions and limitations under which the Work is to be performed, and shall include in his bid a sum to cover the cost of items necessary to perform the Work as set forth in the proposed Contract Documents. The contractor shall be responsible for locating all site items such as utilities that could be affected by Work prior to the start of construction. No allowance will be made to a bidder because of the lack of such examination or knowledge. The submission of a bid will be considered as conclusive evidence that the bidder has made such examination.

1.06 INTERPRETATION OF CONTRACT DOCUMENTS PRIOR TO BIDDING

- A. If any person contemplating submitting a bid for construction of the Work is in doubt as to the true meaning of any part of the proposed Contract Documents, or finds discrepancies in, or omissions from, any part of the proposed Contract Documents, he may submit to the Landscape Architect a written request for interpretation thereof no later than seven days before bids will be opened. The person submitting the request shall be responsible for its prompt delivery.
- B. Interpretation or correction of proposed Contract Documents will be made only by Addendum and will be mailed or delivered to each general contract bidder of

record. The Owner will not be responsible for any other explanations or interpretations of the proposed Contract Documents.

1.07 PROOF OF COMPETENCY

A bidder may be required to furnish evidence satisfactory to the Owner that he and his proposed subcontractors have sufficient means and experience in the types of work called for to assure completion of the Contract in a satisfactory manner, and may be required to be bonded at the option of the Owner.

1.08 BID-SECURITY

Each bid must be accompanied by cash, certified check of the bidder, or by bid bond prepared on the form of the bid bond attached hereto, duly executed by the bidder as principal and having as surety thereon a surety company approved by the Owner, in the amount of five (5) percent of the bid. Such cash, checks or bid bonds will be returned to all except the three preferred bidders within three days after the opening of bids, and the remaining cash, checks, or bid bonds will be returned promptly after the Owner, and the accepted bidder have executed the contract, or, if no award has been made within 45 days after the date of the opening of bids, upon demand of the bidder at any time thereafter, so long as he has not been notified of the acceptance of his bid.

1.09 LIQUIDATED DAMAGES FOR FAILURE TO ENTER INTO CONTRACT

The successful bidder, upon his failure or refusal to execute and deliver the contract and bonds required within five days after he has received notice of the acceptance of the bid, shall forfeit to the Owner, as liquidated damages for such failure or refusal, the security deposited with the bid.

1.10 CONDITIONS OF WORK

- A. Each bidder must inform himself fully of the conditions relating to the construction of the project and the employment of labor thereon. Failure to do so will not relieve a successful bidder of his obligation to furnish all materials and labor necessary to carry out the provisions of the contract. Insofar as possible, the Contractor in carrying out his work must employ such methods or means as will not cause any interruption with the work of any other contractor.
- B. Each bidder must inform himself fully of the project requirements of Division 1 of the Technical Specifications, which relate to the conditions of the work.
- C. Examination of Documents and Site: Each bidder shall carefully examine the documents and the construction site to obtain first hand knowledge of existing conditions which can be determined by examining the site and documents.

1.11 WITHDRAWAL OF BIDS

- A. A bidder may withdraw his bid, either personally or by written request, at any time prior to the scheduled time for opening bids.
- B. No bidder may withdraw his bid after the date and time set for opening thereof, and bids shall be subject to acceptance by the Owner during this period.

1.12 AWARD OR REJECTION OF BIDS

The Contract, if awarded, will be awarded to the responsible bidder who has produced the best bid as determined by the Owner, subject to the Owner's right to reject any or all bids and to waive informality and irregularity in the bids and in the bidding.

1.13 EXECUTION OF AGREEMENT

- A. The form of Agreement which the successful bidder will be required to execute is included in the Project Manual.
- B. The bidder to whom the Contract is awarded shall, within seven calendar days after notice of award and receipt of Agreement forms from the Owner, sign and deliver required copies to the Owner.
- C. At or prior to delivery of the signed Agreement, the bidder to whom the Contract is awarded shall deliver to the Owner those Certificates of Insurance and Materials Payment Bonds and Performance Bond as may be required by the Owner.
- D. Bonds and Certificates of Insurance shall be approved by the Owner before the successful bidder may proceed with the work. Failure or refusal to provide Bonds or Certificates of Insurance in a form and amount satisfactory to the Owner shall subject the successful bidder to loss of the contract and any damages resulting there from.
- E. The Owner may require the Contractor to execute a lien bond in order to discharge liens initiated by a subcontractor in the event that a subcontractor institutes such a lien.

1.14 TIME OF COMPLETION

- A. **The date of the Notice to Proceed shall be on or about January 12, 2012 with work to commence on or about February 15, 2012. The date of Final Project Completion shall be 120 days from the actual project start date, but no later than June 15, 2012.**

- B. The bidder is hereby notified that time is of the essence concerning this proposed work and that the bidder must agree to commence work on or before a date to be specified. Bidder must agree also to submit as part of the executed contract, a progress schedule in such form as to be determined by the owner and that deviation from said progress schedule shall be a breach of the contract except as modified by change order. The owner's liquidated damage shall not be less than **\$500.00** per calendar day if work extends past the **Final Completion date, which shall be 120 days from the project start date.**

--- END OF SECTION ---

SECTION 00310

BID FORM

CITY OF WALTHAM

TO THE PURCHASING AGENT
WALTHAM, MASSACHUSETTS 02453

The undersigned, as bidder, hereby declares that he/she has carefully examined the specifications and provisions attached hereto, and that he/she proposes and agrees, if this bid is accepted, that he/she will contract with the CITY OF WALTHAM in the form prescribed for the **IMPROVEMENTS TO LAZAZZERO PARK AND MONSIGNOR MCCABE PLAYGROUND** during the year 2012, as herein specified and will provide therefore all necessary labor, machinery and equipment, and will perform all work in the manner prescribed and according to the requirements of the Contract Documents.

Accompanying this bid is case, a certified or treasurer's check payable to the CITY OF WALTHAM, or a bid bond in the amount of FIVE PERCENT (5%) OF THE CONTRACTOR'S BID PRICE.

If this bid shall be accepted and the undersigned shall fail to execute the required contract, in accordance with the terms herein set forth, within five days from the date of mailing a notice to the undersigned at the address given below that the contract is ready for signature, the CITY OF WALTHAM may, at its option, determine that this bid shall be null and void, and the aforesaid cash or checks shall become the property of the CITY OF WALTHAM; otherwise the said cash or checks shall be returned to the undersigned.

Bidder acknowledges receipt of the following addenda(s):

Time for completion of the work is **120 days from the actual project start date, weather depending.**

- 1. BASE BID:** The proposed contract price for the construction of **Improvements to Lazazzero Park and Monsignor McCabe Playground** without alternatives

is _____ dollars

and _____ cents (\$_____).

Lazazzero | McCabe Improvements
Waltham, Massachusetts

00310-1

2. ADD ALTERNATES:

Add Alternate No. 1-

Under Add Alternate No. 1 the contractor shall install rubber safety surfacing at play area. Refer to additional information on the Layout and Materials Plans and in the Specifications. All work under this item shall include labor, materials, overhead and profit, transportation and equipment, excavation, backfill, concrete pad installation and bicycle rack installations and all other work related to this effort as required to make the installations complete and acceptable.

The Lump Sum Cost for work under **Add Alternate No. 1** shall be:

_____ dollars
and _____ cents (\$_____).

Signature of Bidder

Title

Name of Firm

Business Address

Telephone

Fax Number

Date

PROOF OF CONTRACTOR'S RESPONSIBILITY

Before a contract will be awarded to any bidder, he/she will be required to furnish evidence satisfactory to the City that he/she has all of the following qualifications:

- A. Ability, equipment, organization, and financial resources sufficient or enable him/her to construct and complete the work successfully within the time required.
- B. Experience during the past three (3) years in the successful completion of similar projects, the magnitude of which shall be not less than one-half (1/2) the work herein specified. In this connection, the attention of the bidder is directed to the "Bidder's Experience" attached hereto, which shall be used in determining the responsibility of the bidder. The City may require additional information is necessary to determine the responsibility of the bidder.

In the event the bidder fails, refuses, or neglects to submit and require information within the reasonable time stated in any request or fails to qualify as a responsible bidder, his/her bid guaranty shall be forfeited to the use of the owner, not as a penalty, but as liquidated damages.

The determination of whether a bidder is responsible shall rest solely with the City.

BIDDER'S EXPERIENCE

Complete the following Statement of Bidders Qualifications for Sports Field Contractors. List projects of a similar character and scope to the work specified under this contract, which have successfully been completed by during the past three years. Projects must have included the renovation, refurbishment, reconstruction or construction (new) of public, private or institutional sports playing fields and parks/open space facilities.

This information must be furnished by each bidder. A completed project is one that has been accepted and the final payment received from the City or authorized representative.

Statement of Bidders Qualifications Sports Field/Parks Contractor

If necessary, questions may be answered on separate attached sheets. The Bidder may submit any additional information he desires.

1.0 Name of Bidder _____

2.0 Permanent Main Office Address _____

3.0 When organized _____

4.0 How many years have you been engaged in the contracting business under your present firm or trade name? _____

Lazazero | McCabe Improvements
Waltham, Massachusetts

00310-3

5.0 Contracts on hand: (Schedule these showing gross amount of each contract and the appropriate anticipated dates of completion. Include name and address of client and name of person supervising for client.)_____

6.0 General character of work performed by your company_____

7.0 Have you ever failed to complete any work awarded to you? If so, why?_____

8.0 Have you ever defaulted on a contract? If so, where and why?_____

9.0 List the more important contracts awarded to you and contracts for work similar to this project, stating approximate cost for each and the month and year completed. (Give name and address of client and name of person supervising for client.)_____

10.0 List your major equipment available for this contract:_____

11.0 Experience in construction work similar to this project _____

12.0 Background and experience of the principal members of your organization including the officers _____

13.0 Projects you have been low bidder on in last 60 days _____

14.0 Credit available: \$ _____

15.0 Bank Reference: _____

16.0 The undersigned hereby authorizes and requests any person, firm or corporation to furnish any information requested by the City of Waltham in verification of the recitals comprising this statement of Bidder's Qualifications.

Dated this _____ day of _____, 2010

Name of Bidder

By _____

Title _____

Bidder's Signature Date

- - - END OF SECTION - - -

SECTION 00500

FORM OF AGREEMENT

CITY OF WALTHAM

CLAUSE 1. This agreement, made this _____ day of _____ in the year Two Thousand and Ten by and between the CITY OF WALTHAM, party of the first part, hereinafter called the CITY, by its MAYOR, and

_____ party of the second part, hereinafter called the CONTRACTOR.

CLAUSE 2. Witnesseth, that the parties to this agreement, each in consideration of the agreement on the part of the others herein contained, do hereby agree, the CITY OF WALTHAM for itself, and said contractor for his heirs, executors, administrators and assigns as follows:

To furnish all equipment, machinery, tools and labor, to furnish and deliver all materials required to be furnished (except as otherwise specified) and deliver in and about the project and to do and perform all work in strict conformity with the provisions of this Contract and of the Notice to Bidders, bid, Project Manual, and Drawings hereto annexed. The said Notice to Bidders, bid, Project Manual, and Drawings are hereby made a part of this contract as fully and to the same effect as if the same had been set forth at length and incorporated in the contracts.

CLAUSE 3. In consideration of the foregoing premises the CITY agrees to pay and the CONTRACTOR agrees to receive as full compensation for everything furnished and done by the CONTRACTOR under this contract, including all work required by not included in the items herein mentioned, and also for all loss or damage arising out of the nature of the work aforesaid, or from the action of the elements, or from any unforeseen obstruction or difficulty encountered in the prosecution of the work, and for all expenses incurred by or in consequence of the suspension or discontinuance of the work specified, and for well and faithfully completing the work, and the whole thereof, as herein provided, such prices as are set forth in the accompanying bid.

Date for final completion of the project is June 15, 2012. Actual construction activity will commence on or about February 15, 2012.

This Agreement entered into as of the day and year first written above.

CITY OF WALTHAM, MASSACHUSETTS

BY

Jeanette A. McCarthy, Mayor

BY

CONTRACTOR (Name, Title, Address)

John B. Cervone, City Solicitor
APPROVED AS TO FORM ONLY

Ronald G. Vokey, Planning Director

Sandra Tomasello, Recreation Director

Joseph Pedulla, Purchasing Agent

Paul Centofanti, Auditor
I CERTIFY THAT SUFFICIENT FUNDS
ARE AVAILABLE FOR THIS CONTRACT

Lazazzero | McCabe Improvements
Waltham, Massachusetts

00500-2

SECTION 00501

PERFORMANCE BOND

CITY OF WALTHAM

KNOW ALL MEN BY THESE PRESENT THAT,

_____ as

principal and _____ as surety, are held and firmly bound unto the CITY OF WALTHAM and to such persons, firms, and corporations, who may furnish materials for or perform labor on the work, construction or improvements contemplated in the Contract hereinafter mentioned, or who may have any suits or claims for injury or damage to persons or property resulting from or arising out of the work done under this Contract, in the

SUM OF _____ DOLLARS (\$ _____)

(lawful money of the United States of America) for the payment whereof the Contractor and the Surety of Sureties bind themselves and their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, THAT for the above burden (the Contractor) its

_____ heirs, executors, administrators and assigns, shall faithfully perform the Contract, on his part and during the life of any guaranty or warranty, for defective materials and workmanship required under this Contract, and satisfy all claims and demands incurred for the same; and shall fully indemnify and save harmless the City from all cost and damage which it may suffer by reason of failure so to do, and shall fully reimburse and repay the City all outlay and expense which the City may incur in making good any such default, and shall promptly make payment to all persons supplying labor or materials for use in the prosecution of the work provided for in said Contract; and shall indemnify and save harmless the said City, its officers and agents from any and all suits or claims for injury or damage to persons or property resulting from or arising out of the work done under this Contract, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

PROVIDED, HOWEVER, that (except as to the City) no suit, action or proceeding by reason of any default whatever shall be brought on this Bond after two years from the day on which the final payment under the Contract falls due.

AND PROVIDED, that any alterations which may be made in the terms of the Contract or in the work to be done under it, or any assignment, transfer or subletting of any part of the work, or the giving by the City of any extension of time for the performance of the Contract, or any other forbearance on the part of either the City or the Contractor to the other, shall not in any way release the Contractor and the Surety of Sureties, or either or any of them, their heirs, executors, administrators, successors or assigns from their liability hereunder, notice to the Surety or Sureties of any such alterations, assignment, transfer, subletting extension or forbearance being hereby waived.

This Bond is made for the use and benefit of all persons, firms, and corporations who may furnish materials, or perform any labor for or on account of said work, construction or improvements, or who may have any suits or claims for injury or damage to persons or property resulting from or arising out of the work done under this Contract, and they and each of them are hereby made obligees hereunder the same as if their own proper names were written herein as such, and they and each of them may sue hereon in their own names for their own use and benefit.

And the Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract or to the work to be performed hereunder, or the Specifications accompanying the same, shall in any way affect its obligations on this Bond, and it does hereby waive notice of any such changes, extension of time, alteration or addition to the terms of the Contract or to the work, or to the Specifications.

IN WITNESS WHEREOF, said Contractor and Surety have hereunto set their respective names this _____ day of _____, 20_____.

WITNESSES:

(CONTRACTOR) (SEAL)

NAME _____ BY _____
(SIGNATURE AND TITLE)

ADDRESS _____
(SURETY) (SEAL)

NAME _____ BY _____
(SIGNATURE AND TITLE)

ADDRESS _____ BY _____
(ATTORNEY-IN-FACT)

POWER OF ATTORNEY

Attorneys-in-fact who sign bonds must file with each bond a certified copy of their power of attorney to sign said bonds.

Lazazero | McCabe Improvements
Waltham, Massachusetts

00501-2

SECTION 00502

PAYMENT BOND

CITY OF WALTHAM

KNOW ALL MEN BY THESE PRESENT THAT,

_____ as

principal and _____ as surety, are held and firmly bound unto the CITY OF WALTHAM and to such persons, firms, and corporations, who may furnish materials for or perform labor on the work, construction or improvements contemplated in the Contract hereinafter mentioned, or who may have any suits or claims for injury or damage to persons or property resulting from or arising out of the work done under this Contract, in the

SUM OF _____ DOLLARS (\$ _____) (lawful money of the United States of America) for the payment whereof the Contractor and the Surety of Sureties bind themselves and their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, THAT for the above burden (the Contractor) its

_____ heirs, executors, administrators and assigns, shall faithfully perform the Contract, on his part and during the life of any guaranty or warranty, for defective materials and workmanship required under this Contract, and satisfy all claims and demands incurred for the same; and shall fully indemnify and save harmless the City from all cost and damage which it may suffer by reason of failure so to do, and shall fully reimburse and repay the City all outlay and expense which the City may incur in making good any such default, and shall promptly make payment to all persons supplying labor or materials for use in the prosecution of the work provided for in said Contract; and shall indemnify and save harmless the said City, its officers and agents from any and all suits or claims for injury or damage to persons or property resulting from or arising out of the work done under this Contract, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

PROVIDED, HOWEVER, that (except as to the City) no suit, action or proceeding by reason of any default whatever shall be brought on this Bond after two years from the day on which the final payment under the Contract falls due.

AND PROVIDED, that any alterations which may be made in the terms of the Contract or in the work to be done under it, or any assignment, transfer or subletting of any part of the work, or the giving by the City of any extension of time for the payment of the Contract, or any other forbearance on the part of either the City or the Contractor to the other, shall not in any way release the Contractor and the Surety of Sureties, or either or any of them, their heirs, executors, administrators, successors or assigns from their liability hereunder, notice to the Surety or Sureties of any such alterations, assignment, transfer, subletting extension or forbearance being hereby waived.

This Bond is made for the use and benefit of all persons, firms, and corporations who may furnish materials, or perform any labor for or on account of said work, construction or improvements, or who may have any suits or claims for injury or damage to persons or property resulting from or arising out of the work done under this Contract, and they and each of them are hereby made obligees hereunder the same as if their own proper names were written herein as such, and they and each of them may sue hereon in their own names for their own use and benefit.

And the Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract or to the work to be performed hereunder, or the Specifications accompanying the same, shall in any way affect its obligations on this Bond, and it does hereby waive notice of any such changes, extension of time, alteration or addition to the terms of the Contract or to the work, or to the Specifications.

IN WITNESS WHEREOF, said Contractor and Surety have hereunto set their respective names this _____ day of _____, 20_____.

WITNESSES:

(CONTRACTOR) (SEAL)

NAME _____ BY _____
(SIGNATURE AND TITLE)

ADDRESS _____
(SURETY) (SEAL)

NAME _____ BY _____
(SIGNATURE AND TITLE)

ADDRESS _____ BY _____
(ATTORNEY-IN-FACT)

POWER OF ATTORNEY

Attorneys-in-fact who sign bonds must file with each bond a certified copy of their power of attorney to sign said bonds.



THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF LABOR AND WORKFORCE DEVELOPMENT
DIVISION OF OCCUPATIONAL SAFETY



DEVAL L. PATRICK
Governor

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

JOANNE F. GOLDSTEIN
Secretary of Labor and Workforce Development

TIMOTHY P. MURRAY
Lieutenant Governor

GEORGE E. NOEL
Director of Labor

LAURA M. MARLIN
Commissioner of Division of Occupational Safety

Prevailing Wage Rates

Awarding Authority: City of Waltham Recreation Department

Contract Number:

City/Town: WALTHAM

Description of Work: Nipper Maher Park Improvements Phase 5B. Construction of a new instructional baseball field and related park and open space improvements.

Job Location: Dartmouth Street Waltham, MA

Classification	Effective Dates and Total Rates								
Construction									
(2 AXLE) DRIVER - EQUIPMENT	12/01/2009	\$44.330	06/01/2010	\$44.930	12/01/2010	\$45.530			
	06/01/2011	\$46.280	12/01/2011	\$46.940	06/01/2012	\$47.590			
	12/01/2012	\$48.620							
(3 AXLE) DRIVER - EQUIPMENT	12/01/2009	\$44.400	06/01/2010	\$45.000	12/01/2010	\$45.600			
	06/01/2011	\$46.350	12/01/2011	\$47.010	06/01/2012	\$47.660			
	12/01/2012	\$48.690							
(4 & 5 AXLE) DRIVER - EQUIPMENT	12/01/2009	\$44.520	06/01/2010	\$45.120	12/01/2010	\$45.720			
	06/01/2011	\$46.470	12/01/2011	\$47.130	06/01/2012	\$47.780			
	12/01/2012	\$48.810							
ADS/SUBMERSIBLE PILOT	08/01/2009	\$101.110	08/01/2010	\$104.640	08/01/2011	\$108.760			
AIR TRACK OPERATOR	12/01/2009	\$47.850	06/01/2010	\$48.850	12/01/2010	\$50.100			
	06/01/2011	\$51.100	12/01/2011	\$52.350					
ASBESTOS REMOVER - PIPE / MECH. EQUIPT.	12/01/2009	\$40.250							
ASPHALT RAKER	12/01/2009	\$47.350	06/01/2010	\$48.350	12/01/2010	\$49.600			
	06/01/2011	\$50.600	12/01/2011	\$51.850					
ASPHALT/CONCRETE/CRUSHER PLANT-ON SITE	12/01/2009	\$58.530	06/01/2010	\$59.780	12/01/2010	\$61.030			
BACKHOE/FRONT-END LOADER	12/01/2009	\$58.530	06/01/2010	\$59.780	12/01/2010	\$61.030			
BARCO-TYPE JUMPING TAMPER	12/01/2009	\$47.350	06/01/2010	\$48.350	12/01/2010	\$49.600			
	06/01/2011	\$50.600	12/01/2011	\$51.850					
BLOCK PAVER, RAMMER / CURB SETTER	12/01/2009	\$47.850	06/01/2010	\$48.850	12/01/2010	\$50.100			
	06/01/2011	\$51.100	12/01/2011	\$52.350					
BOILER MAKER	01/01/2010	\$55.850							
APPRENTICE: BOILERMAKER - Local 29									
Ratio	Step	1	2	3	4	5	6	7	8
1:5	%	65.00	65.00	70.00	75.00	80.00	85.00	90.00	95.00
Apprentice wages shall be no less than the following:									
Step 1\$38.75/2\$38.75/3\$41.19/4\$43.64/5\$46.08/6\$48.53/7\$50.97/8\$53.42									
BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING)	02/01/2010	\$68.010	08/01/2010	\$69.910	02/01/2011	\$70.900			
	08/01/2011	\$73.000	02/01/2012	\$73.990					
APPRENTICE: BRICK/PLASTER/CEMENT MASON - Local 3 Waltham									
Ratio	Step	1	2	3	4	5			
1:5	%	50.00	60.00	70.00	80.00	90.00			
Apprentice wages shall be no less than the following:									
Step 1\$45.71/2\$50.17/3\$54.63/4\$59.09/5\$63.55									
BULLDOZER/GRADER/SCRAPER	12/01/2009	\$58.190	06/01/2010	\$59.430	12/01/2010	\$60.680			
CAISSON & UNDERPINNING BOTTOM MAN	12/01/2009	\$48.250	06/01/2010	\$49.250	12/01/2010	\$50.500			
	06/01/2011	\$51.500	12/01/2011	\$52.750					
CAISSON & UNDERPINNING LABORER	12/01/2009	\$47.100	06/01/2010	\$48.100	12/01/2010	\$49.350			
	06/01/2011	\$50.350	12/01/2011	\$51.600					

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Commissioner of Division of Occupational Safety

Prevailing Wage Rates

Awarding Authority: City of Waltham Recreation Department

Contract Number:

City/Town: WALTHAM

Description of Work: Nipper Maher Park Improvements Phase 5B. Construction of a new instructional baseball field and related park and open space improvements.

Job Location: Dartmouth Street Waltham, MA

Classification	Effective Dates and Total Rates								
CAISSON & UNDERPINNING TOP MAN	12/01/2009	\$47.100	06/01/2010	\$48.100	12/01/2010	\$49.350			
	06/01/2011	\$50.350	12/01/2011	\$51.600					
CARBIDE CORE DRILL OPERATOR	12/01/2009	\$47.350	06/01/2010	\$48.350	12/01/2010	\$49.600			
	06/01/2011	\$50.600	12/01/2011	\$51.850					
CARPENTER	03/01/2010	\$54.500	09/01/2010	\$55.380	03/01/2011	\$56.250			
	09/01/2011	\$57.380	03/01/2012	\$58.500					
APPRENTICE: CARPENTER - Zone 2 Eastern MA									
Ratio	Step	1	2	3	4	5	6	7	8
1:5	%	50.00	60.00	70.00	75.00	80.00	80.00	90.00	90.00
Apprentice wages shall be no less than the following:									
Step 1\$25.26/2\$28.43/3\$40.29/4\$41.87/5\$45.03/6\$45.03/7\$51.35/8\$51.35									
CEMENT MASONRY/PLASTERING	02/01/2010	\$66.200	08/01/2010	\$67.670	02/01/2011	\$68.440			
	08/01/2011	\$70.060	02/01/2012	\$70.830					
CHAIN SAW OPERATOR	12/01/2009	\$47.350	06/01/2010	\$48.350	12/01/2010	\$49.600			
	06/01/2011	\$50.600	12/01/2011	\$51.850					
CLAM SHELLS/SLURRY BUCKETS/HEADING MACHINES	12/01/2009	\$59.530	06/01/2010	\$60.780	12/01/2010	\$62.030			
COMPRESSOR OPERATOR	12/01/2009	\$47.890	06/01/2010	\$48.810	12/01/2010	\$49.740			
DELEADER (BRIDGE)	01/01/2010	\$63.410							
DEMO: ADZEMAN	12/01/2009	\$47.100	06/01/2010	\$48.100	12/01/2010	\$49.350			
	06/01/2011	\$50.350	12/01/2011	\$51.600					
DEMO: BACKHOE/LOADER/HAMMER OPERATOR	12/01/2009	\$48.100	06/01/2010	\$49.100	12/01/2010	\$50.350			
	06/01/2011	\$51.350	12/01/2011	\$52.600					
DEMO: BURNERS	12/01/2009	\$47.850	06/01/2010	\$48.850	12/01/2010	\$50.100			
	06/01/2011	\$51.100	12/01/2011	\$52.350					
DEMO: CONCRETE CUTTER/SAWYER	12/01/2009	\$48.100	06/01/2010	\$49.100	12/01/2010	\$50.350			
	06/01/2011	\$51.350	12/01/2011	\$52.600					
DEMO: JACKHAMMER OPERATOR	12/01/2009	\$47.850	06/01/2010	\$48.850	12/01/2010	\$50.100			
	06/01/2011	\$51.100	12/01/2011	\$52.350					
DEMO: WRECKING LABORER	12/01/2009	\$47.100	06/01/2010	\$48.100	12/01/2010	\$49.350			
	06/01/2011	\$50.350	12/01/2011	\$51.600					
DIRECTIONAL DRILL MACHINE OPERATOR	12/01/2009	\$58.190	06/01/2010	\$59.430	12/01/2010	\$60.680			
DIVER	08/01/2009	\$75.090	08/01/2010	\$77.440	08/01/2011	\$80.190			
DIVER TENDER	08/01/2009	\$60.220	08/01/2010	\$62.570	08/01/2011	\$65.320			
DIVER TENDER (EFFLUENT)	08/01/2009	\$78.810	08/01/2010	\$82.330	08/01/2011	\$86.460			
DIVER/SLURRY (EFFLUENT)	08/01/2009	\$101.110	08/01/2010	\$104.640	08/01/2011	\$108.760			
ELECTRICIAN	03/01/2010	\$65.790	09/01/2010	\$67.030	03/01/2011	\$68.270			

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Prevailing Wage Rates

Awarding Authority: City of Waltham Recreation Department

Contract Number:

City/Town: WALTHAM

Description of Work: Nipper Maher Park Improvements Phase 5B. Construction of a new instructional baseball field and related park and open space improvements.

Job Location: Dartmouth Street Waltham, MA

Classification

Effective Dates and Total Rates

Classification	Ratio	Step	1	2	3	4	5	6	7	8	9	10
APPRENTICE: ELECTRICIAN - Local 103	2:3***	%	40.00	40.00	45.00	45.00	50.00	55.00	60.00	65.00	70.00	75.00
Apprentice wages shall be no less than the following Steps:			App Prior 1/1/03; 30/35/40/45/50/55/65/70/75/80									
Step 1\$34.88/2\$34.88/3\$42.31/4\$42.31/5\$44.45/6\$46.58/7\$48.72/8\$50.85/9\$52.99/10\$55.12												
ELEVATOR CONSTRUCTOR							01/01/2010	\$65.190	01/01/2011	\$66.690	01/01/2012	\$68.190
APPRENTICE: ELEVATOR CONSTRUCTOR - Local 4	1:1	%	50.00	55.00	65.00	70.00	80.00	Steps 1-2 are 6 mos.; Steps 3-5 are 1 year				
Apprentice rates shall be no less than the following:			Step 1\$44.47/2\$46.89/3\$51.73/4\$54.17/5\$58.99									
ELEVATOR CONSTRUCTOR HELPER							01/01/2010	\$51.330	01/01/2011	\$52.830	01/01/2012	\$54.330
FENCE & GUARD RAIL ERECTOR							12/01/2009	\$47.350	06/01/2010	\$48.350	12/01/2010	\$49.600
							06/01/2011	\$50.600	12/01/2011	\$51.850		
FIELD ENG. - INST. PERSON (BLDG, SITE, HVY CONST)							11/01/2009	\$55.850	05/01/2010	\$56.950	11/01/2010	\$58.190
							05/01/2011	\$59.430				
FIELD ENG. - ROD PERSON (BLDG, SITE, HVY CONST)							11/01/2009	\$40.870	05/01/2010	\$41.520	11/01/2010	\$42.250
							05/01/2011	\$42.980				
FIELD ENG.-CHIEF OF PARTY (BLDG, SITE, HVY CONST)							11/01/2009	\$57.210	05/01/2010	\$58.320	11/01/2010	\$59.570
							05/01/2011	\$60.820				
FIRE ALARM INSTALLER							03/01/2010	\$65.790	09/01/2010	\$67.030	03/01/2011	\$68.270
FIRE ALARM REPAIR / MAINTENANCE							03/01/2010	\$53.800	09/01/2010	\$54.730	03/01/2011	\$55.660
FIREMAN (ASST. ENGINEER)							12/01/2009	\$52.740	06/01/2010	\$53.810	12/01/2010	\$54.890
FLAGGER & SIGNALER							12/01/2009	\$36.300	06/01/2010	\$37.300	12/01/2010	\$37.300
							06/01/2011	\$38.300	12/01/2011	\$38.300		
FLOORCOVERER							03/01/2010	\$59.630	09/01/2010	\$60.380	03/01/2011	\$61.130
							09/01/2011	\$62.380	03/01/2012	\$63.630		
APPRENTICE: FLOORCOVERER - Local 2168 Zone 1	1:1	%	50.00	55.00	60.00	65.00	70.00	75.00	80.00	85.00	Steps are 750 hrs.	
Apprentice rates shall be no less than the following:			Step 1\$27.35/2\$29.13/3\$39.93/4\$41.71/5\$45.32/6\$47.10/7\$50.69/8\$52.47									
FORK LIFT/CHERRY PICKER							12/01/2009	\$58.530	06/01/2010	\$59.780	12/01/2010	\$61.030
GENERATOR/LIGHTING PLANT/HEATERS							12/01/2009	\$47.890	06/01/2010	\$48.810	12/01/2010	\$49.740
GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS)							01/01/2010	\$52.910				

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Prevailing Wage Rates

Awarding Authority: City of Waltham Recreation Department

Contract Number:

City/Town: WALTHAM

Description of Work: Nipper Maher Park Improvements Phase 5B. Construction of a new instructional baseball field and related park and open space improvements.

Job Location: Dartmouth Street Waltham, MA

Classification

Effective Dates and Total Rates

APPRENTICE: GLAZIER - Local 35 Zone 2										
Ratio	Step	1	2	3	4	5	6	7	8	
1:1	%	50.00	55.00	60.00	65.00	70.00	75.00	80.00	90.00	
Apprentice wages shall be no less than the following:					Steps are 750 hrs.					
Step 1\$23.86/2\$28.43/3\$30.31/4\$32.18/5\$41.26/6\$43.13/7\$45.01/8\$48.76										
HOISTING ENGINEER/CRANES/GRADALLS					12/01/2009	\$58.530	06/01/2010	\$59.780	12/01/2010	\$61.030
APPRENTICE: HOIST/PORT. ENG.- Local 4										
Ratio	Step	1	2	3	4	5	6	7	8	
1:6	%	55.00	60.00	65.00	70.00	75.00	80.00	85.00	90.00	
Apprentice wages shall be no less than the following:										
Step 1\$29.83/2\$43.42/3\$45.31/4\$47.20/5\$49.09/6\$50.97/7\$52.86/8\$54.74										
HVAC (DUCTWORK)					02/01/2010	\$63.470	08/01/2010	\$64.720	02/01/2011	\$65.970
					08/01/2011	\$67.220	02/01/2012	\$68.470	08/01/2012	\$69.720
					02/01/2013	\$70.970				
HVAC (ELECTRICAL CONTROLS)					03/01/2010	\$65.790	09/01/2010	\$67.030	03/01/2011	\$68.270
HVAC (TESTING AND BALANCING - AIR)					02/01/2010	\$63.470	08/01/2010	\$64.720	02/01/2011	\$65.970
					08/01/2011	\$67.220	02/01/2012	\$68.470	08/01/2012	\$69.720
					02/01/2013	\$70.970				
HVAC (TESTING AND BALANCING -WATER)					03/01/2010	\$68.730				
HVAC MECHANIC					03/01/2010	\$68.730				
HYDRAULIC DRILLS					12/01/2009	\$47.850	06/01/2010	\$48.850	12/01/2010	\$50.100
					06/01/2011	\$51.100	12/01/2011	\$52.350		
INSULATOR (PIPES & TANKS)					09/01/2009	\$59.260	09/01/2010	\$61.660		
APPRENTICE: ASBESTOS INSULATOR (Pipes & Tanks) - Local 6 Boston										
Ratio	Step	1	2	3	4					
1:4	%	50.00	60.00	70.00	80.00					
Apprentice wages shall be no less than the following:					Steps are 1 year					
Step 1\$36.64/2\$41.16/3\$45.69/4\$50.21										
IRONWORKER/WELDER					03/16/2010	\$60.940				
APPRENTICE: IRONWORKER - Local 7 Boston										
Ratio	Step	1	2	3	4	5	6			
**	%	60.00	70.00	75.00	80.00	85.00	90.00			
Apprentice wages shall be no less than the following:					** Structural 1:6; Ornamental 1:4					
Step 1\$46.82/2\$50.35/3\$52.12/4\$53.88/5\$55.65/6\$57.41										
JACKHAMMER & PAVING BREAKER OPERATOR					12/01/2009	\$47.350	06/01/2010	\$48.350	12/01/2010	\$49.600
					06/01/2011	\$50.600	12/01/2011	\$51.850		
LABORER					12/01/2009	\$47.100	06/01/2010	\$48.100	12/01/2010	\$49.350
					06/01/2011	\$50.350	12/01/2011	\$51.600		

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Prevailing Wage Rates

Awarding Authority: City of Waltham Recreation Department

Contract Number:

City/Town: WALTHAM

Description of Work: Nipper Maher Park Improvements Phase 5B. Construction of a new instructional baseball field and related park and open space improvements.

Job Location: Dartmouth Street Waltham, MA

Classification

Effective Dates and Total Rates

Classification	Effective Dates	Total Rates
APPRENTICE: LABORER - Zone 1		
Ratio Step 1 2 3 4		
1:5 % 60.00 70.00 80.00 90.00		
Apprentice wages shall be no less than the following:		
Step 1\$36.88/2\$39.81/3\$42.74/4\$45.67		
LABORER: CARPENTER TENDER	12/01/2009 \$47.100 06/01/2010 \$48.100 12/01/2010 \$49.350	06/01/2011 \$50.350 12/01/2011 \$51.600
LABORER: CEMENT FINISHER TENDER	12/01/2009 \$47.100 06/01/2010 \$48.100 12/01/2010 \$49.350	06/01/2011 \$50.350 12/01/2011 \$51.600
LABORER: HAZARDOUS WASTE/ASBESTOS REMOVER	12/01/2009 \$47.100 06/01/2010 \$48.100 12/01/2010 \$49.350	06/01/2011 \$50.350 12/01/2011 \$51.600
LABORER: MASON TENDER	12/01/2009 \$47.350 06/01/2010 \$48.350 12/01/2010 \$49.600	06/01/2011 \$50.600 12/01/2011 \$51.850
LABORER: MULTI-TRADE TENDER	12/01/2009 \$47.100 06/01/2010 \$48.100 12/01/2010 \$49.350	06/01/2011 \$50.350 12/01/2011 \$51.600
LABORER: TREE REMOVER	12/01/2009 \$47.100 06/01/2010 \$48.100 12/01/2010 \$49.350	06/01/2011 \$50.350 12/01/2011 \$51.600
This classification applies to the wholesale removal of standing trees including all associated trimming of branches and limbs, and applies to the removal of branches at locations not on or around utility lines.		
LASER BEAM OPERATOR	12/01/2009 \$47.350 06/01/2010 \$48.350 12/01/2010 \$49.600	06/01/2011 \$50.600 12/01/2011 \$51.850
MARBLE & TILE FINISHERS	02/01/2010 \$56.950 08/01/2010 \$58.470 02/01/2011 \$59.270	08/01/2011 \$60.950 02/01/2012 \$61.740
APPRENTICE: MARBLE & TILE FINISHER - Local 3 Marble & Tile		
Ratio Step 1 2 3 4 5		
1:3 % 50.00 60.00 70.00 80.00 90.00		
Apprentice wages shall be no less than the following: Steps are 800 hrs.		
Step 1\$39.66/2\$43.11/3\$46.57/4\$50.03/5\$53.49		
MARBLE MASONS, TILELAYERS & TERRAZZO MECH	02/01/2010 \$68.050 08/01/2010 \$69.950 02/01/2011 \$70.940	08/01/2011 \$73.040 02/01/2012 \$74.030
APPRENTICE: MARBLE-TILE-TERRAZZO MECHANIC - Local 3 Marble & Tile		
Ratio Step 1 2 3 4 5		
1:3 % 50.00 60.00 70.00 80.00 90.00		
Apprentice wages shall be no less than the following:		
Step 1\$45.73/2\$50.19/3\$54.66/4\$59.12/5\$63.59		
MECH. SWEEPER OPERATOR (NON-CONSTRUCTION)	07/01/2009 \$28.890 07/01/2010 \$29.590 07/01/2011 \$30.290	
MECH. SWEEPER OPERATOR (ON CONST. SITES)	12/01/2009 \$58.190 06/01/2010 \$59.430 12/01/2010 \$60.680	
MECHANICS MAINTENANCE	12/01/2009 \$58.190 06/01/2010 \$59.430 12/01/2010 \$60.680	
MILLWRIGHT (Zone 1)	04/01/2010 \$55.850	

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Prevailing Wage Rates

Awarding Authority: City of Waltham Recreation Department

Contract Number:

City/Town: WALTHAM

Description of Work: Nipper Maher Park Improvements Phase 5B. Construction of a new instructional baseball field and related park and open space improvements.

Job Location: Dartmouth Street Waltham, MA

Classification

Effective Dates and Total Rates

Classification	Ratio	Step	1	2	3	4	5	6	7	8	Effective Dates	Total Rates
APPRENTICE: MILLWRIGHT - Local 1121 Zone 1	1:5	%	50.00	55.00	60.00	65.00	70.00	75.00	80.00	85.00		
Apprentice wages shall be no less than the following:												
Step 1\$34.63/2\$36.31/3\$39.44/4\$41.12/5\$44.26/6\$45.94/7\$47.65/8\$49.32												
MORTAR MIXER											12/01/2009	\$47.350
											06/01/2010	\$48.350
											12/01/2010	\$49.600
											06/01/2011	\$50.600
OILER (OTHER THAN TRUCK CRANES, GRADALLS)											12/01/2009	\$41.750
											06/01/2010	\$42.480
											12/01/2010	\$43.220
OILER (TRUCK CRANES, GRADALLS)											12/01/2009	\$44.720
											06/01/2010	\$45.550
											12/01/2010	\$46.380
OTHER POWER DRIVEN EQUIPMENT - CLASS II											12/01/2009	\$58.190
											06/01/2010	\$59.430
											12/01/2010	\$60.680
PAINTER (BRIDGES/TANKS)											01/01/2010	\$63.410
APPRENTICE: PAINTER Local 35 - BRIDGES/TANKS	1:1	%	50.00	55.00	60.00	65.00	70.00	75.00	80.00	90.00		
Apprentice wages shall be no less than the following:												
Steps are 750 hrs.												
Step 1\$29.31/2\$34.43/3\$36.85/4\$39.27/5\$48.89/6\$51.31/7\$53.73/8\$58.57												
PAINTER (SPRAY OR SANDBLAST, NEW) *											01/01/2010	\$54.310
* If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used.												
APPRENTICE: PAINTER Local 35 Zone 2 - Spray/Sandblast - New	1:1	%	50.00	55.00	60.00	65.00	70.00	75.00	80.00	90.00		
Apprentice wages shall be no less than the following:												
Step 1\$24.76/2\$31.85/3\$33.55/4\$32.24/5\$44.14/6\$45.83/7\$47.53/8\$50.92												
PAINTER (SPRAY OR SANDBLAST, REPAINT)											01/01/2010	\$52.370
APPRENTICE: PAINTER Local 35 Zone 2 - Spray/Sandblast - Repaint	1:1	%	50.00	55.00	60.00	65.00	70.00	75.00	80.00	90.00		
Apprentice wages shall be no less than the following:												
Step 1\$23.79/2\$30.78/3\$32.38/4\$33.98/5\$42.78/6\$44.38/7\$45.98/8\$49.17												
PAINTER (TRAFFIC MARKINGS)											12/01/2009	\$47.100
											06/01/2010	\$48.100
											12/01/2010	\$49.350
											06/01/2011	\$50.350
											12/01/2011	\$51.600
PAINTER / TAPER (BRUSH, NEW) *											01/01/2010	\$52.910
* If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used.												
APPRENTICE: PAINTER - Local 35 Zone 2 - BRUSH NEW	1:1	%	50.00	55.00	60.00	65.00	70.00	75.00	80.00	90.00		
Apprentice wages shall be no less than the following:												
Steps are 750 hrs.												
Step 1\$23.86/2\$28.43/3\$30.31/4\$32.18/5\$41.26/6\$43.13/7\$45.01/8\$48.76												

This wage schedule must be posted at the work site in accordance with M.G.L. c. 149, § 27. Failure of the employer to pay "prevailing wage rates," which are the minimum wage rates listed above, on public works projects is a violation of M.G.L. c. 149, § 27. Employees not receiving such rates should report the violation to the Office of Fair Labor and Business Practices, 100 Cambridge Street, Boston, MA 02108; Tel: 617-727-3465. For any questions about the wage rates or classifications included on the wage schedule, please call DOS at 617-626-6952.



THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF LABOR AND WORKFORCE DEVELOPMENT
DIVISION OF OCCUPATIONAL SAFETY



DEVAL L. PATRICK
Governor

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

TIMOTHY P. MURRAY
Lieutenant Governor

JOANNE F. GOLDSTEIN
Secretary of Labor and Workforce Development

GEORGE E. NOEL
Director of Labor

LAURA M. MARLIN
Commissioner of Division of Occupational Safety

Prevailing Wage Rates

Awarding Authority: City of Waltham Recreation Department

Contract Number:

City/Town: WALTHAM

Description of Work: Nipper Maher Park Improvements Phase 5B. Construction of a new instructional baseball field and related park and open space improvements.

Job Location: Dartmouth Street Waltham, MA

Classification

Effective Dates and Total Rates

PAINTER / TAPER (BRUSH, REPAINT)	01/01/2010	\$50.970							
APPRENTICE: PAINTER Local 35 Zone 2 - BRUSH REPAINT									
Ratio	Step	1	2	3	4	5	6	7	8
1:1	%	50.00	55.00	60.00	65.00	70.00	75.00	80.00	90.00
Apprentice wages shall be no less than the following:					Steps are 750 hrs.				
Step 1\$22.89/2\$27.36/3\$29.14/4\$30.92/5\$39.90/6\$41.68/7\$43.46/8\$47.01									
PANEL & PICKUP TRUCKS DRIVER	12/01/2009	\$44.160	06/01/2010	\$44.760	12/01/2010	\$45.360			
	06/01/2011	\$46.110	12/01/2011	\$46.770	06/01/2012	\$47.420			
	12/01/2012	\$48.450							
PIER AND DOCK CONSTRUCTOR (UNDERPINNING AND DECK)	08/01/2009	\$60.220	08/01/2010	\$62.570	08/01/2011	\$65.320			
PILE DRIVER	08/01/2009	\$60.220	08/01/2010	\$62.570	08/01/2011	\$65.320			
APPRENTICE: PILE DRIVER - Local 56 Zone 1									
Ratio	Step	1	2	3	4	5	6	7	8
1:3	%	60.00	65.00	70.00	75.00	80.00	85.00	90.00	95.00
Apprentice wages shall be no less than the following:									
Step 1\$45.35/2\$47.21/3\$49.07/4\$50.93/5\$52.79/6\$54.64/7\$56.50/8\$58.36									
PIPEFITTER & STEAMFITTER	03/01/2010	\$68.730							
APPRENTICE: PIPEFITTER - Local 537									
Ratio	Step	1	2	3	4	5			
**	%	40.00	45.00	60.00	70.00	80.00			
Apprentice Rates-Step1\$33.94/2\$43.38/3\$50.29/4\$54.90/5\$59.51					** 1:3; 3:15; 1:10 thereafter / Steps are 1 yr.				
Refrig/AC Mechanic **1:1;2:2;4:3;6:4;8:5;10:6;12:7;14:8;17:9;20:10;23(Max)									
PIPELAYER	12/01/2009	\$47.350	06/01/2010	\$48.350	12/01/2010	\$49.600			
	06/01/2011	\$50.600	12/01/2011	\$51.850					
PLUMBERS & GASFITTERS	03/01/2010	\$67.500							
APPRENTICE: PLUMBER - Local 12									
Ratio	Step	1	2	3	4	5			
**	%	35.00	40.00	55.00	65.00	75.00			
Apprentice wages shall be no less than the following:					** 1:2; 2:6; 3:10; 4:14; 5:19/Steps are 1 yr				
Step 1\$30.03/2\$32.90/3\$41.57/4\$47.32/ 4w/lic\$50.20 /5\$53.07/ 5w/lic\$55.98									
PNEUMATIC CONTROLS (TEMP.)	03/01/2010	\$68.730							
PNEUMATIC DRILL/TOOL OPERATOR	12/01/2009	\$47.350	06/01/2010	\$48.350	12/01/2010	\$49.600			
	06/01/2011	\$50.600	12/01/2011	\$51.850					
POWDERMAN & BLASTER	12/01/2009	\$48.100	06/01/2010	\$49.100	12/01/2010	\$50.350			
	06/01/2011	\$51.350	12/01/2011	\$52.600					
POWER SHOVEL/DERRICK/TRENCHING MACHINE	12/01/2009	\$58.530	06/01/2010	\$59.780	12/01/2010	\$61.030			
PUMP OPERATOR (CONCRETE)	12/01/2009	\$58.530	06/01/2010	\$59.780	12/01/2010	\$61.030			
PUMP OPERATOR (DEWATERING, OTHER)	12/01/2009	\$47.890	06/01/2010	\$48.810	12/01/2010	\$49.740			
READY-MIX CONCRETE DRIVER	05/01/2009	\$40.520	05/01/2010	\$41.080	05/01/2011	\$41.690			

This wage schedule must be posted at the work site in accordance with M.G.L. c. 149, § 27. Failure of the employer to pay

"prevailing wage rates," which are the minimum wage rates listed above, on public works projects is a violation of M.G.L. c. 149, § 27. Employees not receiving such rates should report the violation to the Office of Fair Labor and Business Practices, 100 Cambridge Street, Boston, MA 02108; Tel: 617-727-3465. For any questions about the wage rates or classifications included on the wage schedule, please call DOS at 617-626-6952.

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THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF LABOR AND WORKFORCE DEVELOPMENT
DIVISION OF OCCUPATIONAL SAFETY



DEVAL L. PATRICK
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LAURA M. MARLIN
Commissioner of Division of Occupational Safety

Prevailing Wage Rates

Awarding Authority: City of Waltham Recreation Department

Contract Number:

City/Town: WALTHAM

Description of Work: Nipper Maher Park Improvements Phase 5B. Construction of a new instructional baseball field and related park and open space improvements.

Job Location: Dartmouth Street Waltham, MA

Classification	Effective Dates and Total Rates									
RECLAIMERS	12/01/2009	\$58.190	06/01/2010	\$59.430	12/01/2010	\$60.680				
RESIDENTIAL WOOD FRAME CARPENTER **	04/01/2009	\$35.620								
** 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.										
As of 9/1/09 Carpentry work on wood-frame residential WEATHERIZATION projects shall be paid the RESIDENTIAL WOOD FRAME CARPENTER rate.										
APPRENTICE: CARPENTER (Residential Wood Frame) - Zone 2										
Ratio	Step	1	2	3	4	5	6	7	8	
1:5	%	60.00	60.00	65.00	70.00	75.00	80.00	85.00	90.00	
Apprentice wages shall be no less than the following:										
Step 1 \$20.13/2\$26.04/3\$27.23/4\$28.43/5\$29.63/6\$30.83/7\$32.03/8\$33.22										
RIDE-ON MOTORIZED BUGGY OPERATOR	12/01/2009	\$47.350	06/01/2010	\$48.350	12/01/2010	\$49.600				
	06/01/2011	\$50.600	12/01/2011	\$51.850						
ROLLER/SPREADER/MULCHING MACHINE	12/01/2009	\$58.190	06/01/2010	\$59.430	12/01/2010	\$60.680				
ROOFER (Inc. Roofer Waterproofing & Roofer Damproofg)	02/01/2009	\$53.860								
APPRENTICE: ROOFER - Local 33										
Ratio	Step	1	2	3	4	5				
**	%	50.00	60.00	65.00	75.00	85.00				
** 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 rates no less than: Step 1 \$34.48/2\$40.86/3\$42.58/4\$46.02/5\$49.50										
SHEETMETAL WORKER	02/01/2010	\$63.470	08/01/2010	\$64.720	02/01/2011	\$65.970				
	08/01/2011	\$67.220	02/01/2012	\$68.470	08/01/2012	\$69.720				
	02/01/2013	\$70.970								
APPRENTICE: SHEET METAL WORKER - Local 17-A										
Ratio	Step	1	2	3	4	5	6	7		
1:4	%	40.00	45.00	50.00	60.00	65.00	75.00	85.00		
Apprentice wages shall be no less than the following:										
Steps 1-3 are 1 year; Steps 4-7 are 6 mos.										
Step 1 \$15.75/2\$26.51/3\$35.36/4\$37.38/5\$46.40/6\$55.63										
SIGN ERECTOR	06/01/2009	\$37.780								
APPRENTICE: SIGN ERECTOR - Local 35 Zone 2										
Ratio	Step	1	2	3	4	5	6	7	8	9
1:1	%	50.00	55.00	60.00	65.00	70.00	75.00	80.00	85.00	90.00
Steps are 4 mos.										
SLATE / TILE / PRECAST CONCRETE ROOFER	02/01/2009	\$54.110								
SPECIALIZED EARTH MOVING EQUIP < 35 TONS	12/01/2009	\$44.620	06/01/2010	\$45.220	12/01/2010	\$45.820				
	06/01/2011	\$46.570	12/01/2011	\$47.230	06/01/2012	\$47.880				
	12/01/2012	\$48.910								

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Prevailing Wage Rates

Awarding Authority: City of Waltham Recreation Department

Contract Number:

City/Town: WALTHAM

Description of Work: Nipper Maher Park Improvements Phase 5B. Construction of a new instructional baseball field and related park and open space improvements.

Job Location: Dartmouth Street Waltham, MA

Classification	Effective Dates and Total Rates											
SPECIALIZED EARTH MOVING EQUIP > 35 TONS	12/01/2009	\$44.910	06/01/2010	\$45.510	12/01/2010	\$46.110						
	06/01/2011	\$46.860	12/01/2011	\$47.520	06/01/2012	\$48.170						
	12/01/2012	\$49.200										
SPRINKLER FITTER	04/01/2010	\$69.550										
APPRENTICE: SPRINKLER FITTER - Local 550												
Ratio	Step	1	2	3	4	5	6	7	8	9	10	
1:1	%	40.00	45.00	50.00	55.00	60.00	65.00	70.00	75.00	80.00	85.00	
Apprentice wages shall be no less than the following steps:												
1\$35.04/2\$37.82/3\$40.60/4\$43.38/5\$46.16/6\$48.94/7\$51.72/8\$54.50/9\$57.28/10\$60.06												
STEAM BOILER OPERATOR	12/01/2009	\$58.190	06/01/2010	\$59.430	12/01/2010	\$60.680						
TAMPERS, SELF-PROPELLED OR TRACTOR DRAWN	12/01/2009	\$58.190	06/01/2010	\$59.430	12/01/2010	\$60.680						
TELECOMMUNICATION TECHNICIAN	03/01/2010	\$53.800	09/01/2010	\$54.730	03/01/2011	\$55.660						
APPRENTICE: TELECOMMUNICATION TECHNICIAN - Local 103												
Ratio	Step	1	2	3	4	5	6	7	8			
1:1	%	40.00	45.00	50.00	55.00	60.00	65.00	75.00	80.00			
Apprentice wages shall be no less than the following:												
Step 1\$34.59/2\$36.19/3\$37.80/4\$39.39/5\$40.99/6\$42.60/7\$45.80/8\$47.40												
TERRAZZO FINISHERS	02/01/2010	\$66.950	08/01/2010	\$68.850	02/01/2011	\$69.840						
	08/01/2011	\$71.940	02/01/2012	\$72.930								
APPRENTICE: TERRAZZO FINISHER - Local 3 Marble & Tile												
Ratio	Step	1	2	3	4	5						
1:3	%	50.00	60.00	70.00	80.00	90.00						
Apprentice wages shall be no less than the following:												
Step 1\$45.18/2\$49.53/3\$53.89/4\$58.24/5\$62.60												
TEST BORING DRILLER	12/01/2009	\$48.500	06/01/2010	\$49.500	12/01/2010	\$50.750						
	06/01/2011	\$51.750	12/01/2011	\$53.000								
TEST BORING DRILLER HELPER	12/01/2009	\$47.220	06/01/2010	\$48.220	12/01/2010	\$49.470						
	06/01/2011	\$50.470	12/01/2011	\$51.720								
TEST BORING LABORER	12/01/2009	\$47.100	06/01/2010	\$48.100	12/01/2010	\$49.350						
	06/01/2011	\$50.350	12/01/2011	\$51.600								
TRACTORS/PORTABLE STEAM GENERATORS	12/01/2009	\$58.190	06/01/2010	\$59.430	12/01/2010	\$60.680						
TRAILERS FOR EARTH MOVING EQUIPMENT	12/01/2009	\$45.200	06/01/2010	\$45.800	12/01/2010	\$46.400						
	06/01/2011	\$47.150	12/01/2011	\$47.810	06/01/2012	\$48.460						
	12/01/2012	\$49.490										
TUNNEL WORK - COMPRESSED AIR	12/01/2009	\$59.430	06/01/2010	\$60.680	12/01/2010	\$61.930						
	06/01/2011	\$63.180	12/01/2011	\$64.430								
TUNNEL WORK - COMPRESSED AIR (HAZ. WASTE)	12/01/2009	\$61.430	06/01/2010	\$62.680	12/01/2010	\$63.930						
	06/01/2011	\$65.180	12/01/2011	\$66.430								
TUNNEL WORK - FREE AIR	12/01/2009	\$51.500	06/01/2010	\$52.750	12/01/2010	\$54.000						
	06/01/2011	\$55.250	12/01/2011	\$56.500								

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Prevailing Wage Rates

Awarding Authority: City of Waltham Recreation Department

Contract Number:

City/Town: WALTHAM

Description of Work: Nipper Maher Park Improvements Phase 5B. Construction of a new instructional baseball field and related park and open space improvements.

Job Location: Dartmouth Street Waltham, MA

Classification	Effective Dates and Total Rates							
TUNNEL WORK - FREE AIR (HAZ. WASTE)	12/01/2009	\$53.500	06/01/2010	\$54.750	12/01/2010	\$56.000		
	06/01/2011	\$57.250	12/01/2011	\$58.500				
VAC-HAUL	12/01/2009	\$44.620	06/01/2010	\$45.220	12/01/2010	\$45.820		
	06/01/2011	\$46.570	12/01/2011	\$47.230	06/01/2012	\$47.880		
	12/01/2012	\$48.910						
WAGON DRILL OPERATOR	12/01/2009	\$47.350	06/01/2010	\$48.350	12/01/2010	\$49.600		
	06/01/2011	\$50.600	12/01/2011	\$51.850				
WASTE WATER PUMP OPERATOR	12/01/2009	\$58.530	06/01/2010	\$59.780	12/01/2010	\$61.030		
WATER METER INSTALLER	03/01/2010	\$67.500						
Outside Electrical - East								
CABLE TECHNICIAN (Power Zone)	08/31/2008	\$32.380						
CABLEMAN (Underground Ducts & Cables)	08/31/2008	\$42.160						
DRIVER / GROUNDMAN CDL	08/31/2008	\$37.490						
DRIVER / GROUNDMAN -Inexperienced (<2000 Hrs)	08/31/2008	\$30.320						
EQUIPMENT OPERATOR (Class A CDL)	08/31/2008	\$46.160						
EQUIPMENT OPERATOR (Class B CDL)	08/31/2008	\$39.800						
GROUNDMAN	08/31/2008	\$29.820						
GROUNDMAN -Inexperienced (<2000 Hrs.)	08/31/2008	\$25.460						
JOURNEYMAN LINEMAN	08/31/2008	\$53.830						
APPRENTICE: LINEMAN (Outside Electrical) - East Local 104								
Ratio	Step	1	2	3	4	5	6	7
1:2	%	60.00	65.00	70.00	75.00	80.00	85.00	90.00
Apprentice wages shall be no less than the following:								
Step 1\$39.86/2\$39.85/3\$41.85/4\$43.85/5\$45.84/6\$47.85/7\$49.84								
TELEDATA CABLE SPLICER	03/01/2007	\$27.330						
TELEDATA LINEMAN/EQUIPMENT OPERATOR	03/01/2007	\$27.330						
TELEDATA WIREMAN/INSTALLER/TECHNICIAN	03/01/2007	\$27.330						
TREE TRIMMER	02/01/2009	\$19.010						
This classification applies only to the trimming of branches on and around utility lines.								
TREE TRIMMER GROUNDMAN	02/01/2009	\$17.060						
This classification applies only to the trimming of branches on and around utility lines.								

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Prevailing Wage Rates

Awarding Authority: City of Waltham Recreation Department

Contract Number:

City/Town: WALTHAM

Description of Work: Nipper Maher Park Improvements Phase 5B. Construction of a new instructional baseball field and related park and open space improvements.

Job Location: Dartmouth Street Waltham, MA

Classification

Effective Dates and Total Rates

Additional Apprentices 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) unless otherwise specified.

- * Ratios are expressed in allowable number of apprentices to journeymen or fraction thereof.
- ** Multiple ratios are listed in the comment field.
- *** The job site ratio of 2 apprentices (APP) for every 3 journeymen (JM) is allowed as follows:
 1 JM: 1 APP; 2-3 JM: 2 APP; 4-6 JM: 4 APP; 7-9 JM: 6 APP; 10-12 JM: 8 APP; 13-15 JM: 10 APP; etc.
- **** The job site ratio of 2 apprentices (APP) for every 3 journeymen (JM) is allowed as follows:
 1-2 JM: 1 APP; 3-4 JM: 2 APP; 5 JM: 3 APP; 6-7 JM: 4 APP; 8 JM: 5 APP; etc.

This wage schedule must be posted at the work site in accordance with M.G.L. c. 149, § 27. Failure of the employer to pay "prevailing wage rates," which are the minimum wage rates listed above, on public works projects is a violation of M.G.L. c. 149, § 27. Employees not receiving such rates should report the violation to the Office of Fair Labor and Business Practices, 100 Cambridge Street, Boston, MA 02108; Tel: 617-727-3465. For any questions about the wage rates or classifications included on the wage schedule, please call DOS at 617-626-6952.

DIVISION – 1
General Conditions

Compliance

(Documents to submit with your Bid.)

Compliance

The compliance documents in this section must be completed, signed and returned **with your bid package**.

Purchasing Department

City of Waltham

610 Main Street

Waltham, MA 02452

Failure to submit the completed documents will cause the disqualification of the proposal.

Section Index

	Check when Complete
• Non-collusion form and Tax Compliance form.....	_____
• Corporation Identification Form.....	_____
• Certificate of Vote Authorization.....	_____
• Certificate of Insurance (showing all limits of WC &GL).....	_____
• Three (3) References.....	_____
• 5% Bid Bond or Certified Check.....	_____
• Debarment Certificate	_____
• Right-to-know Law.....	_____
• OSHA 10 Certificate for all Assigned Employees (MGL ch30, §39M and Ch 149) .	_____

Before the commencement of the Job, the contractor must provide to the above office:

- Performance Bond for 100% of the contract value and naming the City of Waltham
(Letter must be included with your response attesting that your company is able to get the required bonding, see Sections 00501 and 00502)

Your Company's Name: _____

Service or Product Bid _____

NOTE: Failure to submit any of the required documents, in this or in other sections, with your bid response package may cause the disqualification of your proposal.

NON-COLLUSION FORM AND TAX COMPLIANCE FORM

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 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 of individuals. The undersigned certifies that no representations made by any City officials, employees, entity, or group of individuals other than the Purchasing Agent of the City of Waltham was relied upon in the making of this bid

(Signature of person signing bid or proposal)

(Name of business)

TAX COMPLIANCE CERTIFICATION

Pursuant to M.G.L. c. 62C, & 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 person submitting bid or proposal

Name of business

NOTE

Failure to submit any of the required documents, in this or in other sections, with your bid response package may cause the disqualification of your proposal.

CERTIFICATE OF VOTE OF AUTHORIZATION

Date:

I _____, Clerk of _____ hereby certify that at a meeting of the Board of Directors of said Corporation duly held on the _____ day of _____ at which time a quorum was present and voting throughout, the following vote was duly passed and is now in full force and effect:

VOTED: That _____ (*name*) is hereby authorized, directed and empowered for the name and on behalf of this Corporation to sign, seal with the corporate seal, execute, acknowledge and deliver all contracts and other obligations of this Corporation; the execution of any such contract to be valid and binding upon this Corporation for all purposes, and that this vote shall remain in full force and effect unless and until the same has been altered, amended or revoked by a subsequent vote of such directors and a certificate of such later vote attested by the Clerk of this Corporation.

I further certify that _____ is duly elected/appointed _____ of said corporation

**SIGNE
D:**

(Corporate Seal)

Clerk of the Corporation:

Print Name: _____

COMMONWEALTH OF MASSACHUSETTS

County of _____

Date:

Then personally appeared the above named and acknowledged the foregoing instrument to be their free act and deed before me, _____

Notary Public;

My Commission expires: _____

CORPORATION IDENTIFICATION

The bidder for the information of the Awarding Authority furnishes the following information.

If a Corporation:

Incorporated in what state _____

President _____

Treasurer _____

Secretary _____

Federal ID Number _____

If a foreign (out of State) Corporation – Are you registered to do business in Massachusetts?

Yes _____, No _____

If you are selected for this work you are required under M.G.L.ch. 30S, 39L to obtain from the Secretary of State, Foreign Corp. Section, State House, Boston, a certificate stating that you Corporation is registered, and furnish said certificate to the Awarding Authority prior to the award.

If a Partnership: (Name all partners)

Name of partner _____

Residence _____

Name of partner _____

Residence _____

If an Individual:

Name _____

Residence _____

If an Individual doing business under a firm's name:

Name of Firm _____

Name of Individual _____

Business Address _____

Residence _____

Date _____

Name of Bidder _____

By _____

Signature _____

Title _____

Business Address _____ (POST OFFICE BOX NUMBER NOT ACCEPTABLE)

City _____ State _____ Telephone Number _____

Lazazzero | McCabe Improvements
Waltham, Massachusetts

01010-35

SUMMARY OF WORK

PROVIDE THREE (3) SERVICE APPROPRIATE REFERENCES

1. Company Name:

Address:

Contact Name:

Phone #

Type of service/product provided to this Company:

Dollar value of service provided to this Company:

2. Company Name:

Address:

Contact Name:

Phone #

Type of service/product provided to this Company:

Dollar value of service provided to this Company:

3. Company Name:

Address:

Contact Name:

Phone #

Type of service/product provided to this Company:

Dollar value of service provided to this Company:

NOTE

Failure to submit any of the required documents, in this or in other sections, with your bid response package will be cause for the disqualification of your company.

Lazazzero | McCabe Improvements
Waltham, Massachusetts

01010-36

SUMMARY OF WORK

**WEEKLY PAYROLL RECORDS REPORT &
STATEMENT OF COMPLIANCE**

In accordance with Massachusetts General Law c. 149, §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, on a weekly basis, a copy of his or her weekly payroll records to the awarding authority. For every week in which an apprentice is employed, a photocopy of the apprentice's identification card must be attached to the payroll report. Once collected, the awarding authority is also required to preserve those reports for three years.

In addition, each such contractor, subcontractor, or public body shall furnish to the awarding authority directly, 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

_____, 200__

I _____, _____
(Name of signatory party) (Title)

I 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 _____

**Lazazzero | McCabe Improvements
Waltham, Massachusetts**

01010-37

SUMMARY OF WORK

RIGHT TO KNOW LAW

Any vendor who receives an order or orders resulting from this invitation agrees to submit a Material Safety Data Sheet (MSDS) for each toxic or hazardous substance or mixture containing such substance, pursuant to M.G.L. c. 111F, §§8,9 and 10 and the regulations contained in 441 CMR 21.06 when deliveries are made. The vendor agrees to deliver all containers properly labeled pursuant to M.G.L. c. 111F §7 and regulations contained in 441 CMR 21.05. Failure to furnish MSDS and/or labels on each container may result in civil or criminal penalties, including bid debarment and action to prevent the vendor from selling said substances, or mixtures containing said substances within the Commonwealth. All vendors furnishing substances or mixtures subject to Chapter 111F or M.G.L. are cautioned to obtain and read the laws, rules and regulations referenced above. Copies may be obtained from the State House Bookstore, Secretary of State, State House, Room 117, Boston, MA (617) 727-2834.

Authorized Signature Indicating Compliance with the Right-to-know laws:

Signature Date

Print Name

NOTE

Failure to submit any of the required documents, in this or in other sections, with your bid response package may cause the disqualification of your proposal.

Lazazzero | McCabe Improvements
Waltham, Massachusetts

01010-39

SUMMARY OF WORK

DEBARMENT CERTIFICATION

In connection with this bid and all procurement transactions, by signature thereon, the respondent certifies that neither the company nor its principals are suspended, debarred, proposed for debarment, declared ineligible, or voluntarily excluded from the award of contracts, procurement or non procurement programs from the Commonwealth of Massachusetts, the US Federal Government and /or the City of Waltham. "Principals" means officers, directors, owners, partners and persons having primary interest, management or supervisory responsibilities with the business entity. Vendors shall provide immediate written notification to the Purchasing Agent of the City of Waltham at any time during the period of the contract or prior to the contract award if the vendor learns of any changed condition with regards to the debarment of the company or its officers. This certification is a material representation of fact upon which reliance will be placed when making the business award. If at any time it is determined that the vendor knowingly misrepresented this certification, in addition to other legal remedies available to the city of Waltham, the contract will be cancelled and the award revoked.

Company Name _____

Address _____

City _____, State _____, Zip Code _____

Phone Number (____) _____

E-Mail Address _____

Signed by Authorized Company Representative:

Print name _____,

Date _____

Lazazzero | McCabe Improvements
Waltham, Massachusetts

01010-40

SUMMARY OF WORK

10 HOURS OSHA TRAINING CONFIRMATION

Chapter 306 of the Acts of 2004

CONSTRUCTION PROJECTS

AN ACT RELATIVE TO THE HEALTH AND SAFETY ON PUBLIC

The undersigned hereby certifies that all employees to be employed at a worksite for construction, reconstruction, alteration, remodeling, repair, installation, demolition, maintenance or repair of any public work or any public building estimated to cost more than \$10,000.00 have successfully completed 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 at the time the employee begins work and who shall furnish documentation of successful completion of said course with the first payroll report for each employee and will comply with all laws and regulations applicable to awards of subcontracts subject to section 44F.

Company Name: _____

Address: _____

Signature: _____

Title: _____

Print Name _____

See following Chapter 306 of the Acts of 2004

NOTE

Failure to submit any of the required documents, in this or in other sections, with your bid response package will be cause for the disqualification of your company.

Lazazzero | McCabe Improvements
Waltham, Massachusetts

01010-41

SUMMARY OF WORK

SECTION A

SPECIAL CONDITIONS

PROJECT SITE

All of the work of this contract is located within the confines of Lazazzero Park located off of Shore Road in Waltham, Massachusetts and Monsignor McCabe Playground located off of Charlotte Road, in Waltham, Massachusetts.

SUMMARY OF WORK

At Lazazzero Park this contract includes construction of a new parking lot, basketball court, play area as well as improvements to the park and fields including surface improvements, additions of picnic tables, benches, seat walls and installation of new chain link fencing and screening. This contract also includes pond edge improvements, landscaping and tree planting and all other work whether obvious or implied as required to make the work of the contract compete and acceptable to project representative(s).

At Monsignor McCabe Playground this contract includes construction of new terraced seating as well as improvements to the park and fields including storm drainage improvements, field improvements, installation of chain link fencing and screening, picnic tables and benches. This contract also includes landscaping and tree planting and all other work whether obvious or implied as required to make the work of the contract compete and acceptable to project representative(s).

All work shall be accomplished in accordance with the accompanying plans, details and specifications as necessary and in full accordance with the directions of the Owner.

COOPERATION OF THE CONTRACTOR

Prospective bidders are advised that all of the work of this contract shall be accomplished in a time and sequence that is acceptable to the City of Waltham. The City, before the start of work under this contract, shall approve routes of travel to work areas. Trips to work areas shall be kept within the approved routes of travel. Vehicle access and circulation beyond the agreed upon routes will be strictly prohibited.

WORK WITHIN A PUBLIC PARK

As a point of information, all of the work to be undertaken is located within the confines of a large, unsecured public park, and as such is subject to acts of vandalism. The contractor shall take all means and measures necessary to protect work in progress, work completed, and all furnishings, materials and equipment stored at the site through completion of the project. The repair or replacement of work in place or in progress shall be the sole responsibility of the contractor and shall be accomplished at no cost to the Owner.

STORAGE OF MATERIALS AND EQUIPMENT

The storage of equipment and materials within the confines of the Park shall be subject to the approval of Project Representatives and shall be at the Contractor's own risk.

TIME FOR COMPLETION AND SEQUENCE OF WORK

- a. The work of this Contract shall be commenced at the time stipulated by the Owner in the Notice to Proceed and shall be fully completed within 120 calendar days thereafter except as the work may be interrupted by weather conditions. The Contractor shall employ sufficient equipment and workers to complete the installation as expeditiously as possible as directed by the Owner's Representative.
- b. The City shall determine when the work shall be interrupted due to unsatisfactory weather conditions. Determination of the period to be included in the Time for Completion shall cease when the City directs that the work stop due to weather and shall commence again on the first working day thereafter that the City may designate for the work to be resumed.

REFERENCES

All references contained in the Contract Documents to "landscape architect" or "engineer" shall refer to the Owner's Representative.

RESPONSIBILITIES OF CONTRACTOR

- a. Except as otherwise specifically stated in the Contract Documents and Technical Specifications, the Contractor shall provide and pay for all materials, tools, labor, equipment, water, light, heat, power, transportation, superintendence, temporary construction of every nature, charges, levies, fee or other expenses, permits and back charges and all other services and facilities of every nature whatsoever necessary for the performance of the Contract and to deliver all improvements embraced in this Contract completed in every respect within the specified time.
- b. Unless otherwise specified herein all materials, workmanship, methods, and practices shall conform to the current Standards of the appropriate Department or Commission of the City.
- c. The Contractor shall be responsible for detailed layout; all stakeout and grade control, and shall employ a registered Professional Engineer or a registered Land Surveyor for this purpose. The Owner will provide coordination by the Designer.
- d. The Contractor shall verify dimensions and utility locations shown on the plans and if any inconsistencies or discrepancies should be noted on the Drawings, or between the Drawings and actual field conditions, or between the Drawings and the Specifications

he/she shall immediately notify the Owner. The Contractor will be held responsible for any errors resulting from his/her failure to exercise the aforementioned precaution. Such information shall be marked on copies of the as-built drawings and the original As-Built drawings.

- e. The Contractor shall maintain a full time supervisor or supervisor on the construction site, whether the construction forces are employed by his construction company or employed by a Sub-Contractor.
- f. As soon as the Contract is executed, the Contractor shall order materials, submit construction schedules as hereinafter specified, and otherwise anticipate the Notice to Proceed. When the Owner gives the Notice to Proceed, the work of construction shall begin at the time stipulated therein and shall be completed within the Time for Completion specified.
- g. It is the Contractor's responsibility to make his own investigation and related assumptions, to satisfy himself/herself as to subsurface conditions, and to insure that these are reflected in the bid.
- h. The Contractor's attention is called to the necessity of obtaining permits especially those required by various departments of the City. These permit fees will not be waived by the City and must be paid in full by the Contractor.
- j. The contractor shall furnish and maintain all temporary fence, barriers, enclosures, lights and warning devices necessary to protect his/her work area and to protect the public and his work forces throughout the life of this contract.

COMMUNICATIONS

- a. All notices, demands, requests, instructions, approvals, proposals and claims must be in writing and must be presented to the Engineer in person or by mail to the Owner.
- b. Any notice to or demand upon the Contractor shall be considered sufficiently given if delivered at the office or field office of the Contractor stated on the signature page of the Agreement (or at such other office as the Contractor may from time to time designate in writing to the Owner), or if deposited in the United States mail in a sealed, postage prepaid envelope, or delivered with charges prepaid to any telegraph company for transmission, in each case addressed to such office.
- c. All papers required to be delivered to the Owner shall, unless otherwise specified in writing to the Contractor, be delivered to Sandra Tomasello, Director of the Waltham Recreation Department, 510 Moody Street, Waltham, MA 02453 and any notice to or demand upon the Owner shall be sufficiently given if so delivered, or if deposited in the United States mail in a sealed, postage-prepaid envelope, or delivered with charges prepaid to any telegraph company for transmission to said Owner at such address, or to such other representatives of the Owner or to such other address as the Owner may subsequently specify in writing to the Contractor for such purpose.

- d. Any such notice shall be deemed to have been given as of the time of actual delivery or (in the case of mailing) when the same should have been received in due course of post, or in the case of telegrams, at the time of actual receipt, as the case may be.

PARTIAL USE OF SITE IMPROVEMENTS

The Owner, at its election, may give notice to the Contractor and place in use those sections of the improvements which have been completed, inspected and can be accepted as complying with the Technical Specifications and if, in its opinion, each such section is reasonably safe, fit and convenient for the use and accommodation for which it was intended, provided:

1. The use of such sections of the improvements shall in no way impede the completion of the remainder of the work by the Contractor.
2. The Contractor shall not be responsible for any damages or maintenance costs due directly to the use of such sections.
3. The use of such sections shall in no way relieve the Contractor of his liability due to having used defective materials or due to poor workmanship.
4. The period of guarantee stipulated in the specifications shall not begin to run until the date of the final acceptance of all work which the Contractor is required to construct under this Contract.

CONTRACT DOCUMENTS

The Owner will furnish the Contractor, without charge, six (6) complete copies of the Contract Documents. Additional copies requested by the Contractor will be furnished at cost.

FIRE PROTECTION AND PREVENTION

The Contractor shall keep the site free of rubbish and construction debris at all times.

1. He shall provide sufficient metal barrels or dumpsters into which all refuse and garbage shall be deposited. All containers shall have tight fitting covers. These shall be secured overnight or removed daily.
2. At the end of each workweek, the Contractor shall thoroughly clean premises of rubbish and debris of any nature, and remove such from the premises.

RUBBISH REMOVAL

The Contractor and each Subcontractor shall remove all rubbish, waste, tools, equipment, and appurtenances caused by and used in the execution of his work; but this shall in no way be construed to relieve the Contractor of his primary responsibility for maintaining the site clean and free of debris, leaving all work in a clean condition.

RECORD DRAWINGS - AS-BUILT

- a. The Contractor shall cooperate with the Engineer and shall prepare and maintain a set of drawings on which shall be recorded accurately, as the work progresses, the actual "as built" locations and dimensions of all his work, indicating thereon all variations from the Contract Drawings. This record of "as built" conditions shall include the work of all subcontractors and shall be submitted, upon final acceptance of all work, to the Engineer.
- b. Prior to final acceptance of the work, all "as built" data shall be transferred to an AutoCAD drawing. This work shall be performed by the Contractor's Registered Land Surveyor with the cooperation of the Contractor as required. After review and approval by the Engineer the record drawings will be completed and delivered to the Owner, four prints shall be delivered to the Owner's Representative

CONSTRUCTION SCHEDULES AND PAYMENT ESTIMATES

- a. The Contractor must submit a construction schedule to the Owner indicating the general sequence of all work under this Contract. This schedule must be submitted within 7 days of the date of the Notice-to-Proceed and shall be revised if required to the satisfaction of the Owner.
- b. The Contractor shall submit a breakdown cost estimate for all items of work in categories approved by the Engineer.
- c. The established breakdown of items, categories and values shall be utilized to prepare the monthly pay requisition forms. It is recommended that the Contractor submit a draft pay requisition to the Engineer for approval, no later than the second week of every month. The Engineer shall review and edit this copy to indicate the amount of payment to be approved and return this to the Contractor after field review. The Contractor shall then formally submit four (4) copies of the pay requisition, conforming to the Engineer's approval, for payment by the Owner.

PROGRESS MEETINGS ARE REQUIRED FOR THIS PROJECT

- a. The Contractor and other Sub-contractors as the Engineer may direct shall attend a regular weekly or bi-monthly meeting with the Owner present for the purpose of justifying the payment requests and facilitating with coordination of the project.
- b. Other meetings may be desired by the Engineer from time to time, and these shall be

attended by the Contractor and such Sub-contractors as are directed to attend.

- c. The Contractor shall hold regularly scheduled weekly coordinating and scheduling meetings at the job site. The Owner and the Engineer shall be admitted and may participate in such meetings.

PHOTOGRAPHS

The Contractor shall be required to furnish five (5) views of before, during and after photographs of site conditions. The Contractor is encouraged to submit "during" photographs along with each pay requisition to facilitate approvals.

UTILITIES

- a. The Contractor shall obtain and pay for all licenses and/or permits, which are required by the City or any other agencies that may be involved; he shall comply with all codes, regulations and standards of the City.
- b. DIG SAFE (1-800-322-4844), the City, and all private companies or any agencies whose utilities are in the construction, shall be notified by the Contractor at least seventy-two (72) hours prior to the start of any excavation. The Contractor shall be required to cooperate with the utility companies involved in order to assure completion of all work with the least amount of delay.

SHOP DRAWINGS/SUBMITTALS

- a. The Contractor shall be required to submit shop drawing, samples or other submittals as indicated in the technical specifications.
- b. If it is the intent of the Contractor to furnish and install appurtenances and elements as specified and detailed on the plans, and where shop drawings are requested, a letter to the Engineer indicating that these will be ordered and installed as specified shall suffice. In the instance of any discrepancies in the plans and the actual dimensions or size of materials, the Contractor shall be responsible to make any and all adjustments necessary to install the materials as set forth in the Contract Documents.
- c. The Contractor shall furnish one (1) reproducible copy of any shop drawings that may be required.
- d. The Contractor shall be responsible for the prompt submission of all shop and working drawings so that there will be no delay in the work.
- e. The approval of shop and working drawings will be general and shall not relieve the Contractor from the responsibility for details of design, dimensions, etc., necessary for proper fittings and construction of the work as required by the Contract and to ensure the safety of the public.

PROVISIONS FOR PUBLIC SAFETY AND CONVENIENCE

- a. Particular care shall be taken to establish and maintain such methods and procedures as will not create hazards. Access to all park facilities and shall be maintained in a reasonable and safe manner for the duration of the construction period.
- b. Every reasonable effort shall be made to reduce to a minimum any interference with or inconveniences to park operations and park patrons due to the construction work. Excavated material shall be trucked away and returned if the Engineer deems it necessary and practical as a means for avoiding serious interference with and inconvenience to business concerns and abutters.
- c. The Contractor's attention is directed to the fact that the work on this project is to be performed within a recreation area and adjacent to park drives and walkways which are utilized by pedestrians, bikers, joggers and vehicles. The Contractor shall be responsible for the installation of adequate precautions and other safety measures and controls deemed necessary by the Engineer in order to protect all park users. Any automotive equipment not protected by traffic cones that is operating on a public way under this project shall have one amber flashing warning light mounted on the cab roof or on the highest practical point of the machinery. This light shall be in operation while the equipment is so working.
- d. Trenches shall not be opened in park areas until all material and equipment required for the work are on the site and available for immediate use. The work at each trench shall be practically continuous, with the placing of utilities, backfill and patching (where applicable) of the surface closely following each preceding operation. When work is not in progress, trenches in areas subject to use by park patrons shall be covered with steel plates capable of safely sustaining all anticipated loads.
- e. The Contractor shall provide traffic signs, warning markers and other construction safety measures as necessary to maintain public safety and optimum traffic flow. Parking of personal vehicles will be prohibited in construction areas as directed.
- f. With suspension of construction activities during holidays, weekends and nights, the Contractor shall remove temporary traffic and/or safety control devices, as requested, and return them to their positions when work begins again. Payment for the installation and maintenance of appropriate safety provisions shall be included under the base bid price and no separate payment shall be considered.
- g. The Contractor shall without additional compensation be required to maintain access to the project area for fire apparatus and other emergency vehicles at all times.

SITE INSPECTION

It shall be contingent upon the Contractor to inspect the site as an aid to determining the extent of his work under the various contract items before submission of his bid.

PROTECTION OF EXISTING FACILITIES

- a. All existing walks, pipes, conduits, poles, fences, stairways, curbing, walls, buildings, trees and other structures which are to remain in place shall be carefully supported and protected from injury by the Contractor without additional compensation and in case of injury they shall be restored by him without compensation therefor to as good condition as that in which they were found. The value of any trees damaged shall be determined in accordance with established practices of the American Association of Nurserymen or a Registered or Certified Arborist selected by the Engineer. Limits of liability shall not be limited to the replacement with new and immature trees.
- b. The Contractor shall, at his own expense, provide suitable and safe bridges and other crossings, where required for accommodation of travel and to provide access to private property during construction, and shall remove said structures thereafter.
- c. The location of prior existing utility systems is not known and therefore may not be shown on the drawings prepared for this project. The existence of utilities shall not be considered as an unusual obstacle, and the Contractor shall not be entitled to extra compensation for maintaining, protecting, or repairing these utilities. The Contractor shall use the exploratory excavation included in his contract price, whenever he/she or the Owner's representatives deem it necessary to verify, or prevent interruption of, existing services. The Contractor shall utilize the exploratory excavation included in his contract price, whenever he or the owner's representatives deems it necessary to verify, or prevent interruption of existing services.

SAMPLING AND TESTING OF MATERIALS AND COMPACTION

- a. Sampling and testing ordered by the Engineer to ensure that materials are as specified and that compaction of all materials conforms to the necessary requirements shall be taken and completed by representatives of a Massachusetts certified testing laboratory satisfactory to the Engineer, and shall be paid for by the Contractor or by the City as described in the technical specifications.

- - - END OF SECTION - - -

SECTION 01010

SUMMARY OF WORK

PART 1- GENERAL:

1.01 PROJECT DESCRIPTION

The project is the improvements to Lazazzero Park and Monsignor McCabe Playground as described in the Contract Documents.

1.02 CONTRACT TIME

- A. The work of this contract shall be completed by June 15, 2012.
- B. The Contractor shall submit shop drawings, data and samples or place his/her order sufficiently early to permit consideration and approval by the Landscape Architect before materials are necessary for incorporation into the Work. Any delay resulting from the Contractor's failure to do so shall not be used as a basis of a claim against the Owner.

1.03 CONTRACT DOCUMENTS

The Contract Documents are enumerated in the Agreement, and include these Specifications and the Drawings, as prepared for City of Waltham, by Weston & Sampson Engineers, Inc.

1.04 INSPECTION OF THE SITE

It is a contract requirement of the Contractor that his/her subcontractor shall have thoroughly inspected the site during the bidding period. By submitting a bid they confirm that they are thoroughly familiar with the site and all existing conditions which impact and affect their work. Requests for extra compensation will not be considered for any work which could have been foreseen by a visual inspection of the site.

1.05 CONTRACTOR'S USE OF THE SITE

- A. The contractor will have full access to the site shown within the Contract Limit of Work Line.
 - 1. The Contractor, his/her Subcontractors, and their employees may park on the site inside the Contract Limit of Work Line, given that no such on-site parking interferes with the site work.
 - 2. The Contractor shall furnish his/her own toilet facilities on-site.
- B. The Contractor shall take all precautions necessary to protect all abutting properties during construction. Any and all damage caused by construction operations shall be repaired.

1. The project site shall be kept clean and free from accumulation of waste material and debris.
2. The Contractor, his/her Subcontractors, and their employees shall be respectful and courteous of the neighborhood while working on site.

1.06 ENCLOSURES

Provide at the earliest practical time temporary enclosure of materials, work in progress and completed portions of the work to provide protection to the work and the employees.

1.07 SAFETY AND SECURITY

- A. The Contractor shall be responsible for the safety and security of the site within the Contract Limit of Work Line and for the safety of all persons who enter within the Contract Limit of Work Line.
- B. The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions & programs in connection with the work. He/she shall promulgate safety regulations and shall notify the Owner of particular hazards.
- C. The Contractor shall erect and maintain, as required by existing conditions and progress of work, all reasonable safeguards for safety and security. This includes the construction of barriers and the posting of danger signs and other warnings against hazards. By these and other necessary methods the Contractor shall stop unauthorized entry within the Contract Limit of Work Line.
- D. The Contractor shall cooperate with and maintain a close liaison with the Police Department and Fire Department, and he/she shall abide by safety or security related requests from any of these authorities.

1.08 WORK TO BE DONE

The work of this Contract includes construction of a new basketball court, playground, terraced seating and other related site improvements located within the confines of Lazazzero Park and Monsignor McCabe Playground and includes, but is not necessarily limited to the following:

1. Construction of a basketball court
2. Construction of a playground
3. Construction of terraced seating and concrete walls
4. Excavation, backfill and grading
5. Improvements to skinned infield, player's benches and bleachers
6. Installation of chain link fencing
7. Installation of expanded irrigation systems
8. Installation of drainage pipe, underground storage system and leaching catch basins
9. Seeding and or sodding of field and lawn areas as designated
10. Installation of an asphalt walking path
11. Landscaping and tree planting
12. Installation of other miscellaneous site improvements as designated in the Contract Documents

- END OF SECTION

**Lazazzero | McCabe Improvements
Waltham, Massachusetts**

01010-2

SUMMARY OF WORK

SECTION 01025

MEASUREMENT AND PAYMENT

PART 1 - GENERAL:

1.01 BASE BID

A. Measurement

1. Measurement for payment of Lazazzero Park and Monsignor McCabe Playground Improvements shall be on a lump-sum basis.

B. Payment

1. Payment of the lump-sum price under the Base Bid of the Proposal shall fully compensate the Contractor for furnishing all labor, materials, equipment and incidentals required for work described in SECTION 01010, SUMMARY OF WORK of these Specifications.
2. Contractor shall submit substantiated estimates for payment in an approved form at monthly intervals or when mutually agreed by Contractor and Landscape Architect/Engineer.

1.02 ADDITIONAL WORK

- A. Increases or decreases in the quantities of certain classes of work, when ordered or approved in writing by the Landscape Architect.
- B. Additional Work, if any shall be performed at a mutually satisfactory price agreed upon between the Landscape Architect/Engineer and Contractor.

- - - END OF SECTION -

SECTION 01028

CHANGE ORDER PROCEDURE

PART 1 - GENERAL:

PROCEDURE

All executed change orders submitted to the Engineer for review and processing must be prepared in accordance with Architect's requirements with the appropriate number of copies, calculation sheet(s) and all other supporting documentation necessary for evaluation. Failure to comply with these instructions will result in denial of the change order. All Change orders, prior to the commencement of the work, must have the approval of the City's Purchasing Agent, the City Auditor, the Law Department and the Mayor. No work is to be done until all written approvals have been obtained.

Payment of Change Orders:

Payment of all change orders shall be in accordance with the relevant provisions of Massachusetts General Laws, Chapter 30, Section 39G for non-building construction and Section 39K for building construction as amended from time to time.

Payment of change orders shall be made in accordance with one of the following three methods:

- A. Existing unit prices as set forth in the contract; or
- B. Agreed upon lump sum or unit prices; or
- C. Time and materials

--- END OF SECTION ---

SECTION 01030

ALTERNATES

There is one (1) Add Alternate. Refer to Section 00310 Bid Form for complete descriptions and to relevant Layout & Materials Plans and Specifications.

SECTION 01040

CONTROL OF WORK

PART 1 - GENERAL:

1.01 GENERAL PROVISIONS

Attention is directed to the General Conditions of the Contract, all Divisions of the Specifications and the Contract Drawings, all of which apply to this section.

1.02 PLANT

The Contractor shall furnish plant and equipment which will be efficient, appropriate, and of sufficient quantity to secure a satisfactory quality of work and a rate of progress which will insure the completion of the Work within the time stipulated in the Contract Documents. If at any time such plant appears to the Owner to be inefficient, inappropriate or insufficient for securing the quality of work required or for producing the rate of progress aforesaid, he may order the Contractor to increase the efficiency, change the character, or increase the plant and equipment, and the Contractor shall conform to such order. Failure of the Owner to give such order shall in no way relieve the Contractor of his obligations to secure the quality of work and rate of progress required. In addition, the Contractor shall maintain his equipment, including mufflers, oil seals or gaskets, and air pollution control devices, in proper working order.

1.03 PROJECT MANAGEMENT

- A. The Work must be completed in a continuous uninterrupted operation. The Contractor must use sufficient labor and equipment to complete all the necessary work requirements within a minimum period of time and as stated in the Contract Documents.
- B. Prior to the start of any work, the Contractor shall submit a Progress Schedule in a bar chart form at the preconstruction meeting to the Landscape Architect for completing the Work. See SECTION 01300, SUBMITTALS of these Specifications.
- C. The Contractor is fully responsible for the security and safety of partially completed work until the Project is finally accepted by the Owner and the Landscape Architect/Engineer.
- D. Hours of work for construction activities are limited to 7:00 AM to 4:00 PM Monday through Friday. Any changes to the work schedule shall be authorized by the Landscape Architect/Engineer.

- E. All work areas shall be secured, and materials and equipment shall be removed at the end of each work day.
- F. The Contractor shall retain on the Project during its progress, a competent full-time representative. This representative shall not be changed except with the consent of the Owner and Landscape Architect/Engineer. The representative shall be in full charge of the Work and all instructions given to him shall be binding.

1.04 SITE INVESTIGATION OF EXISTING CONDITIONS

- A. The Contractor acknowledges that he/she has satisfied him/herself as to the conditions existing at the Site of the Work, the type of equipment required to perform the Work, the quality and the quantity of the materials to be furnished insofar as this information is reasonably ascertainable from an inspection of the Site, as well as from information presented by the Specifications made a part of the Contract. Any failure of the Contractor to acquaint himself/herself with available information will not relieve him from the responsibility for estimating properly the difficulty or cost of successfully performing the Work.
- B. No claim for extra compensation or extension of time will be allowed due to the Contractor's failure to estimate properly the quantities, locations and measurements of all items required to complete the Work.
- C. Report any discrepancies to the Landscape Architect/Engineer and request her/his interpretation.

1.05 OWNER'S COOPERATION

The Owner will furnish the Contractor, without charge, three (3) copies of the Specifications. Additional copies requested by the Contractor will be furnished at cost.

1.06 PROTECTION OF WORK AREA

- A. The Contractor shall secure all work areas by 4:00 PM each work day.
- B. All of the Contractor's equipment, supplies, etc. left on-site, shall be secured daily, in no case shall the Owner assume responsibility for damage or loss of materials and equipment left on site.
- C. The Contractor shall take precautions to prevent injury to the public due to open excavations or excavated materials. All trenches, excavated materials, equipment, or other obstacles which could be dangerous to the public shall be secured in an agreed upon staging area.

1.07 LAWS AND REGULATIONS

- A. The Contractor shall keep himself fully informed of all State and Federal laws and Municipal ordinances and regulations in any manner affecting those engaged or employed in the Work, or the materials used in the Work, or in any way affecting the conduct of the Work, and of all such orders and decrees of bodies or tribunals having any jurisdiction or authority over the same.
- B. If any discrepancy or inconsistency is discovered in the Plans, Specifications, or Contract for the Work in relation to any such laws, ordinances, regulations, orders or decrees, the Contractor shall forthwith report the same to the Landscape Architect/Engineer in writing. He/she shall at all times himself/herself observe and comply with, and shall cause all his/her agents and employees to observe and comply with all such laws, ordinances, regulations, orders, and decrees, and shall protect and indemnify the Owner and its officers, agents and servants against any claim or liability arising from or based on the violation of any such laws, ordinances, regulations, and orders or decrees, whether by himself/herself or his/her employees or subcontractors.

1.08 PROTECTION OF TREES AND SHRUBS

- A. The Contractor shall take particular care to avoid damage to trees in, along and adjacent to the Work area. Trees shall be protected from injury according to the specifications and the Contract Drawings. No trees or shrubs shall be removed or pruned without the approval of the Owner and the Landscape Architect. The Contractor shall be liable for all damage and/or disturbance to existing trees. Actual penalties for damage to plants shall be in accordance with the schedules defined herein, with assessed damages to be deducted from sums payable under the Construction Contract.
- B. Any measure required for the protection of trees and shrubs shall be considered to be part of the Work to be done under the various divisions of the Work in the Contract, and no separate payment will be made for this Work.

1.09 PERMITS AND CODES

- A. Under this Contract, all work shall be as shown in the Contract Drawings and Specifications and shall comply with applicable codes and regulations at the local, county, state, and federal levels. All labor, materials, equipment and services necessary to make the Work comply with such requirements shall be provided without additional cost to the Owner.
- B. Do not close any street, sidewalk, alley, or passageway. So conduct operations as to interfere as little as possible with the use ordinarily made of roads, driveways,

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alleys, sidewalks, or other facilities near enough to the Work to be affected thereby.

- C. Where code references are given, the latest issue of that Code in effect at the time of bidding shall be used. Code references are given to indicate the minimum quality and performance acceptable. Where Specifications and/or Contract Drawings indicate more stringent requirements, the Specifications or Contract Drawings shall govern.
- D. The Contractor, under this Contract shall be responsible for providing and filing all Plans, Specifications and other documents, pay all requisite fees and secure all permits, inspections and approvals necessary for legal installation and operation of the systems and or equipment furnished under this Contract.
- E. Comply also with applicable provisions of American National Standard Code for Building Construction ANSI A10.6.

1.10 INSPECTION AND TESTS

- A. Under this Contract the Contractor shall conduct and pay for all testing required by the Specifications.
- B. All material and workmanship shall be subject to inspection, examination, by the Landscape Architect/Engineer at any and all times during construction.
- C. All work that is unsatisfactory, or fails to comply with the Specifications in the opinion of the Landscape Architect/Engineer, shall be corrected by the Contractor at his own expense to the satisfaction of the Landscape Architect/Engineer.

1.11 SANITARY REGULATIONS

- A. The Contractor shall provide adequate sanitary facilities for the use of those employed on the Work. Such facilities shall be made available when the first employees arrive on the Site of the Work, shall be properly secluded from public observation, and shall be constructed and maintained during the progress of the Work.
- B. The Contractor shall maintain the sanitary facilities in a satisfactory and sanitary condition at all times and shall enforce their use. He/she shall vigorously prohibit the committing of nuisance on the Site of the Work, on lands of the Owner, or an adjacent property.

1.12 COORDINATION WITH UTILITIES

- A. The Contractor shall coordinate his/her Work with the utility companies to prevent damages or disruption to existing equipment and to coordinate new utility installations. The Contractor shall contact the utility companies owning underground equipment in the area of his work to prior to commencing

excavation. Contact with the utility companies shall be made sufficiently in advance so they can properly locate their equipment.

- B. The Contractor shall contact Dig-Safe (1-888-344-7233) prior to the start of any work prior to the start of construction, and obtain a Certificate verifying that the location work has been completed. Contact the City of Waltham Engineer to verify the location of additional on-site utilities.
- C. The contractor shall be responsible for locating all site items such as utilities that could be affected by this Contract prior to the start of construction.
- D. Site information: No representations are made indicating subsurface conditions. It is expressly understood that the Owner/Landscape Architect/Engineer will not be responsible for interpretations or conclusions drawn therefrom by the Contractor.

1.13 CONSTRUCTION FENCE

- A. The Contractor shall maintain a construction fence installed to secure the Site at all times. Existing fencing may be maintained in place or reused to the extent feasible to satisfy this requirement.
- B. Maintain construction fencing in place throughout length of construction period or as directed by the Landscape Architect/Engineer. After completion of construction, take down construction fencing and remove from the Site. Repair any damage caused by the fence removal, if any.

1.14 FIRE PROTECTION

Gasoline and other flammable liquids shall be stored in and dispensed from UL listed safety containers in conformance with the National Board of Fire Underwriters recommendations. Do not store flammables near buildings. No flammable shall be stored between 4 p.m. and 7 a.m. on workdays; nor anytime on non-workdays.

1.15 CLEAN UP

During the course of the Work, the Contractor shall keep the Site in as clean and neat a condition as possible. He/she shall dispose of all residue resulting from the work. At the conclusion of the day's work, the Contractor shall leave the entire Site of the Work in a neat and orderly condition.

- - - END OF SECTION - - -

SECTION 01200

PROJECT MEETINGS

PART 1 - GENERAL:

1.01 GENERAL PROVISIONS

Attention is directed to the General Conditions of the Contract, all Divisions of the specifications, and the Contract Drawings, all of which apply to work of this section.

1.02 SCOPE OF WORK

Work included: To enable orderly review during progress of the Work, and to provide for systematic discussion of problems, as long as deemed necessary by the Landscape Architect/Engineer and Owner throughout the construction period.

Related work: The Contractor's relations with his subcontractors and materials suppliers, and discussions relative thereto, are the Contractor's responsibility and normally are not part of Project Meetings content.

1.03 QUALITY ASSURANCE

For those persons designated by the Contractor to attend and participate in Project Meetings, provide required authority to commit the Contractor to solutions agreed upon in the Project Meetings.

1.04 MEETING NOTES

The Landscape Architect will compile minutes of each Project Meeting and will furnish copies to all the attendees, Contractor, and the Owner before next scheduled meeting.

PART 2 - EXECUTION:

2.01 MEETING SCHEDULE

- A. Except as noted below for Preconstruction Meeting, frequency of Project Meetings will be weekly, or as determined by the Owner, depending on work progress.
- B. Coordinate as necessary, to establish mutually acceptable schedule for meetings.

2.02 MEETING LOCATIONS

Project Meetings will be held at the job sites.

2.03 PRECONSTRUCTION MEETING

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- A. The contractor shall arrange for a Preconstruction Meeting within 5 days after the award of contract. The limitations on the use of the premises, as outlined in SECTION 01010, SUMMARY OF WORK, will be discussed, and the Owner will describe the parking assignment, delivery procedures, toilet facilities, and other provisions he/she may wish to establish.
- B. Contractor is to coordinate attendance by authorized representatives of the Owner, the Contractor, site work subcontractors, and the Landscape Architect/Engineer.
- C. Minimum agenda: Data will be distributed and discussed on at least the following items:
 - 1. Organizational arrangement of Contractor's forces and personnel, and those of subcontractors, materials suppliers, and Owner.
 - 2. Channels and procedures for communication.
 - 3. Construction schedule, including sequence of critical work.
 - 4. Contract Documents and revisions.
 - 5. Processing of Shop Drawings and other data submitted to the Owner for review.
 - 6. Processing of Bulletins, field decisions, and Change Orders.
 - 7. Procedures for safety, first aid, security, quality control, housekeeping, and related matters.
 - 8. Submittal of Construction Fence layout.
 - 9. Submittal of Progress Schedule, Tabulation of Submittals and
 - 10. Schedule of Values.

2.04 PROJECT MEETINGS

- A. Frequency: Project Meetings shall, in general, be held once a week. Meetings shall be chaired by the Landscape Architect/Engineer, who will also prepare the meeting agenda issued prior to the meeting.
- B. Attendance:

1. To the maximum extent practicable, assign the same person or persons to represent the Contractor at Project Meetings throughout progress of the Work.
 2. Site work subcontractors, material suppliers, and others may be required to attend those Project Meetings in which their aspect of the Work is involved.
- C. Minimum agenda:
1. Review progress of the Work since last meeting, including status of submittals for approval.
 2. Identify problems which impede planned progress.
 3. Develop corrective measures and procedures to regain planned schedule.
 4. Complete other current business.
- D. Revisions to Minutes:
1. Unless published minutes are challenged in writing prior to the next regularly scheduled Project Meeting, they will be accepted as properly stating the activities and decisions of the meeting.
 2. Persons challenging published minutes shall reproduce and distribute copies of the challenge to all indicated recipients of the particular set of minutes.
 3. Challenge to minutes shall be settled at start of the next regularly scheduled meeting.

- - - END OF SECTION - - -

SECTION 01300

SUBMITTALS

PART 1 - GENERAL:

1.01 GENERAL PROVISIONS

- A. Attention is directed to the General Conditions of the Contract, all Divisions of the Specifications, and the Contract Drawings, all of which apply to this section.
- B. Consult the individual Sections of the Specifications for the specific submittals required under those sections and for further details and descriptions of the requirements.

1.02 SCOPE OF WORK

- A. The scope of the work under this Specification section, without limiting the generality thereof, includes the furnishing of all labor material, equipment, services and incidentals necessary to complete all the work in accordance with the contract documents, which are intended to describe and provide for a finished piece of work.
- B. The type of work includes the following without limiting the generality thereof:
 - 1. Progress Schedules
 - 2. Schedule of Values
 - 3. Shop drawings
 - 4. Product Data
 - 5. Samples

1.03 QUALITY ASSURANCE

- A. Coordination of submittals:
 - 1. Prior to each submittal, carefully review and coordinate all aspects of each item being submitted.
 - 2. Verify that each item and the associated submittal conform in all respects with the specified requirements.
 - 3. By affixing the Contractor's signature to each submittal, certify that this coordination has been performed.

- B. Timeliness - The Contractor shall transmit each submittal to the Landscape Architect well in advance of performing related Work or other applicable activities, so that the installation shall not be delayed by processing times, including disapproval and re-submittal (if required), coordination with other submittals, testing, purchasing, fabrication, delivery, and similar sequenced activities. Items such as, play equipment and site furnishings need to be submitted immediately. No extension of time will be authorized because of the Contractor's failure to transmit submittals to the Landscape Architect in advance of the Work.
- C. Sequence - The Contractor shall transmit each submittal in a sequence which will not result in the approval having to be later modified or rescinded by reason of subsequent submittals which should have been processed earlier or concurrently for coordination.
- D. Contractor's Review and Approval - Only submittals received from and bearing the stamp of approval of the Contractor will be considered for review by the Landscape Architect. Submittals shall be accompanied by a transmittal notice stating name of Project, date of submittal, "To" or "From" (Contractor, Subcontractor, Installer, Manufacturer, Supplier), Specification Section or Drawing No. to which the submittal refers, purpose (first submittal, re-submittal), description, remarks, distribution record, and signature of transmitter.
- E. "Or-Equals", "or equal as approved" or "or approved equal" "or equivalent" - On the transmittal, or on a separate sheet attached to the transmittal, the Contractor shall direct attention to any deviations including minor limitations and variations, from the Contract Documents. Do not assume that the materials, equipment, or methods will be approved unless the item has been specifically so approved for this Work by the Owner.
1. The Contractor and all Subcontractors shall submit to the Landscape Architect for consideration of any substitution a written point by point comparison containing the name and full particulars of the proposed product to the product named or described in the Contract Documents. Consideration shall also include the value of any equivalent, especially if a credit is in order.
 2. Such submittal shall in no event be made later than 30 calendar days prior to the incorporation of the item into the Work. In any case in which the time period specified in the Contract Documents from the Notice to Proceed to Substantial Completion is less than 30 days, this requirement can be waived by the Landscape Architect.
 3. Upon receipt of a written request for approval of a substitution, the Landscape Architect shall investigate whether the proposed item shall be

considered equal to the item named or described in the Contract Documents. Upon conclusion of the investigation, the Landscape Architect shall promptly advise that the item is, or is not, considered acceptable a substitution. Such written notice must have the concurrence of the Owner.

4. In no case may an item be furnished on the Work other than the item named or described, unless the Landscape Architect, with the Authority's concurrence, shall consider the item equal to the item so named or described, as provided by M.G.L. c.30 § 39M.
 5. The equality of items offered as "equal" to items named or described shall be proved to the satisfaction of the Landscape Architect at the expense of the Contractor or Subcontractor submitting the substitution. The Owner's decision shall be final in regards to any approval or disapproval.
 6. The Landscape Architect and/or the Authority may require that full size samples of both the specified and proposed products be submitted for review and evaluation. The Contractor or Subcontractor, as the case may be, shall bear full cost for providing, delivering, and disposal of all such samples.
 7. The Contractor or Subcontractor, as the case may be, shall assume full responsibility for the performance of any item submitted as an equivalent and assume the costs of any changes in any Work which may be due to such substitution.
- F. Processing - All costs for printing, preparing, packaging, submitting, resubmitting, handling, inspecting and mailing, or delivering submittals required by this contract shall be included in the Contract Sum.
- G. Unless otherwise indicated on the Contract Drawings, or specified, only new materials and equipment shall be incorporated into the Work. All materials and equipment furnished by the Contractor shall be subject to the inspection and approval of the Owner. No materials shall be delivered to the work without prior approval of the Owner.
- H. By approving and submitting shop drawings, product data, and samples, the Contractor represents that he has determined and verified all materials, field measurements, and field construction criteria related thereto, or will do so, and that he has checked and coordinated the information contained within such submittals with the requirements of the contract documents.
- I. The inspection and approval by the Landscape Architect of shop drawings, product data, and samples is general and does not relieve the Contractor from

responsibility for compliance with the requirements of the contract or for proper dimensions, fitting, construction, and construction sequencing.

- J. The Contractor or Subcontractors shall not be relieved of responsibility for any deviation from the Contract Drawings or Specifications unless the Contractor has specifically informed the Landscape Architect in writing of such deviation, and the Landscape Architect has given specific written approval thereof.
- K. The Contractor shall submit to the Landscape Architect data relating to materials and equipment he proposes to furnish for the Work. Such data shall be in sufficient detail to enable the Landscape Architect to identify the particular product and to form an opinion as to its conformity to the Specifications. Submittals shall, at minimum, include the following:
 - 1. Name of Manufacturer
 - 2. Dimensional requirements for the material
 - 3. Class and/or type of material
 - 4. Strength requirements for the material
 - 5. Sieve analysis of fill materials
 - 6. Refer to Division 2, Section 2.10 for loam acceptance requirements

Or any other information that is required in determining conformance of the submittal with the Specifications or the Contract Drawings.

1.04 LANDSCAPE ARCHITECT'S ACTION

- A. The Landscape Architect will review the Contractor's submittals and return them with one of the following actions recorded thereon by appropriate markings:
 - 1. Final Unrestricted Release: Where marked "Approved" the Work covered by the submittal may proceed provided it complies with the requirements of the Contract Documents.
 - 2. Final-But-Restricted Release: When marked "Approved as Noted" the Work may proceed provided it complies with the Landscape Architect's notations or corrections on the submittal and complies with the requirements of the Contract Documents. Acceptance of the Work will depend upon these compliances.
 - 3. Returned for Resubmittal: When marked "Revise & Resubmit" or "Disapproved", the Work covered by the submittal (purchasing, fabrication, delivery, or other activity) should not proceed. The submittal should be revised or a new submittal resubmitted without delay, in accordance with the Landscape Architect's notations stating the reasons for returning the submittal.

Subject to the provisions of the shop drawing stamp regarding responsibilities and other provisions.

1.05 PROGRESS SCHEDULES

- A. At the Preconstruction Meeting, the Contractor shall submit a progress schedule in bar chart form. Indicate a time bar for each major category or unit of work to be performed, properly sequenced and coordinated with other elements of the work.
- B. With the progress schedule, submit a tabulation of all submittals which will clearly show: the submittal name and section, date to Landscape Architect for review, date required back to Contractor to maintain the orderly progress of the work, and those submittals required early because of long lead time for ordering, manufacture or fabrication. The Contractor shall submit shop drawings, data and samples or place his/her order sufficiently early to permit consideration and approval by the Landscape Architect before materials are necessary for incorporation into the Work. Any delay resulting from the Contractor's failure to do so shall not be used as a basis of a claim against the Owner.
- C. Monthly, as the job progresses, submit updates of the original progress schedule to show actual progress on the job and any revisions to the projected completion date.

1.06 SCHEDULE OF VALUES

With the progress schedule, submit a schedule of values on an AIA "Request for Payment" form which breaks down the contract price by specification sections. This schedule of values shall be in reasonable correspondence with the Contractor's actual costs for each Subcontract or trade, and it shall serve as the basis for the evaluation and approval of monthly requests for Payment as they are submitted.

1.07 SHOP DRAWINGS

- A. Shop drawings shall be complete. Give all information necessary or requested in the individual section of the specifications. They shall also show adjoining Work and details of connection thereto.
- B. Shop drawings shall be for whole systems. Partial submissions will not be accepted.
- C. The Landscape Architect reserves the right to review and approve shop drawings only after approval of related product data and samples.

- D. Shop drawings shall be properly identified and contain the name of the project, name of the firm submitting the shop drawings, shop drawing number, date of shop drawings and revisions, Contractor's stamp of approval, and sufficient spaces near the title block for the Landscape Architect's stamp.
- E. The Contractor shall submit to the Landscape Architect one legible, original and two copies of each shop drawing. Transparency and prints shall be mailed or delivered in roll form. Each submittal shall be accompanied by a transmittal notice.
- F. When the original is returned by the Landscape Architect with the stamp "Revise and Resubmit" or "Disapproved", the Contractor shall correct the original drawing or prepare a new drawing and resubmit the original and two copies thereof to the Landscape Architect for approval. This procedure shall be repeated until the Landscape Architect's approval is obtained.
- G. When the original is returned by the Landscape Architect with the stamp "Approved" or "Approved as Corrected", the Contractor shall provide and distribute the copies for all Contractor and Subcontractors use, and in addition submit, within 10 calendar days after approval, 3 prints to the Landscape Architect.
- H. The Contractor shall maintain one full set of approved shop drawings at the site.

1.08 SUBMISSION OF PRODUCT DATA

- A. The Contractor shall submit one (1) reproducible and one (1) hard copy of Product Data to the Landscape Architect. All such data shall be specific and identification of material or equipment submitted shall be clearly marked in ink. Data of general nature will not be accepted.
- B. Product Data shall be accompanied by a transmittal notice. The Contractor's stamp of approval shall appear on the printed information itself, in a location which will not mar legibility.
- C. Product Data returned by the Landscape Architect as "Disapproved" shall be resubmitted until the Landscape Architect's approval is obtained.

- D. When the Product Data are acceptable, the Landscape Architect will stamp them "Approved" or "Approved as Corrected," retain 3 copies, and return 4 copies to the Contractor. The Contractor shall provide and distribute additional copies as may be required to complete the Work.
- E. The Contractor shall maintain one full set of approved, original, Product Data at the site.

1.09 SUBMISSION OF SAMPLES

- A. Unless otherwise specified in the individual section, the Contractor shall submit two specimens of each sample.
- B. Samples shall be of adequate size to permit proper evaluation of materials. Where variations in color or in other characteristics are to be expected, samples shall show the maximum range of variation. Materials exceeding the variation of approved samples will not be approved on the Work.
- C. Samples which can be conveniently mailed shall be sent directly to the Landscape Architect, accompanied by a transmittal notice. All transmittals shall be stamped with the Contractor's approval stamp of the material submitted.
- D. All other samples shall be delivered at the field office of the Project Representative with sample identification tag attached and properly filled in. Transmittal notice of samples so delivered with the Contractor's stamp of approval shall be mailed to the Landscape Architect.
- E. If a sample is rejected by the Landscape Architect, a new sample shall be resubmitted in a manner specified hereinabove. This procedure shall be repeated until the sample is approved by the Landscape Architect.
- F. Samples will not be returned unless return is requested at the time of submission. The right is reserved to require submission of samples whether or not particular mention is made in the Specifications.

- - - END OF SECTION - - -

SECTION 01400

QUALITY CONTROL

PART 1. - GENERAL:

1.01 GENERAL PROVISIONS

Attention is directed to the General Conditions of the Contract, all Divisions of the Specifications and the Drawings, all of which apply to this section.

1.02. SCOPE OF WORK

- A. The scope of the work under this Specification section, without limiting the generality thereof, includes the furnishing of all labor, materials, equipment, services, and incidentals necessary to complete all of the work in accordance with the Contract Documents, which are intended to describe and provide for a finished piece of work.
- B. The work includes the following, without limiting the generality thereof;
 - 1. The making available to the Owner's testing laboratory any samples or specimens which the laboratory may require to perform quality control testing on concrete, fill materials, or other material as the Owner may elect.
 - 2. The coordinating and scheduling of work and the giving of timely notice so as to afford the Owner's testing laboratory the opportunity to take samples and make observations or tests.

1.03. TESTING LABORATORY

- A. The Owner will select, engage, and pay for the services of an independent testing laboratory to perform structural tests on concrete and such other materials as the Landscape Architect/Engineer may deem appropriate.
- B. Retesting of materials which fail the original test shall be paid for by the Contractor.

SECTION 01500

TEMPORARY FACILITIES

PART 1 - GENERAL:

1.01 GENERAL PROVISIONS

Attention is directed to the General Conditions of the Contract, all Divisions of the Specifications and the Contract Drawings, all of which apply to this section.

1.02 SCOPE OF WORK

- A. The scope of the work under this Specification section, without limiting the generality thereof, includes the furnishing of all labor, materials, equipment, services, and incidentals necessary to complete all of the work in accordance with the Contract Documents, which are intended to describe and provide for a finished piece of work.
- B. The work includes the following, without limiting the generality thereof;
 - 1. Temporary utilities.
 - 2. Field office (not required).
 - 3. Barriers and enclosures.
 - 4. Safety and security.

1.02. TEMPORARY UTILITIES

- A. The Contractor is responsible for all temporary electrical distribution, lighting, and water distribution from existing sources.
- B. The Contractor shall provide and pay for his own temporary telephone service within the Contract Limit Line.
- C. The provision for temporary toilets is included under SECTION 01010 - SUMMARY OF WORK.

1.03 FIELD OFFICE

- A. The contractor is responsible for his/her own office space, if deemed necessary.
- B. The Contractor shall provide appropriate survey equipment on site for use by the Engineer, field checking layouts and installations.

1.04 BARRIERS AND ENCLOSURES

- A. The Contractor shall maintain the construction fence and furnish warning signs around the work area to limit unauthorized entry within the Contract Limit Line.
- B. At the earliest practical time provide temporary enclosure of materials, equipment, work in progress and completed portions of the work to provide protection to the work and employees.

1.05 SAFETY AND SECURITY

- A. The Contractor shall be responsible for the safety and security of the building and the site within the Contract Limit Line, and for the safety of all persons who enter within the Contract Limit Line.
- B. The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the work.
- C. The Contractor shall erect and maintain, as required by existing conditions and progress of the work, all reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations, and notifying the Owner of particular hazards.
- D. The Contractor shall cooperate with and maintain a close liaison with the Police Department and Fire Department, and he shall abide by safety-related requests from any of these agencies.

- - - END OF SECTION - - -

SECTION 01600

CONSTRUCTION LAYOUT

PART I - GENERAL

1.01 SCOPE OF WORK

- a. The work under this section shall consist of field staking the horizontal and vertical alignment of all essential features as shown on the plans by a registered Engineer or Land Surveyor. The Contractor shall familiarize himself with the existing conditions and shall be responsible for locating or re-establishing survey field ties, property lines, and benchmarks indicated on the plans.
- b. Existing survey tie information, if available, shall be provided by the City upon request.
- c. The individual retained to perform the work of this Section shall be as approved by the City Representative.

1.02 QUALIFICATIONS & SUBMITTALS

- a. The Contractor shall engage the services of a Professional Engineer or Land Surveyor Registered in the Commonwealth of Massachusetts and shall submit the name, address, and registration number of such person or persons to the Engineer in writing.
- b. Whenever reference is made on the plans or in these specifications to a Land Surveyor registered in the Commonwealth of Massachusetts, the Contractor may substitute a Registered Professional Engineer, qualified in the laying out of similar facilities.

PART II - MATERIALS

2.01 LAYOUT AND STAKING

- a. The Contractor shall be responsible for furnishing all stakes, pins, and grade markings as required to implement the work of layout and staking and shall make all field adjustments ordered by the Project Representative at no extra cost to the Owner.
- b. Upon request by the Project Representative, the Contractor shall make available to the Owner survey instruments necessary to check the proposed vertical and horizontal alignments at no extra cost.

PART III - EXECUTION

3.01 SURVEY LAYOUT

- a. The Contractor shall use the alignments shown on the plans to establish the layout of all proposed features and shall perform field adjustments as ordered by the Project Representative.
- b. The Surveyor shall lay out the essential or necessary grades and locations of all proposed site elements. The surveyor shall verify the location of any existing spikes, stakes, pipes, drill holes, etc. and shall be responsible for their accuracy. Proposed features shall be located in relation to dimensions shown on the drawings and as adjusted by the Project Representative.
- c. The Contractor shall inform the Project Representative when the general layout is completed and shall not begin excavation until the Project Representative approves the various alignments. Any discrepancies encountered in field conditions shall be reported to the Project Representative immediately and shall be adjusted as directed.
- c. The Contractor shall be responsible for maintaining the correct vertical and horizontal alignment of all elements, which responsibility shall not be waived by the Project Representative's approval of basic layout and stakeout.

- - - END OF SECTION - - -

SECTION 01700

PROJECT CLOSE-OUT

PART 1 - GENERAL:

1.01 GENERAL PROVISIONS

Attention is directed to the General Conditions of the Contract, all Divisions of the Specifications and the Drawings, all of which apply to this section.

1.02. SCOPE OF WORK

- A. The scope of work under this specification section, without limiting the generality thereof, includes the furnishing of all labor, materials, equipment, services, incidentals necessary to complete all of the work in accordance with the Contract Documents, which are intended to describe and provide for a finished piece of work.

- B. The type of work includes the following, without limiting the generality thereof:
 - 1. Substantial completion
 - 2. Final cleaning.
 - 3. Record drawings.
 - 4. Operating and maintenance data.
 - 5. Warranties.
 - 6. Maintenance materials.
 - 7. Final completion.

1.03. SUBSTANTIAL COMPLETION

- A. Prior to requesting Substantial Completion as provided in the General Conditions the Contractor shall make a thorough inspection of the Work. During this inspection the Contractor shall prepare a comprehensive list of all items remaining to be completed or corrected. This list shall include all remaining Contractor and Subcontractor items to be provided under the Contract Documents.

- B. Upon completion of the list, the Contractor shall notify, the Landscape Architect in writing, that the Work is Substantially Complete. The Landscape Architect shall then conduct a thorough inspection. If the Landscape Architect agrees that the Work is Substantially Complete, the Landscape Architect will promptly make a prepare a monetized punch list, setting forth in accurate detail any items on the Contractor's list and additional items that are not acceptable or incomplete. The

Contractor shall coordinate all Subcontractors to achieve prompt completion of the punch list.

- C. The Contractor shall not be relieved of the responsibility to provide Contract items left off of the Landscape Architect's punch list.
- D. If the Landscape Architect determines that the Work is not Substantially Complete, the Landscape Architect shall inform the Contractor of those items that must be completed before the Landscape Architect will prepare a monetized punch list. Upon completion of those items, the Contractor shall again request the Landscape Architect to prepare a punch list.
- E. When the punch list has been prepared, the Landscape Architect will arrange a meeting with the Contractor and Subcontractors to identify and explain all punch list items and answer questions on work which must be done before final acceptance.
- F. The Landscape Architect may revise the punch list, from time to time, to ensure that all items of Work are properly completed.

1.04. FINAL CLEANING

- A. Immediately prior to Substantial Completion of the work, the Contractor shall perform all cleanup work as follows:
 - 1. Remove all waste materials and rubbish from the site and legally dispose of it.
 - 2. Remove all tools, equipment, machinery, surplus material, temporary enclosures, and any other material belonging to the Contractor or his Subcontractors.
 - 3. Clean all surfaces, fixtures, and equipment within the work areas, and any surfaces outside the work area which have been made dirty by the work of the contract. Leave the entire site clean and ready for use.

1.05. RECORD DRAWINGS/AS-BUILT DRAWINGS

- A. During the course of the work the Contractor shall maintain, at the site, a clean set of black line prints of the contract drawings. This set of prints will be marked "Record Drawings" and shall be kept in a clean condition and separate from the drawings in general reference use. On these record drawings, the Contractor shall record all deviations from the work as described in the contract drawings, especially those deviations in utilities work.

- B. At the completion of the work, neat, clean and complete record drawings shall be prepared and submitted to the Owner as a condition precedent to final payment. At his own expense the Contractor shall obtain reproducibles of working drawing sheets from the Owner.

1.06. OPERATING AND MAINTENANCE DATA

At substantial completion of the project, the Contractor shall deliver to the Owner two sets of all operating and maintenance instructions for the various pieces of equipment or parts included in the project. This information shall be neatly bound in loose leaf notebooks for the Owner's permanent record.

1.07. WARRANTIES

At substantial completion of the project, the Contractor shall deliver to the Landscape Architect copies of all warranties for the various materials and pieces of equipment included in the project. These warranties shall be submitted in duplicate and shall be bound together with the operating and maintenance data called for above.

1.08 FINAL COMPLETION

- A. Related Requirements: The Contractor's attention is directed to the General Conditions of the Contract.

- B. Final Completion:

1. Within 10 days after Substantial Completion, if any of the items on the Landscape Architect's punch list are not complete or if the Contractor has not provided the appropriate Record Drawings, Operating Manuals, Warranties, Guarantees, or Spare Parts, the Landscape Architect shall assign a monetary value for each incomplete item as well as any other items as provided by M.G.L. c.30 sec.39K.
2. The Contractor shall provide the Landscape Architect with a Notarized Contractor's Certificate and Release and an appropriate Application for Payment. This Application shall be for an amount equal to the remaining balance of the Contract less the amount of the Landscape Architect's monetized punch list and any other items as provided under M.G.L. c.30 sec.39K.
3. The Contractor shall complete all remaining Work in accordance with the provisions of the General Conditions.
4. Upon completion of all remaining items, and after receipt of all appropriate Record Drawings, Operating Manuals, Warranties, Guarantees

and Spare Parts required by the Contract Documents, The Contractor shall provide a notarized Contractor's Certificate and Release and a final Application for Payment to complement this close-out process.

5. The Contractor shall provide copies of Lien Waivers for all subcontractors and suppliers to obtain final payment. No final payment or release of retainage shall be made without notarized copies of all Lien Waivers for the completed project.

- - - END OF SECTION - - -

DIVISION – 2
Site Work

SECTION 02220

DEMOLITION

PART I - GENERAL

1.01 SCOPE OF WORK

- a. Work under this Section shall consist of the careful removal, storage for reuse, transportation off-site, or demolition, of all structures and site features encountered or noted to be removed or abandoned to a minimum of three feet below finished grade, and the removal and disposal of all materials not called for to be reused or salvaged, in accordance with the contract drawings, these specifications, and the directions of the Engineer. Provide all labor, equipment, materials and transportation necessary to complete the work.
- b. Items plan referenced to be removed and stored shall be carefully removed and stored on site in a manner and location designated by the Engineer for reinstallation later as shown on the plans or as directed by the Engineer.
- c. Items plan referenced, or as directed by the Engineer to be removed and disposed of shall be removed from the site and properly and legally disposed of by the Contractor.
- d. Items indicated on the contract drawings or in the specifications to be removed and salvaged, or other items directed to be removed by the Engineer, shall be transported to a municipal storage facility, located within the City confines, and unloaded and stacked as directed by the Engineer.
- e. The following scope describes the general work/demolition requirements of this Section.
 1. Cement concrete and bituminous concrete pavements.
 2. Players benches play area and all related concrete footings complete.
 3. Chain link fencing and footings complete.
 4. Concrete bleachers
 5. Segmental block walls basketball backboards, supports and footings
 6. Other features as indicated on the drawings.

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1.02 PROTECTION

- a. The Contractor shall assume complete responsibility and liability for the safety and structural integrity of all work and utilities to remain during demolition.
- b. Provide safeguards including, but not limited to, warning signs, barricades, temporary fences, warning lights and other items required for protection of personnel and the general public during performance of all work.
- c. All features related to protection shall be maintained until that work has been completed to the point when such safeguards are no longer required.

1.03 SPECIAL REQUIREMENTS

- a. The Contractor shall salvage items label as such demolition work and transport these to the City Yard unless these are called for to be reused or ordered by the Engineer to be disposed of.
- b. Install erosion controls to protect adjacent areas from eroded materials likely to enter wetlands, resource areas, or drainage ways/systems, downstream of areas disturbed by work activities.
- c. Where items to be demolished are located within or adjacent to pavements to remain, the Contractor shall make provisions to protect that pavement to remain. Cut concrete pavement back to score line and cut bituminous concrete pavement back far enough so as not to allow disturbance to base course materials. Pavements damaged as a result of Contractor activities shall be replaced to the extent determined by the Engineer at no additional cost to the Owner.

PART II - MATERIALS

2.01 BACKFILL

- a. The Contractor shall provide suitable backfill as specified under Section 02300 of these Specifications, to fill voids left by removal or abandonment of site features, and shall provide all pipe cap ends, mortar, brick and other material needed to cap off or plug pipes of various sizes and kinds.
- b. Suitable materials shall be used as base course fill and topsoil to the depth as specified herein. Restore disturbed areas with similar materials blended to match the line and grades of adjacent surfaces.

2.02 TEMPORARY FENCE

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- a. The work under these Items shall conform to the relevant provisions of section 644 of the MHD standard specifications.
- b. The work shall include temporary installation of chain link fence around the perimeter of the work limits where shown on the plans, and as directed by the engineer.
- c. Temporary fence shall consist of 6' high chain link fence anchored into a base that is both stable and movable to allow access and adjustment as needed. Reclaimed existing fence fabric and materials may be used with the approval of the owner's representative. The contractor will be required to submit a shop drawing to the engineer for approval prior to installation.

PART III - EXECUTION

3.01 SALVAGEABLE MATERIAL

- a. Frames, grates and other salvageable material shall be carefully removed to minimize damage and stored for later reuse, transport, or removal from site.

3.02 ABANDONED STRUCTURES

- a. All inlets and outlets shall be plugged with at least eight (8) inches of brick and mortar masonry. Upper portions of masonry structures shall be removed to a depth of three feet. The bottoms of all structures shall be broken to allow drainage, and the structure shall be filled with suitable backfill material placed in six (6) inch layers and thoroughly compacted at each level.
- b. The Engineer shall review work related to abandoned structures before backfilling. Those items not reviewed before backfilling shall be uncovered and backfill procedures observed, at no expense to the Owner.

3.03 ABANDONED PIPES OR CONDUITS

- a. Plug previously abandoned drainpipes encountered with masonry brick at least eight (8) inches in thickness.
- b. Abandon discontinued water supplies that are encountered during the execution of this contract in accordance with City requirements.
- c. Electrical conduits encountered and previously abandoned shall be capped or plugged.

END OF SECTION

SECTION 02222

UTILITY ABANDONMENT

PART 1 - GENERAL

1.01 WORK INCLUDED:

- A. This Section covers the abandonment, cutting/capping/plugging, termination and discontinuance of existing utilities within the limit of work as designated on the Contract Drawings and described herein, including: sewer, water, gas, and electrical utilities.
- B. The location of existing underground services and utilities shown on the Contract Drawings is based on available records. It is not warranted that all existing utilities and services are shown, nor that shown locations are correct. The Contractor shall be responsible for determining the location of existing utilities and having the utility companies locate their respective utilities on the ground prior to excavating. The Contractor shall coordinate utility termination work with the applicable utility companies to ensure services have been shutoff.
- C. The Contractor shall furnish all materials, tools, labor, and equipment to abandon, cut/cap/plug, terminate, and discontinue existing utilities as specified herein.
- D. Except where specifically noted otherwise, the Contractor shall protect sewer manholes, hydrants, and the existing stormwater collection system (catch basins, drain manholes, piping, and culverts).

1.02 SUBMITTALS: IN ACCORDANCE WITH REQUIREMENTS OF GENERAL SPECIFICATIONS, SUBMIT THE FOLLOWING:

- A. The Contractor shall submit material specifications and shop drawings for all materials and equipment for abandoning existing utilities under this Section. The Contractor shall also submit details/plan for protecting utilities to be left in place. The specifications, shop drawings, details/plan shall be submitted to and reviewed by the Engineer prior to utility termination/protection work.
- B. Submit to the Engineer an As-Built Drawing showing locations of all utility abandonment's/terminations. Horizontal locations shall be by survey location or a minimum of three swing ties to fixed structures to remain (hydrants, manholes, catch basins, etc.). The Contractor shall also indicate vertical location based on depth from existing grade. This As-Built Drawing will serve as the Owner's record of utility termination locations.

PART 2 - PRODUCTS

2.01 CAPPING MATERIALS:

- A. Cast Iron/Ductile Iron Piping - Caps shall be ductile iron and mechanical jointed with individually actuated wedges of same diameter of pipe. Caps are to be "Megalug" as manufactured by EBAA Iron Sales, Inc. or approved equal. Provide concrete thrust blocks.
- B. Asbestos-Concrete Piping – Capping shall be done by installing a transition coupling, a ductile iron nipple and a mechanical joint cap with retainer gland. Provide concrete thrust blocks.
- C. Sanitary Sewer - Concrete or masonry plugs shall be used.
- D. Copper, Iron Piping - Caps or plugs shall be permanent screwed or silver soldered cap fittings. Termination materials shall be of the same materials as the pipe.

2.02 CONCRETE AND MASONRY PLUGS:

- A. Plugs installed at the open ends of the pipe to be abandoned shall be 12-inch thick 3,000-psi cement concrete, or 8-inch thick brick masonry as directed. The pipes to be abandoned as specified herein and as shown on the Contract Drawings.
- B. Precast cement concrete plugs that are used shall meet the requirements for 3,000 psi concrete and shall be free of cracks and spalls. Brick masonry plugs shall be made of brick meeting the requirements of ASTM C32, for grade SS, hard brick.
- C. Mortar shall be composed of portland cement, hydrated lime, and sand, and the volume of sand shall not exceed three times the sum of the volumes of cement and lime. The proportions of cement and lime shall be as directed and may vary from 1:1/4 for dense hard-burned brick to 1:3/4 for softer brick. In general, mortar for grade SS brick shall be mixed in the volume proportions of 1:1/2:4-1/2; portland cement to hydrated lime to sand. The cement concrete plug shall be covered with non-shrink grout to prevent leakage at the plug.

PART 3 - EXECUTION

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UTILITY ABANDONMENT

3.01 GENERAL:

- A. The Contractor shall determine the location of existing utilities to be abandoned from the Contract Drawings, field investigations, electronic utility detectors, coordination with applicable utility companies, and test pits.
- B. The Contractor shall at least 72 hours, exclusive of Saturdays Sundays and holidays, prior to excavation contact DIGSAFE before working below ground and shall maintain the DIGSAFE numbers throughout the course of the project.
- C. Before backfilling any underground utility termination, the Contractor shall notify the Engineer so the Engineer can inspect and photograph the termination. If the area is covered prior to inspection/approval the work shall be uncovered for inspection at the Contractor's expense. Any and all costs associated with uncovering the work and damages resulting from such uncovering are the sole responsibility of the Contractor. Immediately following the Engineer's inspection/approval, test pits and excavations for utility cutting/capping/abandonment shall be backfilled and the surface restored and maintained in a manner satisfactory to the Engineer.
- D. The Contractor shall abandon, cut/cap/plug, terminate, and discontinue individual building utility services as designated on the Contract Drawings and described in these Specifications. Except where specifically noted otherwise, the Contractor shall protect sewer manholes, hydrants, and the existing stormwater collection system (catch basins, drain manholes, piping, and culverts) as designated on the Contract Drawings and described in these Specifications.
- E. All utility shut offs shall be coordinated with the Owner and applicable utility company. The Owner shall be responsible for any fees associated with the shut off of utilities. The Contractor shall obtain written authorization from the utility companies before shutting off or terminating any utility service, including terminating water and sewer service.
- F. The Contractor shall not remove underground piping except as necessary to terminate utilities.

3.02 UTILITY ABANDONMENT:

- A. Sanitary Sewer System:
 - 1. Existing sewers shall be cut and plugged with 3,000 psi concrete or with brick masonry, within the Limit of Work as shown on the Contract Drawings or as directed by the Engineer. Abandoned sewer branches that are connected to manholes that will remain shall be cut as shown on the Contract Drawings. The manhole shall be plugged at the abandoned sewer entrance, and the end of the severed sewer shall be plugged as shown on the Contract Drawings. Where the sewer main is in the paved roadway, sewer services that are designated to be cut

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UTILITY ABANDONMENT

shall be cut as close to the edge of pavement as possible. The Contractor shall not excavate in the paved roadway nor damage any road pavement. The Contractor shall repair all damaged pavement to the satisfaction of the Owner at no additional cost. Sewer mains shall be plugged before proceeding with demolition of the buildings.

2. For non-circular pipes, the largest interior cross sectional dimension shall govern in determining size of abandonment.
3. The Contractor shall protect all sewer manhole frames and covers within the limit of work unless indicated otherwise on the Contract Drawings or directed by the Engineer. When a manhole is indicated to be demolished, completely remove the structure and backfill with gravel borrow to bring the area to final grade. The Contractor shall patch any pavement damaged or removed during capping operations.
4. All sewer services to each building shall be plugged at all building drains at the housing unit floor slabs. At the housing unit floor slabs, the building drains shall be plugged with a minimum of 4 inches of minimum 3000 psi concrete. Concrete so used shall be installed according to the manufacturer's written instructions and shall be cured properly to minimize future degradation.
5. Plugs shall be of adequate strength to withstand the full soil and groundwater pressure but not less than 5 psi. Plugs and caps shall be watertight.
6. Open ends of sewer services less than 12 inches in diameter shall be plugged with the appropriate VC plugs or concrete plug as directed by the Engineer. Such plug shall be made watertight with an application around the plug of an approved watertight compound.
7. Masonry plugs shall be at least 8-inches thick and concrete plugs shall be at least 12-inches thick. Pipes entering a manhole or catch basin that are to be abandoned shall have a plug installed that is flush with the interior wall of the structure.

B. Water Services:

1. The Contractor shall terminate water services and water service headers as shown on the Contract Drawings. The Contractor shall locate, in the field, the water service lines/headers and service/header valves for each building. The buildings may have more than one service/header from the water main. Where such service lines and valves are shown on the Contract Drawings, the locations are not guaranteed. Water service lines/headers shall be disconnected at the water main by first closing the corporation stop or service header valve at the main, then removing the water service or header from the stop/valve and installing a threaded watertight cap on the stop or at the valve, as applicable, and installing a threaded watertight cap on the severed piping. The severed piping shall be abandoned in

place. Where a corporation stop or a valve cannot be located, or where a complete shutoff cannot be made, a new valve shall be added to the service/header line within 2 feet of the main and then shut off and capped. The Contractor shall patch any pavement damaged or removed during capping operations. The Contractor shall not close any valves that will shut off water service to buildings outside the work area without the prior written permission of the Owner.

2. Where active water lines are to be capped, restrained caps with thrust blocks shall be used.
3. All fire hydrants shall remain accessible and functional unless indicated otherwise on the Contract Drawings.
4. Valve boxes shall be removed from all valves and curb stops which are on the abandoned main.
5. Plugs and caps shall be watertight. Metallic pipe shall be capped with caps of the same material as the pipe.

C. Electrical Service:

1. The disconnection of electrical utilities to be done by others. Scheduling of disconnection will require coordination between Contractor and Owner. Contractor shall remove all dropped wires within the limit of work, unless noted otherwise, and dispose of them in compliance with current local, State, and Federal Regulations.
2. The Owner will arrange to have the electrical services terminated at main utility poles. The Contractor shall remove and dispose of all wire and electrical appurtenances that are abandoned, including abandoned utility poles between active utility poles and the buildings. The Contractor shall not remove any transformers or any active utility poles. The Contractor shall coordinate with the Owner before handling any utility poles, electrical wiring, and appurtenances.

D. Gas Service:

1. The Owner will arrange to have the gas company disconnect gas service to the buildings and remove exterior gas appurtenances. **The local Gas Company shall remove individual gas services to each building.** The Contractor shall coordinate the abandonment of gas utilities with Owner to assure that the gas has been disconnected. The Contractor is responsible for the protection of gas mains during the demolition work, and ensuring that the connections to each building have been removed and plugged at the main by the Gas Company. The Contractor shall remove and dispose of all interior gas piping and appurtenances, **and all appurtenances remaining outside the building.** The Contractor shall

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also remove remaining above grade gas piping to the point where the piping turns horizontal underground

E. Telephone:

1. The Contractor shall arrange with the telephone provider to have telephone services to each building disconnected at the pole. The Contractor shall remove and dispose of all abandoned wiring and appurtenances. The Contractor shall coordinate with the Owner before arranging to have telephone service disconnected.

F. Cable:

1. The Contractor shall arrange with the cable provider to have cable services to each building disconnected at the pole. The Contractor shall remove and dispose of all abandoned cable wiring and appurtenances. The Contractor shall coordinate with the Owner before arranging to have cable services disconnected.

CASTINGS.

All frames, grates and covers on existing manholes that are specified to be abandoned shall become the property of the Contractor.

3.03 CONCRETE PLACING DURING COLD WEATHER:

- A. Concrete shall not be placed on frozen ground, and no frozen material or material containing ice shall be used. Materials for concrete shall be heated when temperature is below 40°F, or is expected to fall to below 40°F, within 73 hours, and the concrete after placing shall be protected by covering, heat, or both.
- B. All details of CONTRACTOR's handling and protecting of concrete during freezing weather shall be subject to the approval and direction of the ENGINEER. All procedures shall be in accordance with provisions of ACI 306.

3.04 CONCRETE PLACING DURING HOT WEATHER:

- A. Concrete just placed shall be protected from the direct rays of the sun and the forms and reinforcement just prior to placing, shall be sprinkled with cold water. The CONTRACTOR shall make every effort to minimize delays, which will result in excessive mixing of the concrete after arrival on the job.
- B. During periods of excessively hot weather (90°F or above), ingredients in the concrete shall be cooled insofar as possible and cold mixing water shall be used to maintain the temperature of the concrete at permissible levels all in accordance with the provisions

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of ACI 305. Any concrete with a temperature above 90°F, when ready for placement, will not be acceptable, and will be rejected.

END OF SECTION

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UTILITY ABANDONMENT

SECTION 02230

CLEARING AND GRUBBING

PART I - GENERAL

1.01 SCOPE OF WORK

- a. The work under this Section shall consist of clearing, grubbing, cutting, removal and disposal of all vegetation and debris from areas within the Limit of Work where noted on the plans or as designated by the Engineer. The work shall also include the preservation from injury or defacement of all vegetation and objects designated or directed to remain.

1.02 SPECIAL INSTRUCTIONS

- a. The burning of trees, brush, stumps, etc., shall not be permitted. The Contractor shall provide other satisfactory methods of disposal without additional compensation.
- b. When fencing is installed outside normal clearing areas, every reasonable effort shall be made to preserve trees or shrubs whose removal is not essential to the installation of the fencing.
- c. Trees and shrubs that are not to be cut, removed, destroyed or trimmed shall be saved from harm and injury. All damage done to trees by the Contractor's operation shall be appropriately pruned in accordance with accepted horticultural practice unless damage is so extensive that the damage claim process shall be adopted.
- d. Equipment and supply storage areas shall be kept well away from the root zones of existing trees. This zone is determined to be equal to the outreach of the above ground branch structure of the trees. All effort shall be made to minimize any activity in these areas to help insure the continued good health of the existing trees.

1.03 PERMITS

- a. Per Permit Section of these Specifications, the Engineer shall be furnished notarized copies of agreements between the Contractor and owners of legal landfills and disposal or storage areas upon request. The Contractor shall make arrangements and negotiations necessary for the satisfactory legal disposal of trees, shrubs, stumps, roots, dead-wood and other litter off site.

PART II - MATERIALS

2.01 SUITABLE BACKFILL

- a. Refer to Specification Section 02350 Excavation Borrow and Backfill for suitable backfill requirements.

PART III - EXECUTION

3.01 CLEARING AND GRUBBING

- a. Clear and grub all areas as designated on the plans. At the discretion of the Owner, individual plant materials, not plan referenced, may be denoted in the field to remain as determined by the Project Representative.
- b. The stumps of all trees, brush and major roots shall be grubbed and removed per Section 02235 of these Specifications.

3.02 DISPOSAL OF TREES, BRUSH AND STUMPS

- a. Trees and stumps shall be properly disposed of off-site at a legal dump site as specified.

3.03 DISPOSAL OF DUTCH ELM DISEASED WOOD SHALL BE DONE IN THE MANNER HEREIN SPECIFIED:

- a. Dutch Elm diseased wood shall be disposed of in accordance with the provisions of General Law, Chapter 87, Section 5 and Chapter 132, Sections 8 and 11, as amended; and in accordance with any additional local regulations.
- b. Where the work includes the removal of elm trees or the limbs of elm trees, such trees or limbs thereof shall be disposed of immediately after cutting or removal and in such a manner as to prevent the spread of Dutch Elm disease. This shall be accomplished by covering them with earth to a depth of at least six (6) inches at the off-site location where the Contractor has arranged for disposal.
- c. Where the work includes the removal and disposal of stumps of elm trees, such stumps shall be completely disposed of immediately after cutting in the manner specified above.

3.04 BACKFILLING

- a. Fill all voids with suitable backfill in controlled eight (8) inch maximum compacted lifts flush with proposed subgrades in adjacent areas.

END OF SECTION

SECTION 02235

TREE PRUNING AND TREE AND STUMP REMOVALS

PART I - GENERAL

1.01 SCOPE OF WORK

- a. The work of this Section includes the following:
 1. Pruning - Class II, including the removal of all limbs necessary to execute the field, playground and fence work required under this contract.
 2. Removal of trees and stumps.
- b. Refer to the Contract Drawings for general location of trees along the site perimeter. In general, all trees are to remain and be pruned in conformance with this Specification. Tree removals shall be limited to the area denoted on the plans and shall include the removal of individual trees that would impede the construction of proposed facilities.

1.02 QUALIFICATIONS OF CONTRACTOR

- a. This work shall be limited to individuals, partnerships and corporations who are actively engaged in the field of Arboriculture, and who demonstrate competence, experience and financial capability to carry out the terms of this project. Eligible contractors must derive a majority of their income from arboricultural work. The Owner may require proof of these qualifications.
- b. All work shall be conducted by qualified and trained personnel under the direct supervision of a Massachusetts Certified Arborist in the Contractor's employ.

1.03 SPECIAL REQUIREMENTS

- a. Dutch Elm diseased wood shall be disposed of in accordance with provisions of General Laws, Chapter 87, Section 5, and Chapter 132, Sections 8 and 11 as amended; and in accordance with any additional local regulations. All wood shall be removed from the site and be properly disposed of in accordance with state and local regulations.
- b. No burning shall be permitted on the project site.

- c. Prior to commencing work, the Contractor shall submit a plan to the Owner for legal disposal of removed materials, in conformance with State and Federal regulations.

1.04 STANDARDS AND DEFINITIONS

- a. All pruning work shall be performed in accordance with the following:
 - 1. The ANSI A300 ‘Standard Practices for Trees, Shrubs, and Other Wood Plant Materials’ of the Secretariat: National Arborist Association, Post Office Box 1094, Amherst, New Hampshire 03031.
 - 2. American National Standards Institute (ANSI) Standard Z-133.1.
 - 3. The standards and practices of the International Society of Arborists.
 - 4. The standards and practices of the Massachusetts Arborist Association.
 - 5. The standards and practices of the American Association of Nurserymen.
- b. The term ‘Owner’ shall mean the City of Waltham’s designated representative charged with carrying out the requirements of this Project – ‘Landscape Architect’, ‘Engineer’, ‘Planner’, or ‘Tree Warden’ as referenced herein, rendering approvals for the Owner.

1.05 EXAMINATION OF SITE AND DOCUMENTS

- a. The Contractor shall be responsible for having a clear understanding of the existing site conditions and shall be responsible for fully carrying out the work of this Section, regardless of actual site conditions encountered.

1.06 ORDER OF WORK

- a. Based on the site conference, the Contractor shall submit a schedule of work for the Owner’s review and approval prior to beginning work. Unless otherwise authorized by the Owner, failure of the Contractor to comply with the approved removal schedule shall be sufficient cause to give notice that the Contractor is in default of the contract.

1.07 PROTECTION OF THE VEGETATION TO BE PRESERVED

- a. The Contractor shall protect all existing trees, shrubs, lawns and other site features fence designated to remain. The placement of protection devices, such as snow enclosures, shall, however, be at the Contractor's discretion.
- b. Damage no plant to remain by burning, pumping water, cutting of live roots or branches, or any other means. Neither vehicles nor equipment shall be parked within the dripline of trees to remain, or where ever damage may result to trees to be saved. Construction material shall not be stored beneath trees to be saved.
- c. The Contractor shall be liable for any damage to any trees, shrub, lawn or other site features to remain, and shall immediately report to the Owner. Damaged shrubs or lawns shall be restored or replaced to match existing to remain to the satisfaction of the Owner.
- d. The Contractor shall compensate the Owner for damages by installing replacement tree(s) of the size and species approved by the City and of sufficient quantity such that the sum of the Diameter at Breast Height (DBH) inches for replacement trees equals the total DBH inches of the damaged tree(s). Damaged shrubs shall be replaced with shrubs(s) of the same size, species, and quantity, unless determined otherwise by the Owner.

1.08 USE AND CARE OF THE SITE

- a. The Contractor shall leave the work site at the end of each working period in a condition satisfactory to the Owner.
- b. Pavements shall be swept and lawns or other surfaces raked and/or otherwise cleaned of all material related to the work operation. Degree of clean-up required will be described by the Owner and will be based upon the character of the work area.
- c. All trimmings or any other form of debris (except diseased materials or trimmings from Elms) shall be collected and chipped. The Contractor shall remove all materials and shall dispose of such materials off site in a legal manner.
- d. The Contractor shall be fully and solely responsible for any damage to equipment or vehicles left at the site of the work. All necessary permits shall be obtained by the Contractor.

PART II - MATERIALS

2.01 EQUIPMENT

- a. Equipment necessary for this Contract shall be properly maintained and in good operating condition to the City's satisfaction. The Contractor shall promptly remove and replace any equipment which the Owner deems to be in unsatisfactory condition or otherwise unsuitable.
- b. Cutting tools shall be kept well sharpened to provide clean smooth cuts. Any tools utilized on any tree suspected to have cankers or other fungal, bacterial or viral diseases shall be sterilized or not used on any other specimen.
- c. A disc chipper shall be used which will process material up to twelve (12) inches in diameter.

2.03 PERSONNEL

- a. The Contractor shall submit each employee's name and title prior to the commencement of work. The Contractor shall advise the Owner of any changes in roster assigned to this Contract.
- b. A crew shall consist of one (1) tree trimmer/climber, and one (1) ground person (one which shall be a crew foreman). The crew foreman shall have a minimum of five (5) years climbing/pruning experience. At least one (1) crew person shall be a MCA and shall be certified in CPR.
- c. Each trimmer shall be experienced and highly qualified with the necessary tree worker skills to successfully complete the work of this Section, including the ability and training to perform aerial rescue. Said skill shall also include worker safety and ability in compliance with current OSHA and ANSI Z-133.1 Standards.

PART III - EXECUTION OF PRUNING/REMOVALS

3.01 PRUNING

- a. Under this Section, the Contractor shall furnish all labor, materials, equipment and transportation required to complete all aspects of the work in accordance with all local, state and federal regulations in force at the same time of this Contract and in accordance with tree pruning as specified herein.

- b. The work of this Section consists of all pruning work and related items as specified herein and includes, but is not limited to:
 - 1. Pruning - Class II throughout the designated areas and limb removal required to allow for the proper installation of all fields, play equipment and new fencing.

Class II pruning is defined as medium pruning and shall consist of the removal of dead, dying, diseased, interfering, objectionable and weak branches on the main trunks as well as those within the leaf area. An occasional branch one (1) inch or less in diameter may remain within the main leaf area where it is not practical to remove it.

3.02 DESCRIPTION OF PRUNING WORK

- a. Pruning and trimming are generally described as the removal and disposal of limbs, branches and stubs which are either dead, potentially detrimental to the health of the tree or dangerous to pedestrians, visually deficient, interfering or otherwise objectionable as determined by the Owner.
- b. The limits of all trees to be pruned have been identified on the plans or referenced elsewhere in this specification section.
- c. Vehicle access shall be controlled and approved by the City Representative.
- d. If the Contractor discovers tree(s) which have not been marked for pruning, but whose condition is such that removal is warranted, whether due to death, disease, decay, or structural weakness, such tree(s) shall not be pruned and the Contractor shall immediately report these findings in writing to the Owner and await the Owner's direction before proceeding with work on the particular tree(s) in question.
- e. All pruning shall be performed in a manner that maintains the natural aesthetic characteristics of the species and variety of trees. No topping or dehorning of trees or stubbing back of branches shall be permitted. All cuts shall be made to a lateral branch that is a minimum of one third (1/3) the size of the branch being removed, unless otherwise instructed by the Owner.
- f. The use of climbing spurs or spiked shoes shall not be permitted and their use will result in the immediate cancellation of the contract.

- g. All cuts shall be made sufficiently close to the parent stem so that wound closure can be readily started under normal conditions. Cuts shall, however, never be made through the branch collar. Slab cuts and rip cuts will result in cancellation of the contract.
- h. All limbs over two (2) inches in diameter to be removed shall be precut to prevent splitting. Any branches that by falling would injure existing trees to remain or other objects shall be lowered to the ground by proper ropes.
- i. On trees known to be diseased and where there is known to be danger of transmitting the disease on tools, tools shall be disinfected with alcohol or bleach after each cut between trees.
- j. Lateral branches as well as occasional branch suckers (“water sprouts”) may be retained. Complete removal of secondary laterals and branch suckers resulting in the stripping of major limbs, (“lion tailing”) will not be permitted.
- k. Tree paint to seal pruning cuts shall not be used.
- l. All branches and limbs shall be manually lowered to the ground via rope and pulley. This practice must be consistent with the National Arborist Association Standards for Pruning. All grade-level artifacts and landscaping must be protected from damage.

3.03 REMOVALS

- a. The Contractor shall furnish all labor, materials, equipment and transportation required to complete all aspects of the removals work in accordance with all local, state, and federal regulations in force at the time of this contract and in accordance with tree and stump removals as specified herein.

3.04 DESCRIPTION OF WORK

- a. Removal is generally described as the removal of groups and individual trees and shrubs which interfere with the growth of more desirable types of trees; the clearing away of lesser growth that may obscure outstanding trees; and thinning out to provide space for healthy growth by the elimination of thinner, weaker trees.

- b. The Contractor shall adhere to the specifications and provide suitable facilities for inspecting the work. Failure of the Owner to immediately reject unsatisfactory work or to notify the Contractor of deviations from the specification shall not relieve the Contractor of responsibility to correct or remedy unsatisfactory work.
- c. The Contractor shall only work on trees designated by the Owner. No compensation will be made for work performed on any other tree or trees.
- d. Trees designated to be removed shall be taken down and all leaves, branches and trunks of trees properly disposed of by chipping and removal from the premises.
- e. Fell trees in a manner that allows all site features and those trees to be saved undamaged.
- f. Removal of all the parts of each tree shall be completed on the same day that the tree is cut.
- g. Stumps shall be ground to eighteen (18) inches below grade by grinding or other means acceptable to the Owner. The void from the stump removal operations shall be filled with ordinary borrow soil to within six (6) inches of finished grade. The top six (6) inches shall be filled with screened loam, moderately tamped to prevent future settling. In grass areas the disturbed area shall be sown with grass seed of a mix appropriate to the location, as directed by the Owner.
- h. Excavation or grading within the branch spread of trees to be saved shall be performed only under the direction of the Owner unless otherwise directed.
- i. All equipment to be used and all work to be performed must be in full compliance with all standards as promulgated by OSHA at the time of bidding, including, but not limited to those regulations concerning noise levels, protective devices and operator safety.
- j. The Contractor shall be solely responsible for pedestrian and vehicular safety and control within the work site and shall protect the public and its property from injury or damage that could be caused by the progress of the work. To this end the Contractor shall provide, erect, and maintain protective devices acceptable to the Owner, including but not limited to barricades, lights and warning signs.

- k. Any practice employed by the Contractor that is obviously hazardous as determined by the Owner shall be immediately discontinued by the Contractor upon receipt of either written or oral notice from the Owner to discontinue such practice.

END OF SECTION

SECTION 02236

TREE PRUNING AND SELECTIVE CLEARING, INVASIVE SPECIES AND STUMP REMOVAL

PART I - GENERAL

1.01 SCOPE OF WORK

- a. The work of this Section includes the following:
 1. Pruning, to include all existing trees located within the designated areas of the Park. Work shall also include the removal of limbs as necessary to provide appropriate clearances for various site features, facilities, and park users.
 2. Removal of selected living trees and removal of all dead, dying or diseased vegetation from within the project limits in accordance with the contract documents specifications.
 3. Removal of invasive species and undesirable undergrowth in accordance with these specifications.
 4. Complete removal and disposal of trees and stumps as designated herein and as described on the contract drawings.
- b. Refer to the Contract Drawings for the general quantity and locations of existing trees that require pruning or removal. Trees shall be pruned in conformance with this specification. Tree removals shall be limited to areas as denoted on the plans and shall include the removal of individual trees that would impede the construction of proposed facilities or those that are dead or dying.
- c. Prospective bidders are advised to complete a site visit to review the extent of work required and to confirm existing conditions, access issues, terrain and the general nature of the work of the Section.

1.02 QUALIFICATIONS OF CONTRACTOR

- a. This work shall be limited to individuals, partnerships and corporations who are actively engaged in the field of Arboriculture, and who demonstrate competence,

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experience and financial capability to carry out the terms of this project. Eligible contractors must derive a majority of their income from arboricultural work. The Owner may require proof of these qualifications.

- b. All work shall be conducted by qualified and trained personnel under the direct supervision of a Certified Arborist in the Contractor's employ.

1.03 SPECIAL REQUIREMENTS

- a. Trees: The trees to be removed shall be those shown on the plans or designated by the Engineer/Arborist.
- b. Undergrowth: All plants less than 4 inches in diameter, measured at a height of 4 feet 6 inches above the ground, shall be classified as undergrowth. All undergrowth shall be removed from areas shown on the plans, described in the special provisions, or designated by the Engineer; except for those plants designated by the Engineer to be preserved.
- c. General: When specified in the special provisions, stumps shall be treated with a herbicide immediately after cutting to prevent sprouting. The herbicide to be used, and the method and rate of application shall be as specified in the special provisions. The Contractor shall follow all applicable instructions, warnings, and safety precautions stated on the manufacturer's label, and shall comply with all laws and regulations governing herbicides that are in effect at the time of use. When work is performed properly in accordance with these specifications, no subsequent recutting of sprouts or seeding growth will be required. All trees and undergrowth cut shall be disposed of in accordance with the applicable requirements of Section 2.03 Demolition of these specifications.
- d. Dutch Elm diseased wood shall be disposed of in accordance with provisions of General Laws, Chapter 87, Section 5, and Chapter 132, Sections 8 and 11 as amended; and in accordance with any additional local regulations. All wood shall be removed from the site and be properly disposed of in accordance with state and local regulations.
- e. No burning shall be permitted on the project site.
- f. Prior to commencing work, the Contractor shall submit a plan to the Owner for legal disposal of removed materials, in conformance with State and Federal regulations.

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1.04 STANDARDS AND DEFINITIONS

- a. All pruning work shall conform to the following:
 1. The ANSI A300 ‘Standards Practices for Trees, Shrubs, and Other Wood Plant Materials’ of the Secretariat: National Arborist Association, Post Office Box 1094, Amherst, New Hampshire 03031.
 2. American National Standards Institute (ANSI) Standard Z-133.1.
- b. The term ‘Owner’ shall mean the City of Waltham’s designated representative charged with carrying out the requirements of this Project – ‘Landscape Architect’, ‘Arborist’, ‘Engineer’, ‘Planner’, or ‘Tree Warden’ as referenced herein, rendering approvals for the Owner.
- c. The owner’s representative or landscape architect will monitor job progress throughout the project and approve all payments. A site walk will be conducted before work begins between the contractor and the owner’s representative or landscape architect. Specific trees, undergrowth and invasive species may be identified at this time for removal/eradication.

1.05 EXAMINATION OF SITE AND DOCUMENTS

- a. The Contractor shall be responsible for having a clear understanding of the existing site conditions and shall be responsible for fully carrying out the work of this Section, regardless of actual site conditions encountered.

1.06 ORDER OF WORK

- a. Based on the site conference, the Contractor shall submit a schedule of work for the Owner’s review and approval prior to beginning work. Unless otherwise authorized by the Owner, failure of the Contractor to comply with the approved removal schedule shall be sufficient cause to give notice that the Contractor is in default of the contract.

1.07 PROTECTION OF THE VEGETATION TO BE PRESERVED

- a. The Contractor shall protect all existing trees, shrubs, lawns and other site features designated to remain. The placement of protection devices, such as snow fence enclosures, shall, however, be at the Contractor’s discretion.

- b. Damage no plant to remain by burning, pumping water, cutting of live roots or branches, or any other means. Neither vehicles nor equipment shall be parked within the dripline of trees to remain, or where ever damage may result to trees to be saved. Construction material shall not be stored beneath trees to be saved.
- c. The Contractor shall be liable for any damage to any trees, shrub, lawn or other site features to remain, and shall immediately report to the Owner. Damaged shrubs or lawns shall be restored or replaced to match existing to remain to the satisfaction of the Owner.
- d. The Contractor shall compensate the Owner for damages by installing replacement tree(s) of the size and species approved by the City and of sufficient quantity such that the sum of the caliper inches for replacement trees equals the total caliper inches of the damaged tree(s). Damaged shrubs shall be replaced with shrubs(s) of the same size, species, and quantity, unless determined otherwise by the Owner.
- e. Any plants that are damaged to such an extent as to destroy their value for landscape purposes shall be cut and disposed of, and grass that is damaged shall be reseeded and remulched as necessary by the Contractor at no cost to the Department when so directed by the Engineer.
- f. The Contractor shall conduct his operations in such a manner to prevent injury to trees, shrubs, grass, or other types of vegetation that are to remain growing, and also to prevent damage to adjacent property.
- g. When any such injuries to trees or shrubs occur, broken branches shall be removed and rough edges of scarred areas shaped and made smooth in accordance with generally accepted horticultural practice.

1.08 USE AND CARE OF THE SITE

- a. The Contractor shall leave the work site at the end of each working period in a condition satisfactory to the Owner.
- b. Pavements shall be swept and lawns or other surfaces raked and/or otherwise cleaned of all material related to the work operation. Degree of clean-up required will be described by the Owner and will be based upon the character of the area.

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- c. All trimmings or any other form of debris (except diseased materials or trimmings from Elms) shall be collected and chipped. The Contractor shall remove all materials and shall dispose of such materials off site in a legal manner.
- d. The Contractor shall be fully and solely responsible for any damage to equipment or vehicles left at the site of the work. All necessary permits shall be obtained by the Contractor.

PART II - MATERIALS

2.01 EQUIPMENT

- a. Equipment necessary for this Contract shall be properly maintained and in good operating condition to the City's satisfaction. The Contractor shall promptly remove and replace any equipment which the Owner deems to be in unsatisfactory condition or otherwise unsuitable.
- b. A disc chipper shall be used which will process material up to twelve (12) inches in diameter.

2.03 PERSONNEL

- a. The Contractor shall submit each employee's name and title prior to the commencement of work. The Contractor shall advise the Owner of any changes in roster assigned to this contract.
- b. A crew shall consist of one (1) tree trimmer/climber, and one (1) ground person (one of whom shall be a crew foreman). The crew foreman shall have a minimum of five (5) years climbing/pruning experience. At least one (1) crew person shall be a MCA and shall be certified in CPR.
- c. Each trimmer shall be experienced and highly qualified with the necessary tree worker skills to successfully complete the work of this Section, including the ability and training to perform aerial rescue. Said skill shall also include worker safety and ability in compliance with current OSHA and ANSI Z-133.1 Standards.

PART III - EXECUTION OF TREE PRUNING/REMOVALS

3.01 TREE PRUNING

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- a. Under this Section, the Contractor shall furnish all labor, materials, equipment and transportation required to complete all aspects of the work in accordance with all local, state and federal regulations in force at the same time of this contract and in accordance with tree pruning as specified herein.
- b. The work of this Section consists of all tree pruning work and related items as specified herein and includes, but is not limited to:
 - 1. Pruning throughout the designated areas and limb removal required to allow for the proper installation of all proposed improvements. Medium pruning efforts shall consist of the removal of dead, dying, diseased, interfering, objectionable and weak branches on the main trunks as well as those within the leaf area. An occasional branch one (1) inch or less in diameter may remain within the main leaf area where it is not practical to remove it.

3.02 TREE PRUNING DESCRIPTION OF WORK

- a. Tree Pruning and trimming are generally described as the removal and disposal of limbs, branches and stubs which are either dead, potentially detrimental to the health of the tree or dangerous to pedestrians, visually deficient, interfering or otherwise objectionable as determined by the Owner.
- b. The limits of all trees to be pruned have been identified on the plans or referenced elsewhere in this specification section.
- c. Vehicle access shall be controlled and approved by the City Representative.
- d. If the Contractor discovers tree(s) which have not been designated for removal, but whose condition is such that removal is warranted, whether due to death, disease, decay, or structural weakness, such tree(s) shall not be pruned and the Contractor shall immediately report these findings in writing to the Owner and await the Owner's direction before proceeding with work on the particular tree(s) in question.
- e. All tree pruning shall be conducted in a manner that maintains the natural aesthetic characteristics of the species and variety of trees. No topping or dehorning of trees or stubbing back of branches shall be permitted. All cuts shall be made to a lateral branch that is a minimum of one third (1/3) the size of the branch being removed, unless otherwise instructed by the Owner.

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- f. The use of climbing spurs or spiked shoes shall not be permitted and their use will result in the immediate cancellation of the contract.
- g. All cuts shall be made sufficiently close to the parent stem so that wound closure can be readily started under normal conditions. Cuts shall, however, never be made through the branch collar. Slab cuts and rip cuts will result in cancellation of the contract.
- h. All limbs over two (2) inches in diameter to be removed shall be precut to prevent splitting. Any branches that by falling would injure existing trees to remain or other objects shall be lowered to the ground by proper ropes.
- i. On trees known to be diseased and where there is known to be danger of transmitting the disease on tools, tools shall be disinfected with alcohol after each cut between trees.
- j. Lateral branches as well as occasional branch suckers may be retained. Complete removal of secondary laterals and branch suckers resulting in the stripping of major limbs, (“lion tailing”) will not be permitted.
- k. All branches and limbs shall be manually lowered to the ground via rope and pulley. This practice must be consistent with the National Arborist Association Standards for Pruning. All grade-level artifacts and landscaping must be protected from damage.

3.03 REMOVALS

- a. The Contractor shall furnish all labor, materials, equipment and transportation required to complete all aspects of the removals work in accordance with all local, state, and federal regulations in force at the time of this contract and in accordance with tree and stump removals as specified herein.

3.04 REMOVALS DESCRIPTION OF WORK

- a. Removal is generally described as the removal of groups and individual trees and shrubs which interfere with the growth of more desirable types of trees; the clearing away of lesser growth that may obscure outstanding trees; and thinning out to provide space for healthy growth by the elimination of thinner, weaker trees.

For the purposes of this contract, removals shall also include all species that are

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dead, dying, or diseased, are undesirable or are considered to be invasive, as recognized by applicable entities of the Commonwealth of Massachusetts and Massachusetts Association of Arborists.

- b. The Contractor shall adhere to the specifications and provide suitable facilities for inspecting the work. Failure of the Owner to immediately reject unsatisfactory work or to notify the Contractor of deviations from the specification shall not relieve the Contractor of responsibility to correct or remedy unsatisfactory work.
- c. The Contractor shall only work on trees as designated by the contract documents and/or the Owner. No compensation will be made for work performed on any other tree or trees.
- d. Trees designated to be removed shall be taken down and all leaves, branches and trunks of trees properly disposed of by chipping and removal from the premises.
- e. Fell trees in a manner that allows all site features and those trees to be saved undamaged.
- f. Removal of all the parts of each tree shall be completed on the same day that the tree is cut.
- g. Stumps of trees removed shall also be removed to eighteen (18) inches below grade by grinding or other means acceptable to the Owner. The void from the stump removal operations shall be filled with ordinary borrow soil to within six (6) inches of finished grade. The top six (6) inches shall be filled with screened loam, moderately tamped to prevent future settling. In grass areas, the disturbed area shall be sown with grass seed of a mix appropriate to the location, as directed by the Owner.
- h. Excavation or grading within the branch spread of trees to be saved shall be performed only under the direction of the Owner unless otherwise directed.
- i. All equipment to be used and all work to be performed must be in full compliance with all standards as promulgated by OSHA at the time of bidding, including, but not limited to those regulations concerning noise levels, protective devices and operator safety.
- j. The Contractor shall be solely responsible for pedestrian and vehicular safety and control within the work site and shall protect the public and its property from injury or damage that could be caused by the progress of the work. To this end

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the Contractor shall provide, erect, and maintain protective devices acceptable to the Owner, including but not limited to barricades, lights and warning signs.

- k. Any practice employed by the Contractor that is obviously hazardous as determined by the Owner shall be immediately discontinued by the Contractor upon receipt of either written or oral notice from the Owner to discontinue such practice.

PART IV - EXECUTION OF SELECTIVE CLEARING AND INVASIVE SPECIES REMOVAL

4.01 SELECTIVE CLEARING AND INVASIVE SPECIES REMOVAL

- a. The Contractor shall furnish all labor, materials, equipment and transportation required to complete all aspects of the selective clearing and invasive species work in accordance with all local, state, and federal regulations in force at the time of this contract and in accordance with selective clearing and invasive species removal as specified herein.

4.02 DESCRIPTION OF WORK-SELECTIVE CLEARING AND INVASIVE SPECIES REMOVAL

- a. The work under this item shall consist of the removal of hazardous growth and dead, dying or diseased plant material; the removal of groups and individual plants which interfere with the growth of more desirable types of trees and the clearing away of lesser growth that may obscure outstanding trees, tree groups, or scenic views. Any part of tree trunks or base of plant material located on the Location Lines shall be considered within the State Highway Limits.
- b. Densely wooded areas shall be thinned to provide space for healthy growth by eliminating thinner, weaker trees and the reduction of number of varieties.
- c. The Contractor's attention is called to the requirements for work under this item. The desired appearance to be attained in certain areas of heavy growth may require three or more operations. First, the obvious dead, dying and diseased trees and undergrowth shall be cut and cleared out of the area. This work includes removal of any previously fallen trees, branches, uprooted stumps and other debris as directed. Next, the area is to be thinned out, as directed, by removing the less desirable trees and brush which interfere with the growth of the better plant material. Finally, clear out lesser growth which may obscure outstanding trees, tree groups or scenic views.

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- d. Tree up-branching and shaping under this item will be restricted to trees which have limbs and branches restricting sight distance, extending over roadways, shoulders, turn outs, etc. Up-branching or trimming will be required to produce a 6 meter minimum vertical clearance over all locations described hereinbefore, and the removal of limbs and branches involved in this operation shall be accomplished as outlined hereafter.

- - - END OF SECTION - - -

SECTION 02240

DEWATERING

PART 1 - GENERAL

1.01 WORK INCLUDED:

This section specifies designing, furnishing, installing, maintaining, operating and removing temporary dewatering systems as required to lower and control water levels and hydrostatic pressures during construction; disposing of pumped water; constructing, maintaining, observing and, except where indicated or required to remain in place, removing of equipment and instrumentation for control of the system. It is not anticipated that dewater efforts will be extensive. The deepest trench excavation is approximately 48". Water was encountered in the test pits at 56" below the surface.

1.02 RELATED WORK:

- A. Section 02300, EARTHWORK

1.03 SYSTEM DESCRIPTION:

- A. Dewatering includes lowering the water table and intercepting seepage which would otherwise emerge from the slopes or bottom of the excavation; increasing the stability of excavated slopes; preventing loss of material from beneath the slopes or bottom of the excavation; reducing lateral loads on sheeting and bracing; improving the excavation and hauling characteristics of sandy soil; preventing rupture or heaving of the bottom of any excavation; and disposing of pumped water.
- B. Normal dewatering is defined as using conventional pumps installed in open excavations, ditches, or sumps.

1.04 QUALITY ASSURANCE:

- A. The Contractor is responsible for the adequacy of the dewatering systems.
- B. The dewatering systems shall be capable of effectively reducing the hydrostatic pressure and lowering the groundwater levels to a minimum of 2 feet below excavation bottom, unless otherwise directed by the Engineer, so that all excavation bottoms are firm and dry.
- C. The dewatering system shall be capable of maintaining a dry and stable subgrade until the structures, pipes and appurtenances to be built therein have been completed to the extent that they will not be floated or otherwise damaged.

- D. The dewatering system and excavation support (see Section 02252, SUPPORT OF EXCAVATION) shall be designed so that lowering of the groundwater level outside the excavation does not adversely affect adjacent structures, utilities or wells.

1.05 SUBMITTALS

- A. Contractor shall submit six copies a plan indicating how they intend to control the discharge from any dewatering operations on the project, whether it is discharge of groundwater from excavations or Stormwater runoff during the life of the project.

PART 2 - PRODUCTS: NOT APPLICABLE

PART 3 - EXECUTION

3.01 DEWATERING OPERATIONS:

- A. All water pumped or drained from the work shall be disposed of in a manner which will not result in undue interference with other work or damage to adjacent properties, pavements and other surfaces, buildings, structures and utilities. Suitable temporary pipes, flumes or channels shall be provided for water that may flow along or across the site of the work. All disposal of pumped water shall conform to the requirements of the owner.
- B. Dewatering facilities shall be located where they will not interfere with utilities and construction work to be done by others.
- C. Dewatering procedures to be used shall be as described below:
 1. Crushed stone shall encapsulate the suction end of the pump to aid in minimizing the amount of silt discharged.
 2. For dewatering operations with relatively minor flows, pump discharges shall be directed into hay bale sedimentation traps lined with filter fabric. Water is to be filtered through the hay bales and filter fabric prior to being allowed to seep out into its natural water course.
 3. For dewatering operations with larger flows, pump discharges shall be into a steel dewatering basin. Steel baffle plates shall in used to slow water velocities to increase the contact time and allow adequate settlement of sediment prior to discharge into waterways.
 4. Where indicated on the contract drawings or in conditions of excess silt suspended in the discharge water, silt control bags are to be utilized in catch basins.
 5. The Contractor shall be responsible for repair of any damage caused by his dewatering operations, at no cost to the Owner.

END OF SECTION

SECTION 02290

SEEDING

PART 1 - GENERAL

1.01 WORK INCLUDED:

- A. This Section includes furnishing all labor, materials, equipment, seed and incidental materials necessary to accomplish all grass seeding and related work, complete in place, maintained, and accepted, in accordance with the Contract Drawings and Specifications. All grassed areas disturbed by the Contractor's operations shall be repaired as herein specified.
- B. The Contractor shall bear the responsibility and cost of furnishing and applying water or any other substances, as necessary to ensure the sustainability of grass seeded areas, as part of the work of this contract.
- C. Contractor shall coordinate Seeding efforts with requirements for High Performance Root Zone Mix system and related sections. Seeding and related sections must be in accordance with ASTM F-2396 – 04 Standard Guide for Construction of High Performance Sand-Based Rootzones for Sports Fields.

1.02 RELATED WORK:

- A. Section 02910, SCREENED LOAM BORROW AND TOPSOIL RE-USED
- B. Section 02911 ROOT ZONE MIX FOR BALLFIELDS
- C. Section 02920, SODDING

1.03 SUBMITTALS:

In accordance with requirements of general specifications, the Contractor shall submit the following to the Engineer for review and approval:

- A. Six copies of information for seed mixes including the following:
 - 1. Name and address of the seed supplier.
 - 2. Source of origin and dates of harvest for each of the various types of seed

3. Certification of seed mix composition and proportion, indicating named seed varieties by percent, percent germination, purity, and percent crop seed, percent inert matter, and percent weed seed content.
 4. Estimated number of seeds per pound of each type of seed in the mix
- B. Six copies of information detailing proposed limestone, fertilizers, insecticides, herbicides, fungicides, mulch materials, hydroseeding materials (as required), and slope protection material (as required) to be applied to seeded areas.
 - C. Six copies of watering, fertilizing and maintenance schedule.
 - D. Six copies of marked up prints indicating the square footage of all proposed seeded areas with quantities of various soil additives and amendments, and quantities of seed for each area prior to beginning work.

PART 2 - PRODUCTS

2.01 MATERIALS:

A. LOAM BORROW/ ROOT ZONE MIX:

1. Loam Borrow shall be as specified in Section 02910, SCREENED LOAM BORROW AND TOPSOIL RE-USE.
2. Root Zone Mix for Ballfields shall be as specified in Section 02911, ROOT ZONE MIX FOR BALLFIELDS

B. LIMESTONE:

1. Lime shall be an approved agricultural limestone containing at least 50 percent total oxides (calcium oxide and magnesium oxide). The material will be ground such that 50 percent of the material will pass through a No. 100 mesh sieve and 98 percent will pass a No. 2 mesh sieve. Lime shall be uniform in composition, dry and free-flowing and shall be delivered to the site in the original sealed containers, each bearing the manufacturer's guaranteed analysis.

C. FERTILIZER:

1. Fertilizer shall be a complete, standard commercial fertilizer, homogenous and uniform in composition, dry and free-flowing, and shall be delivered to the site in the manufacturer's original sealed containers, each bearing the manufacturer's guaranteed analysis and marketed in compliance with State and Federal Laws. All fertilizer shall be used in accordance with the manufacturer's recommendations.

2. The analysis for supplemental maintenance fertilizer shall have a ratio of Nitrogen (N) – Phosphorous (P) – Potassium (K) of approximately 4 – 1 – 2 and shall be applied to deliver 1 pound of Nitrogen per 1000 square feet, or as approved by the Engineer. At least 50 percent of nitrogenous elements shall be Urea-form or derived from organic sources and contain no less than 3 percent water soluble Nitrogen.

D. SEED:

1. Seed shall be of an approved perennial variety mixture, the previous year's crop, clean, and high in germinating value. Weed seed content shall be less than 0.5 percent and include no noxious weeds. Seed shall be obtained from a reliable seed company and shall be accompanied by certificates of compliance relative to mixture purity and germinating value. Seed shall be furnished and delivered in new, clean, sealed and properly labeled containers. All seed shall comply with applicable State and Federal laws. Seed that has become wet, moldy or otherwise damaged shall not be accepted.
2. Grass seed for lawn areas shall conform to the following requirements:

Botanical and Common Names	Proportion by Weight	Germination Rate	Purity Minimum
Chewing’s Fescue (Festuca rubra commutata)	30%	70%	97%
‘Kentucky 31’ Tall Fescue (Festuca arundinacea ‘Kentucky 31’)	30%	90%	98%
Kentucky Bluegrass (Poa pratensis)	20%	80%	85%
Perennial Ryegrass (Lolium perenne)	20%	90%	98%

3. Grass seed for athletic fields shall conform to the following requirements:

Botanical and Common Names	Proportion by Weight	Germination Rate	Purity Minimum
‘Rebel II’ Tall Fescue (Festuca arundinacea ‘Rebel II’)	80%	90%	90%

'Palmer III' Perennial Ryegrass (Lolium perenne 'Palmer III')	10%	90%	98%
'Baron' Kentucky Bluegrass (Poa pratensis 'Baron')	10%	80%	85%

F. MULCH:

1. Materials to be used in mulching seeded areas shall be free of weed seed and shall conform to the following requirements:
 - a. Hay Mulch shall consist of mowed and properly cured grass, clover or other acceptable plants. No salt hay shall be used.
 - b. Straw Mulch shall consist of stalks or stems of grain after threshing.

G. HYDROSEED MULCH, TACKIFIERS AND WATER RETENTION AGENTS:

1. Wood fiber mulch for Hydroseed application shall be a manufactured product of natural wood cellulose fibers with a non-toxic green marking dye incorporated to ensure uniform distribution. Mulch shall be packed in sealed original containers, clearly labeled with brand name and manufacturer. It shall have delivered moisture content less than 12 percent.
2. Hydroseed tackifier shall be a powdered starch-based product approved by the Engineer. Hydroseed tackifier shall be applied in conjunction with the hydroseed slurry in accordance with the manufacturer's recommendations.
3. Moisture retention agent shall be a powdered starch-based product, approved by the Engineer, and shall be capable of retaining up to 400 times their weight in water. Moisture retaining agents shall be added to the hydroseed slurry in accordance with the manufacturer's recommendations. Moisture retention agent shall be 'Hydro-Gel', as manufactured by Finn Corporation, Fairfield, OH.

H. WATER:

1. Water shall be furnished by the Contractor, unless otherwise specified, and shall be suitable for irrigation and free from ingredients harmful to plant growth and viability. The delivery and distribution equipment required for the application of water shall be the furnished by the Contractor, at no additional cost to the Owner.

I. INSECTICIDES:

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SEEDING

1. No insecticides shall be used on-site without the Contractor notifying and obtaining prior approval of the Engineer.
2. Insecticides shall be EPA registered and approved for use in public open spaces. All insecticides shall be handled by State licensed applicators only, delivered in the original sealed manufacturer's containers, and used in accordance with the manufacturer's instructions.
3. Insecticide use shall be limited and selective, only to control specific insect infestations, as identified by the Contractor or the Owner's Representative that may result in the disfigurement, decline, or death of plant materials.
4. Grub control insecticide shall be Proturf Insecticide III, as manufactured by A.M. Scotts & Sons, Inc.; Dursban Granules, as manufactured by Old Fox Chemical Corp., or ACMC; or approved equal.

J. HERBICIDES:

1. s be used on-site without the Contractor notifying and obtaining prior approval of the Engineer.
2. All herbicides shall be EPA registered and approved for use in public open spaces. All herbicides shall be handled by State licensed applicators only, delivered in the original sealed manufacturer's containers, and used in accordance with the manufacturer's instructions.
3. Herbicide for post-emergent application shall be glyphosate contact, 'Roundup', as manufactured by Monsanto, Inc., or approved equal.
4. Herbicide use shall be limited and selective, only to control specific weed infestations that have been identified by the Contractor or the Owner's Representative.

K. FUNGICIDES:

1. No fungicides shall be used on-site without the Contractor notifying and obtaining prior approval of the Engineer.
2. Fungicides shall be EPA registered and approved for use in public open spaces. All fungicides shall be handled by State licensed applicators only, delivered in the original sealed manufacturer's containers, and used in accordance with the manufacturer's instructions.

3. Fungicide use shall be limited and selective, only to control specific fungal pathogenic disease infestations, as identified by the Contractor or the Owner's Representative that may result in the disfigurement, decline, or death of plant materials.

PART 3 - EXECUTION

3.01 GENERAL:

- A. All work shall be performed by skilled workers with a minimum of 2 years of seeded lawn construction and establishment experience and under the full-time supervision of a qualified foreman.
- B. Seeding operations shall not begin less than 4 days after the application of lime and fertilizer and the seedbed areas are reviewed and approved by the Engineer.
- C. Seeding shall be done when soil and weather conditions permit in early spring, until June 15, or from September 10 to October 15, unless otherwise approved. If it becomes necessary for seed to be sown after June 15, provisions shall be made for supplementary water and using a mulch cover over lawn areas.
- D. If there is a delay in seeding, during which weeds grow, or soil is washed out, the Contractor shall eliminate the weeds by chemical or physical means, or replace the soil before sowing the seed, without additional compensation. Immediately before seeding is begun, the soil shall be lightly raked.
- E. Seed shall be sown at the approved rate, on a non-windy day by machine, or as approved by the Engineer.
- F. The surface shall be kept moist by a fine spray until the seed shows uniform germination over the entire area. Wherever poor germination occurs in areas larger than 3 square feet, the Contractor shall reseed, roll, and water as necessary to obtain proper germination.
- G. If there is insufficient time in the planting season to complete soil preparations, fertilizing, and seeding, permanent seeding may be left until the following planting season, at the option of the Contractor, or on order of the Engineer. In that event, a temporary cover crop shall be sown. This cover crop shall be cut and watered as necessary until the beginning of the following planting season, at which time it shall be plowed or harrowed into the soil, the area shall be fertilized and the permanent seed crop shall be sown as specified.
- H. Protection of all newly loamed and graded areas is required and shall be accomplished by whatever means necessary such as mulch applied with a tackifier, or by other means approved by the Engineer. The Contractor shall be responsible for the prevention of

siltation in areas beyond the limit of work and for all means of protection throughout the maintenance period at no additional cost to the Owner.

3.02 LOAM TESTING REQUIREMENTS

- A. Loam (vegetative support layer) samples shall be collected from in-place loam at a minimum of every 1000 cubic yards and analyzed for grain size (ASTM D422), pH (Astm D6276) and organic content (ignition test).

3.02 SURFACE PREPARATION:

- A. If approved by the Engineer, the entire site area to be seeded shall be treated with an approved herbicide, in accordance with the manufacturer's instructions, not less than 7 days before the start of seeding operations.
- B. If approved by the Engineer, grub control insecticide shall be spread on the surface of the seedbed, in accordance with the manufacturer's instructions, after the seedbed has been properly graded, not less than 24 hours before the start of seeding operations.

3.03 BROADCAST SEEDING, PLACING MULCH AND SLOPE EROSION PROTECTION:

- A. The seed mix shall be broadcast at 6 pounds per 1000 square feet, as recommended by the seed supplier, or as directed by the Engineer. Seed shall be divided into 2 equal amounts and uniformly distributed in 2 applications at right angles to each other. Seed shall then be raked lightly into the soil to a depth of 1/4 inch.
- B. If mulch is not necessary the seed shall be directly firmed into the soil with a roller that will apply pressure between 75 and 100 pounds per linear foot of width.
- C. Hay or Straw Mulch shall be used based on time of seeding as previously specified over all seeded areas, as designated on the plans, or as otherwise directed. If mulch is to be used, it shall be loosely spread to a uniform depth at a rate of 4-1/2 tons per acre to provide 1/4 inch of cover, or as otherwise directed. The seed and mulch shall then be firmed into the soil with a roller that will apply a pressure between 75 and 100 pounds per foot of width.
- D. Hay or Straw Mulch may be applied by mechanical apparatus, if in the judgment of the Engineer, the apparatus spreads the mulch uniformly and forms a suitable mat to control slope erosion. The apparatus shall be capable of spreading at least 80 percent of the hay or straw in lengths of 6-inches or more, otherwise it shall be spread by hand without additional compensation.
- E. Slope erosion control blankets shall be placed as indicated on the plans or as directed by the Engineer.

3.04 HYDROSEEDING:

- A. The application of lime, fertilizer, grass seed and mulch may be accomplished in a single operation with the use of approved hydroseeding equipment. The materials shall be mixed with water in the machine and kept in an agitated state in order that the materials may be uniformly suspended in the water. The slurry shall be of such consistency that it can be sprayed from a hydroseed gun or through at least 200 feet of 1 ½ inch diameter hose. The spraying equipment shall be so designed that when the solution is sprayed over an area, the resulting deposits of lime, fertilizer, grass seed, and mulch shall be equal to the specified quantities.
- B. Prior to the start of hydroseeding, the Contractor shall furnish to the Engineer, in writing, the weights of limestone, fertilizer, grass seed, mulch, tackifier (as required) and moisture retention agent (as required) per 100 gallons of water to be used. This statement should also specify the number of square yards of seeding that can be covered with the solution specified above. If the results of hydroseeding operations are unsatisfactory, the Contractor will be required to abandon this method and to apply the lime, fertilizer, grass seed and mulch by other means.
- C. Seed shall be incorporated with the mulching material to obtain a minimum hydroseeded sown coverage of 200 pounds of the specified seed mix per acre, as recommended by the seed suppliers, or as directed by the Engineer.
- D. Wood fiber mulch shall be uniformly spread over certain selected seeded areas at the minimum rate of 1,400 pounds per acre unless otherwise directed. Mulch shall be placed by spraying from an approved spraying machine with pressure sufficient to cover the entire area in a single operation.
- E. The Contractor shall immediately cleanup hydroseed oversprays from plant materials, pavements, furnishings, etc., to the satisfaction of the Engineer.

3.05 MAINTENANCE:

- A. The Contractor shall maintain and protect the entire seeded area, as necessary to ensure dense healthy growth, until completion of the guarantee period and final acceptance of the project, or for 60 days, whichever is longer. If lawns are planted in late summer or during the fall, maintenance shall continue through the following spring for at least 30 days. Maintenance shall include watering as specified, liming, fertilizing, removal of stones, control of weeds, insect pests and fungal pathogens, and regular mowing. Defective work shall be corrected as soon as possible after it becomes apparent and weather and season permit.
- B. The first cutting of lawn areas shall be done when the grass is between 2 ½ - 3 inches in height. The lawn shall be cut no shorter than 2 inches in height and shall be regularly

mowed as necessary to maintain the above-prescribed conditions. All cuttings shall be removed from the lawn during the maintenance period and disposed of off-site.

- C. The Contractor shall be responsible to regularly water seeded areas with the equivalent of 1-inch minimum of rainfall per week, or as necessary to develop and sustain dense, green growth.
- D. Six weeks after turf has established, and only during the months of April, May, or September, the Contractor shall apply fertilizer as specified above, at one half the rate recommended by the initial soils laboratory tests, or as directed by the Engineer.
- E. The Contractor shall be responsible for securing all seeded areas from physical damage as necessary, including warning signs, barriers, temporary fencing, or other means of protection, through the guarantee period until final acceptance. All damaged areas shall be repaired to reestablish healthy vigorous growth of turf to the satisfaction of the Engineer, at no additional cost to the Owner. All temporary barriers shall remain the property of the Contractor and shall be removed by the Contractor upon final acceptance by the Engineer.
- F. Pavement shall be kept clean and clear of cuttings and debris at all times during the maintenance period to the satisfaction of the Engineer.

3.06 INSPECTION AND PRELIMINARY ACCEPTANCE:

- A. At the beginning of the planting season following that in which the permanent grass crop is sown, seeded areas will be inspected. Any section not showing dense, vigorous growth shall be promptly reseeded by the Contractor at no additional cost to the Owner. The seeded areas shall be watered, weeded, cut and otherwise maintained by the Contractor, as many times as necessary, in accordance with these specifications, until they are accepted.
- B. The Contractor shall provide written notice to the Engineer not less than 10 days before the anticipated date of inspection for preliminary acceptance. The Engineer shall recommend preliminary acceptance of the work of this Section only after completion and re-inspection of all necessary repairs, renewals, or replacements.
- C. Inspection and acceptance of seeded areas may be requested and granted in part, provided the areas for which acceptance is requested are relatively substantial in size, and with clearly definable boundaries. Acceptance and use of these areas by the Owner shall not waive any other provisions of this Contract.

3.07 GUARANTEE:

- A. Seeded areas shall be guaranteed until final acceptance of the project, or, in the case of late summer or fall planting, the guarantee period shall extend through the following spring.

- B. When the work is accepted in part, the guarantee period shall extend from each partial acceptance to the terminal date of the last guarantee period. All guarantee periods terminate at one time.
- C. Guarantee shall not apply to the replacement of seeded lawns resulting from the removal, loss, or damage due to occupancy of the project in any part; vandalism or acts of neglect on the part of others; physical damage by animals, vehicles, etc.; and Acts of God, including but not limited to, catastrophic fire, hurricanes, riots, war, etc.
- D. In the instance of curtailment of water by local water authorities (when supply was to be furnished by the Owner), the Contractor shall furnish all necessary water by water tanker, the cost of which will be approved and paid for by the Owner.

3.08 FINAL INSPECTION AND FINAL ACCEPTANCE:

- A. At the end of the guarantee period, the Contractor shall provide written notice to the Engineer not less than 10 days before the anticipated date of final inspection for final acceptance.
- B. The Engineer shall recommend final acceptance of the work of this Section only after completion and re-inspection of all necessary repairs, renewals or replacements.

END OF SECTION

SECTION 02888

SHADE SHELTERS

PART I - GENERAL

1.01 SCOPE OF WORK

- a. Under this Section the Contractor shall furnish all labor, materials, equipment and transportation required to furnish and install metal and polyethylene fabric shade shelters in the locations indicated in the Contract Drawings, in accordance with the manufacturer's recommendations, and as specified herein.

1.02 REFERENCE STANDARDS AND SPECIFICATIONS

- a. Reference to the standards, specifications and tests of technical societies, organizations and governmental bodies as made in the contract documents.
 1. ANSI - American National Standards Institute.
 2. AASHTO (AASHO) - American Association of State Highway and Transportation Officials (tests of specifications).
 3. ASTM - American Society for Testing and Materials.
 4. Mass. Standard Specs. - Latest edition of the Standard Specifications for Highways, Bridges and Waterways, the Commonwealth of Massachusetts, Department of Public Works, hereinafter referred to as "the Massachusetts Standard Specifications".
 5. AISI - American Iron and Steel Institute
 6. AISC - American Institute of Steel Construction.
 7. AWS – American Welding Society
- b. Requirements not specifically set forth herein, but required by the agencies listed above shall apply to this contract since these are established as the industry standards for quality and safety. Any conflicts between the agency standards and the contract documents shall be brought to the attention of the Landscape Architect, and unless otherwise directed in writing, the agency standards shall be the minimum requirement to be followed.

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SHADE SHELTER

1.03 SHOP DRAWINGS

- a. Shop drawings or manufacturer's specifications shall be submitted in accordance with the provisions of the GENERAL CONDITIONS. The specifications provide for "or equal" provision by other manufacturers than specified. However, the equipment shall be equal to, or better than, the specified material, with equal dimensions in order to be considered.
- b. Submittals shall be required for all elements to be furnished under this Section. Drawings may be viewed at the offices of the manufacturer or the Landscape Architect.

1.04 SAMPLES

- a. Submit the following samples in accordance with the provisions of the GENERAL CONDITIONS.
 1. Submit samples and/or descriptive literature of all items specified in this Section, including treatments, finishes, colors, and test information.

PART II - MATERIALS

2.01 SHADE SHELTERS

- a. The required shade shelters shall be as manufactured by Shade America of Dallas, TX and represented locally by O'Brien & Sons of Medfield, MA, (Tel: 508-359-4200) or approved equal. Shade Shelters shall be as follows:

Bleacher SSA: 12' x 45' x 13' height, Extended Hip, Model No. R104512
- b. Shade shelters framing and supports shall be constructed entirely of steel. Roofing shall be polyethylene fabric treated to prevent UV degradation. Steel components shall be galvanized and powder coated.

2.02 FINISH PAINTING

- a. All metal components shall receive the Allied Flo-Coat Process that includes the applications of pure zinc, conversion, clear polymer and powder coatings.
- b. The shade shelter shall be factory primed and factory finish painted in accordance with manufacturer's specifications, subject to the approval of the Landscape Architect.
- d. The paint color(s) shall be selected by the Landscape Architect at the time the

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SHADE SHELTER

product is ordered.

- e. Any priming or finish paint damage shall be repaired to the satisfaction of the Landscape Architect in a manner approved by the Landscape Architect.

2.03 CEMENT CONCRETE - CAST IN PLACE

- a. Concrete for footings will be cast in place cement concrete as set forth in Section 03300 of these Specifications.
- b. Footings shall be a minimum of twenty four (24) inches diameter and 4'-6" in depth. Top of footings shall be kept below finished grades to allow for installation of proposed pavements above all footings/foundations.
- c. Anchoring methods shall be as specified by the manufacturer subject to the approval of the Landscape Architect.

PART III - EXECUTION

- 3.01 The Contractor shall assemble the specified shelter under the supervision of an approved Supervisor according to the manufacturer's instructions, the contract drawings and these Specifications.
- 3.02 The Contractor shall locate the shelter to the lines and grades specified in the drawings, Specifications and according to the specifications of the manufacturer.
- 3.03 The excavation for the footings shall be done as specified in Section 02350 of these Specifications and according to the Contract Drawing details.
- 3.04 The concrete footings shall be poured to the grades specified. The concrete shall be poured and cured according to Section 03300 of these Specifications.

PART IV - GUARANTEE AND ACCEPTANCE/LIABILITY

- 4.01 All elements of the shade shelter shall be guaranteed against failure for a period of one (1) year.
- 4.02 Any defective elements shall be replaced in part or whole by the Contractor, at no cost to the Owner.

END OF SECTION

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SHADE SHELTER

SECTION 02300

EARTHWORK

PART 1 - GENERAL

1.01 WORK INCLUDED:

- A. Under this Section, the Contractor shall furnish all labor, materials, equipment and transportation required to complete Earthwork as indicated on the drawings, as designated by the Landscape Architect, or as specified herein, to complete all proposed work.
- B. Without limiting the generality thereof, Earthwork shall include excavating, furnishing borrow materials as necessary, and backfilling for the construction of all proposed work from existing grades to finished grades. Work shall include the removal of unclassified material, such as boulders under one (1) cubic yard in size, concrete, and unsuitable materials of every nature throughout the site within eighteen (18) inches below finished subgrade elevations for proposed work or as indicated or required for new construction; transportation of the excavated materials; backfilling to proposed base course subgrades with approved excavated and/or furnished materials; and the legal disposal of unsuitable, and/or surplus excavated materials.
- C. Work under this Section shall also include the discing and harrowing of existing grass or topsoil areas to break down all sod clumps and vegetation and the complete excavation, stockpiling, rehandling, spreading, and re-use (placing) of on-site topsoil in conformity with the lines, grades and dimensions shown on the plans. This material may be utilized where general embankment (not beneath pavements or structural improvements) is proposed at the sole discretion of the Owner. The Contractor shall take extreme care in the process of discing and harrowing of the existing topsoil to insure that subsoil to remain in place is not mixed with the topsoil. Disc compacted areas subject to construction traffic to the full depth of topsoil without mixing in subsoil.
- D. All topsoil/loam, for sod, seed or plant material beds, whether re-used or furnished from off-site, shall conform to Section 02910 of these Specifications.
- E. The Contractor shall make excavations of normal depth in earth for trenches and structures, shall backfill and compact such excavations to the extent necessary, shall furnish the necessary material and construct embankments and fills, and shall make miscellaneous earth excavations and do miscellaneous grading.
- F. Contractor shall coordinate Earthwork efforts with requirements for High Performance Root Zone Mix system and related sections. Earthwork and related sections must be in

accordance with ASTM F-2396 – 04 Standard Guide for Construction of High Performance Sand-Based Rootzones for Sports Fields.

1.02 RELATED WORK:

- A. Special Conditions, PERMITS
- B. Section 02240, DEWATERING
- C. Section 02910, SCREENED LOAM BORROW AND TOPSOIL RE-USED
- D. Section 02910, ROOT ZONE MIX FOR BALLFIELDS
- E. Section 02290, SEEDING
- F. Section 02920, SODDING

1.03 REFERENCES:

AASHTO - American Association of State Highway and Transportation Officials (tests or specifications). AASHTO or AASHO

AWWA - American Waterworks Association

American Society for Testing and Materials (ASTM)

- | | | |
|------|-------------|--|
| ASTM | C 131 | Test Method for Resistance to Degradation of Small Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine. |
| ASTM | C136 | Method for Sieve Analysis of Fine and Coarse Aggregates. |
| ASTM | C330 | Specification for Lightweight Aggregate for Structural Concrete. |
| ASTM | D1 556 | Test Method for Density of Soil in Place by the Sand Cone Method. |
| ASTM | D1557 | Test Methods for Moisture-density Relations of Soils and Soil Aggregate Mixtures Using Ten-pound (10 Lb.) Hammer and Eighteen-inch (18") Drop. |
| ASTM | D2922 | Test Methods for Density of Soil and Soil-aggregate in Place by Nuclear Methods (Shallow Depth). |
| ASTM | F-2396 – 04 | Standard Guide for Construction of High Performance Sand-Based Rootzones for Sports Fields |

Commonwealth of Massachusetts Highway Department Standard Specification for Highways and Bridges.

Code of Massachusetts Regulations (CMR) 310.40.0032 Contaminated Media and Contaminated Debris

1.04 SUBMITTALS: IN ACCORDANCE WITH REQUIREMENTS OF GENERAL SPECIFICATIONS, SUBMIT THE FOLLOWING:

Samples of all materials proposed for the project shall be submitted to the Engineer for review. Size of the samples shall be as approved by the Engineer.

1.05 PROTECTION OF EXISTING PROPERTY:

- A. The work shall be executed in such manner as to prevent any damage to facilities at the site and adjacent property and existing improvements, such as but not limited to streets, curbs, paving, service utility lines, structures, monuments, bench marks, observation wells, and other public or private property. Protect existing improvements from damage caused by settlement, lateral movements, undermining, washout and other hazards created by earthwork operations.
- B. In case of any damage or injury caused in the performance of the work, the Contractor shall, at its own expense, make good such damage or injury to the satisfaction of, and without cost to, the Owner. Existing roads, sidewalks, and curbs damaged during the project work shall be repaired or replaced to at least the condition that existed at the start of operations. The Contractor shall replace, at his own cost, existing benchmarks, observation wells, monuments, and other reference points, which are disturbed or destroyed.
- C. Buried drainage structures and pipes, observation wells and piezometers, including those which project less than eighteen inches (18") above grade, which are subject to damage from construction equipment shall be clearly marked to indicate the hazard. Markers shall indicate limits of danger areas, by means which will be clearly visible to operators of trucks and other construction equipment, and shall be maintained at all times until completion of project.

1.06 DRAINAGE:

- A. The Contractor shall provide, at its own expense, adequate drainage facilities to complete all work items in an acceptable manner. Drainage shall be done in a manner so that runoff will not adversely affect construction procedures or cause excessive disturbance of underlying natural ground or abutting properties. All work shall be done in the dry.

1.07 FROST PROTECTION AND SNOW REMOVAL:

- A. The Contractor shall, at its own expense, keep earthwork operations clear and free of

accumulations of snow as required to carry out the work.

- B. The Contractor shall protect the subgrade beneath new structures and pipes from frost penetration when freezing temperatures are expected.

1.08 SPECIAL REQUIREMENTS:

- A. The Contractor shall inform and satisfy himself as to the character, quantity, and distribution of all material to be excavated. No payment will be made for the placement of any excavated material which is used for purposes other than those designated and as specified herein. Further, these shall be removed at no cost to the Owner if so directed by the Landscape Architect.
- B. Unsuitable and/or excess excavated materials shall be removed and properly disposed of in legal disposal areas off of the site at no additional cost to the Owner.
- C. Exploratory excavation to locate existing utilities or obstructions, shall be at the Contractor's discretion to assist him in the work of this project and no extra payment shall be made for such verification. Although extra payment is not considered, lack of such payment does not constitute a waiver of the Contractor's responsibility to verify all utilities. The contractor must ensure verification of existing services and ensure the safety of the Contractor's work forces.

PART 2 – PRODUCTS

2.01 BORROW MATERIALS:

- A. Excavated topsoil and furnished topsoil to be utilized for sodding, seeding and landscaping must conform to Section 02910 Loam Borrow in order to be used as Loam Borrow. Existing topsoil not passing tests for Loam Borrow may be considered suitable as general fill below subgrade, in landscaped areas only and may be utilized throughout the proposed sod and seeded areas, up to subgrades of proposed work.
- B. Gravel Borrow shall be as specified under paragraph 2.03 of these Specifications and shall be utilized whenever gravel is noted.

2.02 MATERIALS:

- A. LOAM BORROW:

Loam Borrow shall satisfy the specification section 02910 included in these specifications.

PART 3 - EXECUTION

3.01 EXCAVATION:

A. GENERAL:

1. The Contractor shall perform all work of any nature and description required to accomplish the work as shown on the Drawings and as specified.
2. Excavations, unless otherwise required by the Engineer, shall be carried only to the depths and limits shown on the Drawings. If unauthorized excavation is carried out below required subgrade and/or beyond minimum lateral limits shown on Drawings, it shall be backfilled with gravel borrow and compacted at the Contractor's expense as specified below, except as otherwise indicated. Excavations shall be kept in dry and good conditions at all times, and all voids shall be filled to the satisfaction of the Engineer.
3. In all excavation areas, the Contractor shall strip the surficial topsoil layer and underlying subsoil layer separate from underlying soils. In paved areas, the Contractor shall first cut pavement as specified in paragraph 3.02.26 of this specification, strip pavement and pavement subbase separately from underlying soils. All excavated materials shall be stockpiled separately from each other within the limits of work.
4. The Contractor shall follow a construction procedure, which permits visual identification of stable natural ground. Where groundwater is encountered, the size of the open excavation shall be limited to that which can be handled by the Contractor's chosen method of dewatering and which will allow visual observation of the bottom and backfill in the dry.
5. The Contractor shall excavate unsuitable materials to stable natural ground where encountered at proposed excavation subgrade, as directed by the Engineer. Unsuitable material includes topsoil, loam, peat, other organic materials, snow, ice, and trash. Unless specified elsewhere or otherwise directed by the Engineer, areas where unsuitable materials have been excavated to stable ground shall be backfilled with compacted special bedding materials or crushed stone wrapped all around in non-woven filter fabric.
6. When the plans require excavation in areas in proximity to existing sidewalks, structures and utilities, it shall be the responsibility of the Contractor, at his own expense, to provide adequate and suitable drainage away from proposed work and existing features or use other satisfactory means and methods to protect and maintain the stability of such construction within or adjacent to the limits of work.
7. Protect all existing trees, shrubs or other plan referenced features to remain. Hand excavate around all items to remain including tree roots or where utilities must be verified. Exposed tree roots shall be immediately covered with Loam Borrow in

accordance with these specifications.

8. No roots greater than two (2) inches in diameter shall be cut from trees to remain without approval of the Landscape Architect. Roots greater than one (1) inch in diameter that are cut or broken shall be promptly pruned to a smooth clean cut and painted with an approved compound.
9. Any removal of existing facilities required in order to achieve the excavation to proceed, such as fences, walls, walkways, etc., shall be accomplished by the Contractor at no additional cost to the owner. Restoration of these facilities shall be to a condition equal to that before removal, and safe and operational to the satisfaction of the Landscape Architect.
10. Excavation shall be performed to the lines, grades, and elevations shown on the plans or as directed by the Landscape Architect, and shall be made in such a manner that the requirements for formation of the subgrade can be followed.
11. No excavation shall be started until the Landscape Architect has reviewed and acknowledged the area of proposed construction. All material encountered, of whatever nature within the limits indicated, shall be removed and disposed of as directed. During the process of excavation, the grade shall be maintained in such condition that it will be well drained at all times.
12. The planes at the bottom of the excavation (in cut), or the top of the fill, when completed, shall be known as the subgrade, and shall be true to the lines, grades and cross section shown on the plans, to allow proposed work (base courses and finished courses) to be completed.
13. All unsuitable excavated material shall be legally disposed of outside of, and away from, the project limits. All suitable excavated material deemed surplus by the Landscape Architect shall become the property of the Contractor and shall be properly removed from the site.
14. The subgrade under areas to be paved shall be brought to proper line and grade by excavating and/or placement of compacted fill with suitable excavated material or gravel borrow as specified herein. Where filling is not required, the undisturbed subgrade shall be compacted according to the requirements stated herein.
15. Fills to subgrade level shall be formed of successive layers not exceeding six (6) inches in depth and each layer shall be compacted to not less than 95 percent of maximum dry density of the material as determined by the standard AASHTO Test Designation T-180-86, Modified Proctor Test.
16. No additional payment will be made for materials removed, manipulated or replaced by the Contractor in order to obtain the specified density. Any removal,

manipulation, aerating, replacement and re-compaction of materials necessary to obtain the required density shall be considered as incidental to the excavation and compaction operations and shall be performed by the Contractor at no additional cost.

17. Topsoil excavation and re-handling shall consist of discing and harrowing grassed and existing topsoil areas at ninety (90) degrees to each prior operation, and removing topsoil from all areas of proposed work and placing and grading the topsoil in embankment areas. Topsoil encountered below subgrade shall remain in place unless new paving is to be placed thereon and only as directed by the Landscape Architect. Then, such topsoil shall be excavated and rehandled, replaced with Suitable Backfill materials or gravel borrow and compacted as herein specified or as directed by the Landscape Architect. Such work beneath proposed subgrade shall be considered extra work and shall be processed accordingly.
18. All areas exhibiting grass or weed growth shall be tilled by disc/harrow or rototilled in two directions to completely break up sod clumps prior to stripping the topsoil, and shall be stored in stockpiles if necessary to ensure organic matter decomposition. Such on-site stockpiled materials must be tested prior to reuse, and treated to prevent weed growth.
19. Protect all existing areas against damage due to the work under this Contract, and perform all repair and replacement work to any such areas which are damaged hereunder.
20. Perform all excavation and backfilling required for the installation of subdrains, utility structures, and utility lines, and appurtenances required to the lines and grades shown on the Contract Drawings and as directed by the Landscape Architect.
21. No extra work shall be initiated without notification of the Landscape Architect in writing, and the written approval of the Landscape Architect in response.
22. The Contractor shall be responsible for any and all pumping or bailing necessary to complete his operations, and to keep all areas sufficiently dry to guarantee compaction in accordance with paragraph 3.01.A.16. above.
23. Where insufficient suitable materials of any kind exist on site for incorporation into the proposed work within proposed work lines, the Contractor shall furnish materials from off site, as necessary and in accordance with these specifications, at no additional cost to the Owner.

B. TRENCHES:

1. Contractor shall satisfy all dewatering requirements specified in Section 02240 DEWATERING, before performing trench excavations.

2. Trenches shall be excavated to such depths as will permit the pipe to be laid at the elevations, slopes, and depths of cover indicated on the Drawings. Trench widths shall be as shown on the Drawings or as specified.
3. Where pipe is to be laid in bedding material, the trench may be excavated by machinery to, or just below, the designated subgrade provided that the material remaining in the bottom of the trench is not disturbed.
4. Pipe trenches shall be made as narrow as practicable and shall not be widened by scraping or loosening materials from the sides. Every effort shall be made to keep the sides of the trenches firm and undisturbed until backfilling has been completed.
5. If, in the opinion of the Engineer, the subgrade, during trench excavation, has been disturbed as a result of rain, surface water runoff or groundwater seepage pressures, the Contractor shall remove such disturbed subgrade to a minimum of 12 inches and replace with crushed stone wrapped in filter fabric. Cost of removal and replacement shall be borne by the Contractor.
stone shall then be placed in lifts and compacted to required densities. Backfill shall be placed to the bottom of the proposed excavation.

E. TRENCH HAND EXCAVATION

- a. When approaching the vicinity of significant tree roots, underground pipes, conduits, or other structures, or any suspected functioning underground features, digging by machinery shall be discontinued and the excavation shall be done by hand. Hand excavation shall also be undertaken when so directed by the Landscape Architect. Such hand excavation shall be considered incidental to the trench excavation and no additional compensation will be allowed.
- b. Protection of Existing Structures - All existing pipes, conduits, poles, wires, fences, curbing, property line markers, and other structures which, in the opinion of the Landscape Architect, are not required to be changed in location, shall be carefully supported and protected from injury by the Contractor, and in case of damage, they shall be restored by the Contractor without additional compensation, to as good a condition as that in which they were found.

3.03 BACKFILL PLACEMENT AND COMPACTION:

A. GENERAL:

1. Prior to backfilling, the Contractor shall compact the exposed natural subgrade to the densities as specified herein.
2. After approval of subgrade by the Engineer, the Contractor shall backfill areas to required contours and elevations with specified materials.

3. The Contractor shall place and compact materials to the specified density in continuous horizontal layers. The degree of compaction shall be based on maximum dry density as determined by ASTM Test D1557, Method C. The minimum degree of compaction for fill placed shall be as follows:

<u>Location</u>	<u>Percent of Maximum Density</u>
Below pipe centerline	95
Above pipe centerline	92
Below pavement (upper 3 ft.)	95
Embankments	95
Below pipe in embankments	95
Adjacent to structures	92
Below structures	95

4. The Engineer reserves the right to test backfill for conformance to the specifications and Contractor shall assist as required to obtain the information. Compaction testing will be performed by the Engineer or by an inspection laboratory designated by the Engineer, engaged and paid for by the Owner. If test results indicate work does not conform to specification requirements, the Contractor shall remove or correct the defective Work by recompacting where appropriate or replacing as necessary and approved by the Engineer, to bring the work into compliance, at no additional cost to the Owner. All backfilled materials under structures and buildings shall be field tested for compliance with the requirements of this specification.
5. Where horizontal layers meet a rising slope, the Contractor shall key each layer by benching into the slope.
6. If the material removed from the excavation is suitable for backfill with the exception that it contains stones larger than permitted, the Contractor has the option to remove the oversized stones and use the material for backfill or to provide replacement backfill at no additional cost to the Owner.
7. The Contractor shall remove loam and topsoil, loose vegetation, stumps, large roots, etc., from areas upon which embankments will be built or areas where material will be placed for grading. The subgrade shall be shaped as indicated on the Drawings and shall be prepared by forking, furrowing, or plowing so that the first layer of the fill material placed on the subgrade will be well bonded to the subgrade.
- 8.

3.04 DISPOSAL OF SURPLUS MATERIALS:

- A. Surplus excavated materials, which are acceptable to the Engineer, shall be used to backfill normal excavations in rock or to replace other materials unacceptable for use as backfill. Upon written approval of the Engineer, surplus excavated materials shall be neatly deposited and graded so as to make or widen fills, flatten side slopes, or fill depressions; or shall be neatly deposited for other purposes as indicated by the Owner, within its jurisdictional limits; all at no additional cost to the Owner.
- B. Surplus excavated material not needed as specified above shall be hauled away and disposed of by the Contractor at no additional cost to the Owner, at appropriate locations, and in accordance with arrangements made by him. Disposal of all rubble shall be in accordance with all applicable local, state and federal regulations.
- C. No excavated material shall be removed from the site of the work or disposed of by the Contractor unless approved by the Engineer.
- D. The Contractor shall comply with Massachusetts regulations (310 CMR 40.0032) that govern the removal and disposal of surplus excavated materials. Materials, including contaminated soils, having concentrations of oil or hazardous materials less than an otherwise Reportable Concentration and that are not a hazardous waste, may not be disposed of at locations where concentrations of oil and/or hazardous material at the receiving site are significantly lower than the levels of those oil and /or hazardous materials present in the soil being disposed or reused.

END OF SECTION

SECTION 02533

CONNECTIONS TO EXISTING STRUCTURES

PART 1 - GENERAL

1.01 WORK INCLUDED:

The Contractor shall furnish materials, tools, labor and equipment to cut suitable openings into the existing sewer manholes, make connections to existing sewers and all other work necessary to direct the existing sewage flow as indicated on the drawings and as herein specified.

1.02 RELATED WORK:

Section 02630, DRAINAGE STRUCTURES

1.03 SUBMITTALS: IN ACCORDANCE WITH REQUIREMENTS OF THE GENERAL SPECIFICATIONS, SUBMIT THE FOLLOWING:

Prior to start of work, submit details of the methods proposed for doing the work and for maintaining the sewage flow as herein specified.

PART 2 - PRODUCTS - NOT APPLICABLE

PART 3 - EXECUTION

3.01 INSTALLATION:

- A. The Contractor shall provide temporary plugs or provide other suitable means for maintaining the new sewer free of sewage flow until such time as it can be inspected and tested for leakage.
- B. Connections to the new sewer shall be made when directed by the Engineer and only after the new pipeline has been inspected and has successfully passed the leakage test.
- C. The Contractor shall modify each existing structure for installation of the necessary piping, but in so doing shall confine the cutting to the smallest amount possible consistent with the work to be done.
- D. All new piping connected to existing structures shall be encased in concrete in a manner satisfactory to the Engineer.

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- E. All work shall be done with the proper tools and by careful workmen competent to do work.
- F. The Contractor shall cut, reshape and fill the existing manhole tables and plug existing outlets as indicated on the drawings and as directed by the Engineer, to accommodate the new connections. Reshaped manhole invert channels shall be smoothly shaped to permit the flow of sewage. Manhole invert channels shall be reconstructed as specified under Section 02631, PRECAST MANHOLES AND CATCH BASINS.

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SECTION 02620

CLEANING DRAIN LINES, CATCH BASINS AND MANHOLES

PART I - GENERAL

1.01 SCOPE OF WORK

- a. The work of this Section consists of cleaning all existing drain pipes and drainage structures to remain as designated on the drawings and/or as directed by the Engineer. It shall include furnishing all equipment, labor and material to perform all work necessary for cleaning removal and disposal of all roots, dirt, gravel, grease and other debris from drain pipes, drain inlets, manholes and catch basins constituting the site's drainage system, to the public street connection or outlet. All work shall be done in strict accordance with these Specifications.

PART II - MATERIALS

2.01 EQUIPMENT

- a. Cleaning shall be accomplished with mechanical and/or hydraulic equipment. Mechanical equipment shall consist of rodding and bucketing machines with buckets, brushes, and scrapers. Hydraulic equipment shall consist of high velocity type equipment. No hydraulic equipment that operates under a head of water or that would cause excessive internal pressure shall be permitted without written approval of the Engineer before commencing operation.
- b. Mechanical equipment shall be equipped with a belt booster or overload clutch to guard against damage to the line. No direct drive type of equipment shall be permitted.
- c. The equipment used for the final operation shall be a full size porcupine brush, or, where a full size brush will not enter through the manhole opening, a collapsible scraper that will open to the full size of the line may be used. Choice of equipment for this final operation shall be reviewed and approved by the Engineer

PART III - EXECUTION

3.01 PROCEDURES

- a. Satisfactory precautions shall be taken to protect the drain lines at all times. All workmen shall be experienced and skilled in the use of the equipment used.
- b. All sludge, dirt, sand, gravel, roots, grease, and other debris resulting from the

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CLEANING DRAIN LINES, CATCH BASINS AND MANHOLES

cleaning operations shall be removed from the job site and disposed of legally by the Contractor.

- c. A suitable weir or dam shall be constructed in a downstream manhole in such a manner that both solid and other material shall be trapped. Passing the material from one section to the next, which could cause blockage of the lines, shall not be permitted.
- d. During bucketing operations, the Contractor shall provide a suitable container to receive materials dumped from the buckets. No solids removed from the lines, manholes, or catch basins shall be pumped or dumped onto streets or into ditches, catch basins, or other storm drains.
- e. Upon completion of the cleaning of each section of drain line, a full-sized brush or scraper shall be pulled through the line to insure complete removal of all debris from the drain.
- f. When the drain line flows are exceeding the minimum requirements (generally not more than one-fourth of the pipe diameter) or inspection of the complete periphery of the pipe is necessary, one or both of the following control methods shall be used. (The method to be used will be determined by the Engineer, depending on the time needed for control.)
 - 1. A line plug shall be inserted into the line at a manhole upstream from the section to be inspected. During the inspection of the section, the flow shall be reduced or shut off. After the inspection, the flow shall be returned to normal.
 - 2. When adequate flow control cannot be obtained by plugging or blocking, pumps shall be used to bypass all or part of the flow. The cost of such bypass pumping shall be included in the bid, and no separate payment shall be made.
- g. The Contractor shall be responsible to furnish his own supply of water to the site at no extra cost. All work injured or damaged due to the use of too much water shall be the Contractor's responsibility to correct at no cost to the Owner.

END OF SECTION

SECTION 02625

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UNDERGROUND STORAGE SYSTEM

PART 1 - GENERAL

1.01 WORK INCLUDED:

- A. This Section covers furnishing, handling, laying, joining and installation of an underground storage chamber system as shown on the plans and as directed by the Engineer.
- B. The Contractor shall furnish and install the various chamber sections and appurtenant work as indicated on the Contract Drawings and as specified herein, or as reasonably required to produce a complete, proper, and functional installation in accordance with the intent of these Contract Documents.

1.02 RELATED WORK:

- A. Section 02300, EARTHWORK

1.03 REFERENCES:

- A. The following standards form a part of this specification as referenced:

American Society for Testing and Materials (ASTM)

ASTM F2418-05 Standard specifications for Polyethylene Polypropylene (pp) Corrugated Wall Stormwater Collection Chambers

The Massachusetts Department of Transportation: Standard Specifications Gravel Base

1.04 QUALITY ASSURANCE:

- A. All pipe and fittings shall be inspected and tested at the factory as required by the standard specifications to which the material is manufactured. The Contractor shall furnish in duplicate to the Engineer sworn certificates providing evidence of such tests.
- B. The Owner reserves the right to have any or all pipe, fittings, and special castings inspected and/or tested by an independent service at either the manufacturer's plant or elsewhere. Such inspection and/or tests shall be at the Owner's expense.

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Underground Storage Chamber

- C. Deflections in horizontal alignment will not be permitted at joints without written consent of the Engineer. If approved, deflections shall not exceed one-half the manufacturer's recommendation.
 - D. When requested by the Engineer, the Contractor shall ensure that a qualified representative of the manufacturer shall be present at the jobsite for the first day of pipe laying, to assure that proper procedures are followed.
 - E. The Engineer shall be notified in advance when the location of an existing pipeline conflicts with the proposed location of the Work.
 - F. Pipe and fittings of the same type shall be products of a single manufacturer.
 - G. All piping shall be of the type and size shown on the drawings and described in this section of the Specifications.
- 1.05 DELIVERY, STORAGE, AND HANDLING:
- A. Chamber sections, access units and end caps shall be carefully handled when loading and unloading.
 - B. Chamber sections and end caps shall be protected from exposure to sunlight (unless restrained in racks) to prevent bowing of the units due to expansion and contraction. Such protection shall consist of canvas covering, or other material, as recommended by the manufacturer. Plastic sheets, which may allow excessive temperatures to develop where the sections are stored, shall not be used.
- 1.06 SUBMITTALS: IN ACCORDANCE WITH REQUIREMENTS OF GENERAL SPECIFICATIONS, SUBMIT THE FOLLOWING:
- A. Shop drawings shall consist of manufacturer's scale drawings or catalog cuts including descriptive literature and complete characteristics, specifications, and code requirements. Shop drawings shall be submitted for the chamber sections, connections, end caps, access covers etc.

PART 2 - PRODUCTS

2.01 POLYPROPYLENE UNITS:

- A. Chamber and end cap units shall be manufactured from virgin polypropylene resin to be inherently resistant to environmental stress cracking and to maintain adequate stiffness through higher temperatures experienced during installation and service. Units shall be as shown on the Contract Drawings and as manufactured by StormTech, Cultech or **Vari-Tech** or approved equal.

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Underground Storage Chamber

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- B. The chamber units shall have a continuously curved section profile and be open-bottomed.
- C. The chamber unit shall have forty-eight orifices penetrating the sidewalls to allow for lateral conveyance of water. The units shall have two orifices near its top to allow for equalization of air pressure between interior and exterior.
- D. The chamber units shall have both of its ends open to allow for unimpeded hydraulic flows and visual inspections down a row's entire length. Each individual chamber unit shall have 14 corrugations. The chamber shall have a circular, indented flat surface on the top of the chamber for an optional 4-inch inspection port.
- E. The chamber and end cap units shall be able to accommodate HS20 loading and be manufactured in an Iso 9001:2000 certified facility.
- F. End cap shall be capable of fitting into any corrugation of a chamber unit. End caps shall have saw guides to allow easy cutting for various diameters of pipe that may be used to inlet the system. End cap shall have excess structural adequacies to allow cutting an orifice of any size at any invert elevation. The primary face of the end cap shall be curved outward to resist horizontal loads generated near the edges of beds.

2.02 GRAVEL BASE

- A. Gravel Base shall be comprised of 1-2 inch double washed crushed stone per MassDOT latest edition standard specification M.2.01.1

PART 3 - EXECUTION

3.01 INSPECTION BEFORE INSTALLATION:

- A. Each chamber and end cap shall be carefully inspected prior to being installed. All materials not meeting the requirements of these specifications, or otherwise found defective or unsatisfactory by the Engineer, shall be rejected and immediately marked and removed from the jobsite by the Contractor.
- B. Bedding, sub-bedding, and other trench conditions shall be carefully inspected prior to laying chamber units. All conditions shall be made available to the Engineer for inspection.

3.02 CHAMBER INSTALLATION:

- A. The location of the proposed underground storage chamber shall be excavated to the limits and required depths as shown on the plans or as directed by the Engineer. Excavations shall be maintained free of water during the progress of the work. No chamber units shall be laid in water.

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- B. The Contractor shall prepare the trench bed according to the plan. Bedding material shall be granular, well graded soils/aggregate mixtures with < 35% fines. Bedding material shall be compacted in 6 inch lifts to 95% Proctor Density.
- C. Chamber units shall be installed in the locations and to the required lines and grades shown on the drawings or as directed by the Engineer, using an approved method of control. Backfill material shall be compacted in 6 inch lifts to 95% Proctor Density.

END OF SECTION

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Underground Storage Chamber

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SECTION 02630

DRAINAGE PIPE

PART 1 - GENERAL

1.01 SCOPE OF WORK

- a. Under this Section, the Contractor shall furnish all materials, equipment, labor, transportation, facilities and all operations and adjustments required for the installation of drainage and sanitary pipe and all incidentals thereto.
- b. Drainage pipes shall be placed in the sizes and lengths indicated on the plans.

1.02 SHOP DRAWINGS/MANUFACTURER'S CUTS AND SPECIFICATIONS

- a. The Contractor shall submit to the Landscape Architect for approval six (6) copies of all materials and equipment proposed for use indicating manufacturers' names and addresses, identifying data and expected delivery dates. No consideration will be given to partial lists submitted from time to time. Intention of using specified materials and equipment shall not relieve the Contractor from submitting the above list, nor shall submission of the list relieve him from submission of shop drawings. Any item of material or of equipment not submitted for approval on the list will not be approved unless of the exact make and characteristics specified. Refer to Special Conditions Section of these Specifications.
- b. If the material or equipment is installed before it is approved, the Contractor shall be liable for the removal and replacement at no extra charge to the Owner, if, in the opinion of the Landscape Architect, the material or equipment does not meet the intent of the Contract Documents.
- c. The Contractor shall submit the following information with all equipment shop drawings:
 1. Manufacturer's certified scale drawings, cuts or catalogs, including installation details.
 2. Manufacturer's specifications, including certified performance characteristics and capacity ratings.

1.03 SAMPLES

- a. The Contractor shall submit all samples as requested in accordance with the provisions of the GENERAL CONDITIONS. Samples accepted will be returned

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DRAINAGE PIPE

to the Contractor within five (5) days and may be incorporated into the work. Samples not accepted will be returned for disposition by the Contractor.

1.04 CODES, ORDINANCES AND PERMITS

- a. All work shall be performed in strict accordance with local and state codes and regulations.
 1. Site utilities work shall be done in strict accordance with the Commonwealth of Massachusetts State Plumbing Code, latest edition, and all revisions thereto.
 2. Any material or workmanship called for in the above-mentioned requirements, which are not specified or shown on the drawings, shall be furnished and installed by the Contractor as though same has been specifically mentioned or indicated. If the drawings and specifications are at variance with any regulations, the bidder shall notify the Landscape Architect ten (10) days before the date for submitting his bid. In many cases the drawings are in excess of the requirements in the codes and these shall be followed to the fullest. If the Contractor fails to notify the Landscape Architect at this time and installs work in variance with the above-mentioned codes and regulations, he shall assume the responsibility and the expense to rectify the installation.
 3. Before commencing work, the Contractor shall obtain all permits necessary in connection with the installation of this equipment and pay fees required for same. He shall include the cost and backcharge of installing any portion of the work where performed by municipal departments or utility companies.

1.05 SUBSTITUTIONS

- a. Any reference to a particular device, product, material, article or system shall be interpreted as establishing a standard of quality, design, performance, or function, and shall not be construed as limiting competition.

1.06 RECORD DRAWINGS

- a. The Contractor shall submit record drawings as specified in the SPECIAL CONDITIONS.

1.07 SITE VISITATION

- a. It is recommended that all prospective bidders visit the job site to acquaint themselves with the general and special conditions that may be encountered which will have a bearing on labor, transportation, cutting and patching, material

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DRAINAGE PIPE

handling and storage, and similar items, during the prosecution of the work. Failure to do so shall not relieve him of his responsibility for properly estimating the difficulties involved in the work to be performed under this section.

1.08 REFERENCE STANDARDS

- a. References herein to any technical society, organization, group or body are made in accordance with the following:
 1. AASHTO (AASHO) - American Association of State Highway and Transportation Officials (tests or specifications).
 2. ASTM – American Society for Testing Materials
 3. Massachusetts Standard Specifications - Latest edition of the Standard Specifications for Highways, Bridges and Waterways, the Commonwealth of Massachusetts, Department of Public Works, Sections 2.01, M2.01 and M4.05 AND Plate #203.1.0 of the 1977 MDPW Construction standards.
 4. AWWA – American Water Works Association
 5. Municipal Standard Specifications and Procedures, as applicable.

1.09 MATERIALS AND WORKMANSHIP

- a. It is the intent of these specifications to establish quality standards for all material and equipment incorporated in the work of this section. All material and equipment installed hereunder shall be new and shall be the best of each respective kind and type. Proper care shall be exercised in handling all equipment and materials herein specified.
- b. The installation shall be as indicated on the drawings and in accordance with the manufacturer's recommendations as approved by the Landscape Architect. The installation shall be accomplished by workmen skilled in this type of work.
- c. All conduits, pipes, structures, etc. in use and which are damaged during excavation, whether uncovered or not and whether or not they are shown on the plans, shall be repaired at the expense of the Contractor.
- d. Storage of materials by the Contractor for incorporation into the work shall be off the site for other than material that is scheduled to be installed in the time span of two (2) working days. The storage site selected by the Contractor shall be made accessible to the City inspection forces at all times during normal working hours.

PART II-MATERIALS

2.01 GENERAL

- a. Drawings and specifications are intended to supplement and explain each other. Materials not specifically mentioned in the specifications shall be as indicated on the drawings. Where conflicts occur between the drawings and/or specifications, or within either document itself, the item or arrangement of better quality, greater quantity or higher cost shall be included in the Contractor's bid. Where no specific kind of quality of material is given, a first-class standard article, shall be furnished.

2.02 CORRUGATED POLYETHYLENE DRAINAGE PIPE

- a. Pipe and fittings shall be made of virgin PE compounds which conform with the requirements of Type III, Category “4” or “5”, Grade P 33, Class C, or Grade P 34, Class C as defined and described in ASTM 1248.
- b. Clean reworked material generated from the manufacturer’s own production may be used by the manufacturer provided that the tubing or fittings produced meet all requirements of this specification.
- c. When perforated tubing is specified, the perforations shall be cleanly cut so as not to restrict the inflow of water, and uniformly spaced along the length and circumference of the tubing. Circular perforations shall not exceed 3/16 in. in diameter. Width of slots shall not exceed 1/8 in. The length of individual slots shall not exceed 1-1/4 in. on 3 in. diameter tubing, 10 percent of the tubing inside nominal circumference on 4 to 8 in. diameter tubing, and 2-1/2 in. on 10 in. diameter tubing. Slots shall be centered in the valleys of the corrugations. The water inlet area shall be a minimum of 1 square inch per linear foot of tubing.
- d. Only fitting supplied or recommended by the tubing manufacturer should be used.
- e. Fittings shall not reduce the inside diameter of the tubing being joined by more than 5 percent of the nominal inside diameter. Reducer fittings shall not reduce the cross-sectional area of the smaller size.
- f. Visible Defects: Cracks, creases, un-pigmented or non-uniformly or non-uniformly pigmented pipe are not permissible.
- g. All pipe and fittings shall be clearly marked at intervals of no more than 10 feet with the following:
 1. Manufacturer’s name or trademark.
 2. Nominal size
 3. This specification designation, “M294”

4. The plant designation code.
 5. The date of manufacture or an appropriate code.
- h. Pipe bedding and backfill shall be installed in a manner protection the integrity of the pipe. Improper preparation could result in the crushing of the pipe even with no other additional weight applied to the finish grade.

2.03 APPURTENANCES

- a. Provide all appurtenance and incidentals necessary to make the storm drainage and sanitary pipe installation complete and acceptable, including all materials necessary for the excavation, backfill, compaction and restoration of right-of-way pavements, sidewalks and curb lines, as required.

PART III - EXECUTION

3.01 PIPE INSTALLATION

- a. Prior to excavating trenches the Contractor shall field verify all existing inverts and inform the Landscape Architect of any discrepancies. Record these inverts on Record Drawings.
- b. The trench for the pipe shall be excavated to the required line and grade and be of sufficient width to permit thorough tamping of the fill material under the haunches and around the pipe. Soft or unsuitable material encountered below the normal bedding line of the pipe shall be removed as directed, replaced with selected material, gravel or crushed stone and thoroughly compacted. The bottom of the trench shall be shaped to conform to the curvature of the pipe. This bed shall also be excavated to accommodate the bells of pipes.
- c. The pipe shall be laid true to the specified lines and grades where shown on the Plans and as directed. The bell end shall be toward rising grade and each section of pipe shall have a firm bearing throughout its length. Material placed around and under the pipe shall be free of stones larger than three (3) inches in diameter.
- d. No load greater than three (3) tons shall be moved over any pipe until a fully-compacted backfill of at least two (2) feet has been placed over the top of the pipe. This minimum will be increased to three and one-half (3-1/2) feet for a forty thousand (40,000) pound single wheel load and to four (4) feet for a sixty thousand (60,000) pound single wheel load. The required fully-compacted backfill cover shall be placed a minimum of fifty (50) feet on both sides of the pipe crossing. However, compliance with this requirement is not to be construed as relieving the Contractor of any responsibility concerning damage to the pipe.
- e. Gravel Filter Backfill for pipes shall conform to Sections 02911 of these

Specifications and shall be placed between the pipe and the walls of the trench in layers not exceeding six (6) inches in depth and thoroughly compacted. Each layer, if dry, shall be moistened and then compacted by rolling or by tamping with mechanical rammers. Compaction with iron hand tampers having a tamping face not exceeding twenty-five (25) square inches in area may be allowed only after permission has been given by the Landscape Architect. Special care shall be taken to thoroughly compact the fill under the haunches of the pipe. This method of filling and compacting shall be continued until the material is level with the top of the pipe. The remainder of the filling shall consist of suitable material placed in successive layers not more than six (6) inches in depth. Each layer shall be thoroughly compacted in accordance with AASHTO-T99 Standard Proctor Test.

- f. Any pipe showing settlement after laying or which is not in true alignment or is otherwise unsatisfactory before final acceptance of the work shall be taken up and replaced or relayed by the Contractor without additional compensation.
- g. All foreign matter shall be removed from the interior of each length of pipe prior to installation and ends shall be cleaned both inside and outside.

3.02 WATER REMOVAL

- a. If water is encountered during construction, provisions must be made to remove the water by sheeting and pumping as required, or laying the pipe with a crushed stone bed so that the laying of pipe and other work can be done under stable conditions, all in accordance with Section 02240 of these Specifications.

3.03 CLEANING OF DRAIN LINES

- a. Satisfactory precautions shall be taken to protect the drain lines at all times. All workmen shall be experienced and skilled in the use of the equipment used.
- a. All sludge, dirt, sand, gravel, roots, grease, and other debris resulting from the cleaning operations shall be removed from the job site and disposed of by the Contractor.
- b. A suitable weir or dam shall be constructed in a downstream manhole in such a manner that both solid and other material shall be trapped. Passing the material from one section to the next, which could cause blockage of the lines, shall not be permitted.
- c. During bucketing operations, the Contractor shall provide a suitable container to receive materials dumped from the buckets. No solids removed from the lines, manholes, or catch basins shall be pumped or dumped onto streets or into ditches, catch basins, or other storm drains.
- d. Upon completion of the cleaning of each section of drain line, a full-sized brush

or scraper shall be pulled through the line to insure complete removal of all debris from the drain.

- e. When the drain line flows are exceeding the minimum requirements (generally not more than one-fourth of the pipe diameter) or inspection of the complete periphery of the pipe is necessary, one or both of the following control methods shall be used. (This method to be used will be determined by the Owner's Representative, depending on the time needed for control.)
 - 1. A line plug shall be inserted into the line at a manhole, drain basin, or clean out upstream from the section to be inspected. During the inspection of the section, the flow shall be reduced or shut off. After the inspection, the flow shall be returned to normal.
 - 2. When adequate flow control cannot be obtained by plugging or blocking, pumps shall be used to bypass all or part of the flow. The cost of such bypass pumping shall be included in the bid, and no separate payment shall be made.

END OF SECTION

SECTION 02630

DRAINAGE STRUCTURES

PART I - GENERAL

1.01 SCOPE OF WORK

- a. The work to be done under this section shall include the installation of standard drainage structures as shown on the plans and specified under this item. The Contractor shall provide all material, labor, tools, equipment and transportation to complete these items. A grate and cover shall be provided for each structure.
- b. Drainage structures shall be installed in the quantities and locations identified on the Contract Drawings. Contact the Project Representative if obstructions or conflicts are encountered.

1.02 REFERENCE STANDARDS AND SPECIFICATIONS

- a. Reference to the standards, specifications and tests of technical societies, organizations, and governmental bodies is made in the Contract Documents.
 1. AASHTO - American Association of State Highway and Transportation Officials (tests or specifications).
 2. ASTM - American Society for Testing and Materials.
 3. Mass. Standard Specs. - Latest edition of the Standard Specifications for Highways, Bridges and Waterways, 1988 Edition, the Commonwealth of Massachusetts, Department of Public Works, hereinafter referred to as "the Massachusetts Standard Specifications", Sections 2.01, M2.01 and M4.05 AND Plate #203.1.0 of the 1977 MDPW Construction standards.
 4. Municipal Standard Specifications and Procedures, as applicable.

1.03 CODES, ORDINANCES AND PERMITS

- a. All work shall be performed in strict accordance with local and state codes and regulations.
 1. Site utility work shall be done in strict accordance with the Commonwealth of Massachusetts State Plumbing Code, dated September 1976, and all revisions thereto.

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DRAINAGE STRUCTURES

2. The Contractor shall secure all permits deemed necessary in connection with the installation of this equipment and pay fees required for same. He shall include the cost and back charge of installing any portion of the work where performed by municipal departments or utility companies.

1.04 SUBMITTALS/SHOP DRAWINGS

- a. Shop drawings shall be submitted to the engineer for all equipment. One (1) copy shall be submitted and shall include cuts, scale drawings, installation details, manufacturer's specifications, certified performance characteristics and capacity ratings.
- b. No material or equipment may be purchased or installed before the submission and written approval of the shop drawings.

PART II - MATERIALS

2.01 PRECAST REINFORCED CONCRETE STRUCTURES

- a. Precast reinforced concrete structures shall comply with material, design and construction standards specified under ASTM C-478.
- b. Minimum compressive strength of concrete in bases, risers and top sections shall be 4,000 psi.
- c. All joints shall be made with rubber gaskets meeting the requirements of ASTM C-443 (AASHTO M198)

2.02 CLAY SEWER BRICKS (FOR ADJUSTING NEW FRAMES)

- a. Clay sewer brick shall conform to the requirements of AASHTO Designation M91 with the following exceptions:
 1. The size of brick furnished shall be 8" x 3-3/4" x 2-1/4" nominal dimensions.
 2. The average of the absorption of five (5) representative samples shall not exceed fifteen percent (15%) and the individual absorption of any one sample shall not exceed seventeen and one-half percent (17-1/2%). The average compressive strength of the five (5) representative samples shall not be less than three thousand (3,000) pounds per square inch and the compressive strength of any one sample shall not be less than two thousand-five hundred (2,500) pounds per square inch.

2.03 CEMENT MORTAR (FOR ADJUSTING NEW FRAMES)

- a. Mortar shall be composed of one (1) part of Portland cement and two (2) parts of sand by volume with sufficient water to form a workable mixture. Cement, sand and water shall conform to the applicable provisions of Mass. Standard Specifications, M4.02.15.

2.04 CEMENT CONCRETE

- a. Material shall comply with Section 03300 of these Specifications.

2.05 CASTINGS

- a. Iron castings (frames, grates and covers) shall conform to the Mass DPW Construction Manual standard designs and to the requirements of AASHTO Designation M105, Class No. 30, Gray Iron Castings, unless otherwise specified. Test Bar B, 1.20 inches in diameter.

2.06 INLETS

- a. Drain inlets (including grates, risers and sump boxes) shall be NDS, Inc. parts (800-726-1994) or approved equal.
- b. 12" x 12" grate shall be NDS #1213 ADA Compliant, heavy-duty cast iron, black.
- c. 12" x 12" x 6" riser shall be NDS #1216
- d. 12" x 12" x 12" inlet box shall be NDS # 1217, with one opening for 6" pipe. Plug additional openings with Universal Adaptor Plug or NDS park # 1206.
- e. 12" x 12" x 12" sump box shall be NDS # 1225
- f. Set and backfill inlets with compacted crushed stone. Seal all joints with adhesive per manufacturer's recommendations.

2.07 SPECIAL MIX FOR SUBDRAINS

- a. Where designated, crushed stone for subdrains shall conform to the Mass. DPW Standard Specifications M2.01.6.
- b. A zone of crushed stone as shown in the details, meeting this specification, shall be placed around the entire perimeter of the subdrain structure.

PART III - EXECUTION

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DRAINAGE STRUCTURES

- 3.01 Structures of various types and depths shall be constructed to the line, grades, dimensions and design shown on the plans and as directed and furnished with the necessary frames, grates, covers, aluminum steps, etc., in accordance with these Specifications. Verify inverts of all utilities to remain. Refer to Section 3.01 of these Specifications.
- 3.02 The bricks and blocks (if required) shall be wetted as necessary before laying. All joints in brick masonry shall be thoroughly flushed full of mortar and no joints on the inside face shall be greater than one-quarter (1/4) inch. After the bricks and blocks are laid, the joints shall be pointed on the inside. As bricks or blocks are laid up, the outside of the structure shall be plastered with one-half (1/2) inch thick mortar coat.
- 3.03 Connections will be carefully made to all existing and proposed lines to the grades and elevations shown on the contract drawing.
- 3.04 All catch basins shall have an oil trap outlet of an appropriate size and material consistent with specific project requirements for drainpipe.
- 3.05 Unless otherwise directed or specified, two (2) weep holes shall be built into the walls of all new structures. Each weep hole shall consist of a section of four (4) inch pipe or equivalent opening to carry water through the wall of the structure. The outside end of the pipe or opening shall be covered with a one-quarter (1/4) inch mesh galvanized wire screen 23 gauge satisfactorily fastened against the wall. The drain to the weep hole shall be excavated and backfilled with two (2) cubic feet of broken rock or crushed stone. The crushed stone shall be placed against and over the end of the pipe or opening with a section of filter cloth to prevent the entrance of fine material. Only one (1) type of weep hole shall be used consistently throughout the project.
- 3.06 Suitable materials obtained from the excavation or from borrow shall be placed between the outside of the structure and the limits of the excavation, uniformly distributed in successive layers not exceeding 6 inches in depth and thoroughly compacted by tamping with mechanical rammers or tampers. When required, the backfill material shall be moistened during the compacting. Compaction with iron hand tampers having a tamping face not exceeding twenty-five (25) square inches may be allowed, but only after permission has been given by the Engineer.
- 3.07 All materials removed in the excavation for catch basins, manholes, drop inlets, drywells, etc., and remaining after the filling about the finished structure has been made shall be used wherever possible within the project or removed and satisfactorily disposed of outside of the project limits without additional compensation.
- 3.08 Frame castings for structures shall be set in full mortar beds true to the lines and grades as directed.

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DRAINAGE STRUCTURES

- 3.09 Where directed, the castings shall be temporarily set at such grades as to provide drainage during the construction.
- 3.10 In general, all methods for installation of the catch basin and manhole units, brick adjustments, mortaring, and installation of frames, grates and covers, shall conform to Section 201 of the Mass DPW Standard Specifications.

END OF SECTION

SECTION 02631

ABANDON STRUCTURES

PART I - GENERAL

1.01 SCOPE OF WORK

Under this Section the Contractor shall furnish all labor, materials, equipment and transportation necessary to abandon structures (manholes or catch basins) as designated on the plans or as directed by the City Representative to include:

- a. Removal, stacking and delivery of iron frames/castings
- b. Plugging of inlets and outlets
- c. Demolition of top portion of structure (36" min.) and filling in of remaining structure.

1.02 REFERENCE STANDARDS AND SPECIFICATIONS

- a. All work must conform to MHD Standard Specifications, Division II, Sections 140.26 and 140.63.

PART II - MATERIALS

2.01 SUITABLE BACKFILL

- a. Suitable backfill shall conform to the requirements of Section 02350 - Excavation, Borrow and Backfill.
- b. Gravel for use below new pavements shall meet the requirements for gravel borrow as described in Section 02355.

PART III - EXECUTION

3.01 CASTINGS

- a. The present castings shall be carefully removed and satisfactorily stored and protected until they are reinstalled or delivered to a municipal storage facility, located within the City confines, as designated and directed by the Engineer.

3.02 INLETS AND OUTLETS, REMOVALS AND BACKFILL

- a. Inlets and outlets of structures to be abandoned shall be plugged with brick masonry not less than eight (8) inches in thickness, conforming to Section 201 of the MHD Specifications. Upper portions of the masonry shall be removed to a depth of two (2) feet below the finished grade at the location designated by the Engineer, and the structures shall be completely filled with suitable material placed in six (6) inch layers and thoroughly compacted.

END OF SECTION

SECTION 02632

ADJUSTMENT OF STRUCTURES (IF REQUIRED)

PART I - GENERAL

1.01 SCOPE OF WORK

- a. The work under this section shall consist of removing the castings, adjusting the masonry, and resetting the castings of existing structures, six (6) inches or less in grade. The contractor shall furnish all labor, materials, equipment and transportation required to adjust existing manholes, catch basins, and other surface structures to be set at new grades.

PART II - MATERIALS

1.01 BLOCKS FOR CIRCULAR STRUCTURES

- a. Blocks for circular structures shall conform to ASTM C-139. Minimum thickness shall be eight (8) inches. Block surfaces shall be curved to the required radius to produce cylindrical structures. The minimum compressive strength for an average of three block units shall be 2,500 psi and the maximum water absorption rate shall be ten pounds per cubic foot.

1.02 BRICK FOR ADJUSTMENT COURSES

- a. Brick for adjustment courses and other application shall conform to ASTM C-32.
- b. Brick for inverts and shelves shall be graded SS. Brick for other purposes shall be grade MS and better.
- c. Size of brick shall be eight inches (8") long by three and three-quarter inches (3 ¾") wide, by two and one-quarter inches (2 ¼") deep. All dimensions shall be nominal.

1.03 MORTAR

- a. See Section 02630 – Drainage Structures for Mortar specifications.

PART III - EXECUTION

- a. Structures to be adjusted shall be carefully excavated to the depth required to achieve the proper adjustments or to receive the appropriate filler pieces as required and securely held in place during backfilling operations. The backfill shall be thoroughly tamped in place and the cover set to finished grade.

- b. The Contractor shall be held responsible for the protection of all castings and valves or other mechanical items. Any frames, grates or covers or operating items damaged in any manner during the progress of the construction shall be replaced by the Contractor at his expense.
- c. Transportation, delivery and/or installation of all salvaged castings or mechanical items shall be included in the contract price.

END OF SECTION

SECTION 02633

REMODELING OF STRUCTURES

PART I - GENERAL

1.01 SCOPE OF WORK

- a. Work under this section shall consist of remodeling utility structures that require grade changes of more than six (6) inches. The Contractor shall furnish all labor, materials, equipment and transportation required to remodel existing manholes, catch basins, and/or other utility structures.

PART II - MATERIALS

- a. All new masonry construction, resetting of castings and items, filling around structures and other incidental work, shall be as specified under Sections 02355 and 03300 of these Specifications.
- b. Concrete slab tops shall be precast and steel reinforced per ASTM 12227-93. Concrete shall be 4000 psi/28 day minimum; and H-20 loading capability in areas subject to vehicular traffic.

PART III - EXECUTION

- a. All the structures to be remodeled shall be altered as to meet proposed grades, including but not limited to excavation, mechanical or manual cutting of existing structures, mortar/grout bedding or parging leveling course materials, slab tops or other devices, compacting of specified backfill to subgrade and final grade adjustments.
- b. The Contractor shall be held responsible for the protection of the castings. Any frames, grates or covers damaged in any manner during the progress of the construction shall be replaced by the Contractor at his expense.
- c. Transportation, delivery and installation of all castings or mechanical items shall be included in the contract price.
- d. Plug any vent-holes in covers to be buried with pressure-treated wood plugs, tapered to fit tightly.

END OF SECTION

SECTION 02755

BITUMINOUS CONCRETE PAVEMENT

AND COLOR SEALCOAT

PART I - GENERAL

1.01 SCOPE OF WORK

- a. Under this Section, the Contractor shall furnish all necessary labor, materials, equipment, and transportation necessary to construct the following:
 1. The bituminous concrete pavement for the courts and walks shall be composed of materials as specified herein and shall be constructed on a prepared base course to the depth, grade and cross-section shown on the plans, as specified herein and as directed by the Engineer.
 2. Unless otherwise specified in the Contract Drawings, bituminous concrete pavement shall be composed of a two (2) inch bituminous concrete binder course, and a one (1) inch bituminous concrete dense mix (top) course.
 3. Where an overlay is proposed, the depth of the bituminous concrete dense mix (top) course shall be typically one and one-half (1 ½) inches except that it shall be of greater depth in places to eliminate puddling. Tack coat shall be applied utilizing Type SS-1 asphalt emulsion.
 4. Crack repair of existing bituminous concrete pavements prior to installation of overlay pavement.
 5. Color sealcoating of bituminous concrete pavements as shown on the plans and as specified herein.

1.02 REFERENCE STANDARDS AND SPECIFICATIONS

- a. Reference to the standards, specifications and tests of technical societies, organizations and governmental bodies are made in the Contract Documents.
 1. AASHTO - American Association of State Highway and Transportation Officials (tests or specifications).
 2. ASTM - American Society for Testing and Materials.

3. Mass. Standard Specs. - Latest edition of the Standard Specifications for Highways, Bridges and Waterways, 1988 Edition, the Commonwealth of Massachusetts, Department of Public Works, hereinafter referred to as the "Massachusetts Standard Specifications."
- b. All references to "Hot Mix Asphalt" shall refer to this section 02755.

1.03 SUBMITTALS

- a. Asphalt emulsion Type SS-1 product and application specification.
- b. Color Sealcoat: The Contractor shall submit catalog cuts, manufacturer's specifications and color chips or charts.
- c. Field layout of color sealcoat must be approved by Landscape Architect prior to installation.
- d. Submit catalog cuts and manufacturer's specifications for Airport Grade Asphalt Emulsion Mix and Aggregate.
- e. Compaction tests are required on all bituminous concrete base surfaces on a 50' grid interval or per Owner's direction. At the Contractor's expense, an independent testing agency must perform the work and submit the results directly to the Landscape Architect.

1.04 QUALIFICATIONS/SPECIAL REQUIREMENTS – COLOR SEALCOAT APPLICATION

- a. The Contractor shall engage the manufacturer's representative to inspect and monitor the application of the initial filler coat upon the prepared surfaces of all pavements to receive color sealcoat.
- b. If a latex-ite acrylic sealer/surfacer is to be utilized, the addition of silica by mechanical agitation on-site shall be inspected and monitored by the manufacturer's representative who is to be engaged by the Contractor at the Contractor's cost.
- c. Adequate means shall be provided to protect the color seal coating(s) from damage until such time that each layer has cured sufficiently and no seal will adhere to and be picked up by the tires of vehicles or by pedestrian traffic.
- d. No color seal coating shall be applied during any period within which rain or sub-application temperatures are predicted within forty-eight (48) hours, unless otherwise specified by the manufacturer.

PART II - MATERIALS

2.01 BITUMINOUS CONCRETE PAVEMENT

- A. Bituminous Concrete Pavement shall consist of binder mix and top courses constructed to the thicknesses shown on the plans and shall conform to the relevant provisions of Sections 460 and (M3.11.03) of the Commonwealth of Massachusetts, Department of Public Works, Standard Specifications for Highways and Bridges, 1988 Edition, unless specified otherwise hereinafter.
- B. The joint sealant shall be a hot poured rubberized emulsified asphalt sealant meeting the requirements of Federal Specifications SS-S-1401 or SS-S-164.
- C. The tack coat shall be an asphalt emulsion, RS-1 if required, conforming to MHD Section M3.03.0.

2.02 ASPHALT EMULSION

- a. Asphalt emulsion tack coat shall be Type SS-1 or SS-1H as specified by the Asphalt Institute.

2.03 TROWELABLE ASPHALT FILLER/PATCH

- a. Airport grade asphalt emulsion mix and aggregate shall be used to repair gouges or cracks which can then be brought to grade to receive an overlay or color sealcoat.

2.04 ADHESIVE FABRIC FOR CRACK PATCHING

- a. Fabric shall be the Petromat/Petrotac system, as manufactured by Phillips Fibers Corporation, or approved equal.

2.05 COLOR SEALCOAT

- a. The layout and design of color sealcoating shall be installed per contract drawings.

The two (2) filler coats shall be Plexipave as manufactured by California Products Corporation, 169 Waverly Street, Cambridge, Massachusetts, or approved equal. Colors shall be as indicated on the plans. The two (2) Plexipave filler coats shall be applied to the cleaned bituminous pavement as specified hereunder. It shall be non-flammable upon exposure to flame. The filler coats shall contain a minimum of 9 lb./gal. of Silica, 100 percent (100%) passing a 100% mesh as pre-mixed at

the manufacturer's plant. No sand or silica shall be added to the emulsion in the field. The bituminous pavement shall cure for fourteen (14) days prior to applying the Plexipave Acrylic Color System.

- b. Water, if approved, may be added to the Plexipave emulsion mixes. In no case may the quantity of water in the filler coat emulsion mix exceed thirty-three percent (33%) of the emulsion volume. (One (1) part water: two (2) parts filler coat). In no case may the quantity of water in the finish coat emulsion mix exceed fifty percent (50%) of the emulsion volume. (One (1) part water: one (1) part finish coat). Water shall be potable and its temperature above forty degrees F (40°F) upon addition to the emulsions.
- c. The color emulsion coating shall be California Products Company's "Plexichrome" or an approved equal emulsion product. Colors shall match those of the Plexipave filler coats. The Plexichrome shall be applied lengthwise of the court with a wide type pushbroom.
- d. The base vehicle for the finish coat shall be an acrylic polymer dispersed in water and which has the ability to withstand extremes in temperature and general weathering. The film former shall provide a non-skid surface upon drying and under all weather conditions. Pigment dispersions in the color coating are to be of the best quality chrome oxides so as to obtain a permanent true color. The coating shall contain no material, which will cause cracking due to extremes in temperatures and is to be factory mixed and consistent in color. It shall be a one hundred percent (100%) acrylic emulsion containing no alkyds, butadiene styrene, or vinyls and shall be thinned with water. It shall not chalk or discolor any equipment.
- e. The finished surface shall be smooth and uniform, true to required grade and cross section, and free of depressions, ridges, or other irregularities.

PART III - EXECUTION

3.01 BITUMINOUS CONCRETE PAVEMENT

- a. Bituminous concrete pavements shall be constructed on a prepared foundation of gravel in accordance with the Massachusetts Standard Specifications, Section 405, except where overlayment is over existing pavement.
- b. The bituminous mixtures shall be placed on the approved base only when, in the opinion of the Engineer, the course is sufficiently dry and weather conditions are suitable.
- c. Where walls, curbing, or other suitable permanent supports are not present, the

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Contractor shall secure proper alignment and adequate compaction of the binder and surface courses as shown on the Contract Drawings and finish all edges with a neat tamped edge.

- d. The mixture shall be placed in two (2) courses as shown on the Contract Drawings. Each course shall be spread and finished as required in the Massachusetts Department of Public Works, Standard Specifications for Highways and Bridges, Section 460.63, 1988 edition.
- e. Prior to completion of bituminous concrete overlay, the Contractor shall have the existing patched surfaces tack coated and leveled to eliminate all “birdbaths” or extreme lows which may create ponding or drainage problems. Leveling course (surface treatment) bituminous concrete applied as necessary, shall be raked and feathered and be properly rolled and compacted. The Contractor shall apply “level” lines, screeds, or use other measures to achieve the proper leveling surface suitable for overlay.

All adhesive fabric shall be in place and approved prior to completing this work.

- f. After completion, the bituminous concrete courses shall conform to the thickness shown on the Contract Drawings, smooth and even and of a dense and uniform structure. When tested with a sixteen (16) foot straight edge placed parallel to the centerline of the pavement, there shall be no deviation from a true surface in excess of one-quarter (1/4) inch.

3.02 ASPHALT EMULSION TACK COAT

- a. To all existing surfaces to be pave against or overlaid, apply a single very thin (0.05 to 0.15 gallons per square yard) application of diluted asphalt emulsion (Type SS-1) to cover the entire surface of existing pavement.
- b. Essential qualities of coverage are (1) it must be very thin and (2) uniformly cover entire surface of existing pavement.
- c. Place only that amount of tack coat which can be overlaid with new pavement by the end of each day, and; **IF RAIN IS ANTICIPATED DO NOT APPLY TACK COAT.**

3.03 COLOR SEAL COAT

- a. The bituminous concrete pavement shall cure for fourteen (14) days prior to applying the Color Sealcoat System where specified.

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BITUMINOUS CONCRETE PAVEMENT AND COLOR SEALCOATING

- b. The Contractor shall furnish and apply to the approved bituminous pavements so designated on the plans: two (2) filler coats and one (1) finish coat of acrylic emulsion color coating.
- c. Prior to application of the filler coats, all dirt, sand, dust, and other loose material shall be cleaned from the paved areas to be covered, by sweeping and pressure washing with water. All surfaces shall be dry prior to starting any color seal coating process. The Contractor shall take special precautions to assure that existing pavements are thoroughly cleaned and that all cracks or joints in existing pavements are repaired in conformance with these specifications and to the satisfaction of the Owner. Limits or areas to be color coated shall be taped with minimum two (2) inch wide tape true as to alignment prior to application of the color coating material.
- d. The two (2) filler coats shall be applied so that both coats are of a total quantity and with a uniform spread at the rate of one (1) gallon per each one hundred (100) square feet of surface area. Additional filler coating material is to be used if necessary to complete the court surfaces satisfactory to the Supervisor. The first coat shall be applied length-wise of the court or drive and the second coat cross-wise of the court or drive.
- e. After the filler coat applications have been completed and approved, apply one (1) acrylic color emulsion coating to the properly prepared surfaces with a uniform spread at the rate of one (1) gallon per each two hundred (200) square feet of surface area. The color emulsion coating shall be California Products Company's "Plexichrome" or an approved equal emulsion product. Colors shall match those of the Plexipave filler coats. The Plexichrome shall be applied lengthwise of the court with a wide type pushbroom.
- f. The entire system of two (2) filler and one (1) finish coat shall be applied with approved squeegees and hair-type pushbrooms, respectively. The material shall be thoroughly mixed by mechanical agitation and all work shall be done in a thorough and workmanlike manner. The emulsion shall be thoroughly stirred in its container as received, by stationery bucket power mixer, so that a creamy, smooth consistency of all the emulsion in the container is assured for ready application. The entire work of color coat surfacing shall be done in accordance with the recommendations of the manufacturer's representative. Special care shall be taken so as to allow none of the material to spatter or flow beyond the perimeter of areas to be covered. The filler coats and finish coat shall not be applied in foggy or rainy weather, or when ambient temperature is below forty-five degrees F (45°F), nor shall they be applied if such conditions are anticipated during the next forty-eight (48) hours.
- g. The finished surface shall be smooth and uniform, true to required grade and

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cross section, and free of depressions, ridges, or other irregularities.

PART IV - GUARANTEE/WARRANTY

- 4.01 The pavement and coatings shall be guaranteed against defects in workmanship or quality for a period of one (1) year after final acceptance. The Contractor shall replace, repair, recoat or otherwise make satisfactory to the Owner any unacceptable pavement and or coating at no additional cost to the Owner.

END OF SECTION

SECTION 02773

CURBING

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Fabricate, furnish and install pre-cast concrete and granite curbing, as indicated on the Drawings and as specified.

1.02 RELATED SECTIONS

- A. Section 02220 - DEMOLITION
- B. Section 02350 – EXCAVATION, BORROW & BACKFILL
- C. Section 02755 - BITUMINOUS CONCRETE PAVEMENT.
- D. Section 03300 - CAST-IN-PLACE CONCRETE

1.03 REFERENCES

- A. Comply with applicable requirements of the following standards and those others referenced in this Section, under the provisions of Section 01420 - REFERENCES.
 - 1. ASTM C 131 - Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
 - 2. Commonwealth of Massachusetts Highway Department (MHD): Standard Specifications for Highway and Bridges

1.04 SUBMITTALS

- A. Submit the following under provisions of these specifications:
 - 1. Submit complete shop drawings of each curb type and size for Architect's approval.

1.05 QUALITY ASSURANCE

- A. Unless otherwise indicated, concrete curb materials and construction shall conform to the applicable portions of MHD's Standard Specifications Section 500, "Curb and Edging."

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Curb units shall be delivered to the job adequately protected from damage during transit.

- B. Curb shall be protected against staining, chipping, and other damage. Cracked, badly chipped, or stained units will be rejected and shall not be employed in the work.

PART 2 - PRODUCTS

2.01 PRECAST CONCRETE CURBS

- A. Manufacturers: Subject to compliance with the requirements specified herein, manufacturers offering products which may be incorporated in the work include, but are not limited to, the following:
 - 1. Field Concrete Pipe, Wauregan CT.
 - 2. Durastone Company, Lincoln RI.
 - 3. Precast Specialties Corporation, Braintree MA.
 - 4. Or Approved Equal.
- B. Concrete mix for curbs shall meet the following criteria:
 - 1. Portland Cement, type I or III conforming to Standard Specifications, Section M4.
 - 2. Maximum aggregate size: 3/4 inch.
 - 3. Air entrainment: Greater than 3 percent by volume and less than 6 percent.
 - 4. Water reducing agent as recommended by fabricator.
 - 5. Minimum compressive strength (28 day strength): 5000 pounds per square inch.
- C. Forms used for casting curbs shall be steel or wood having a 'smooth- form' surface.
- D. Cast curbs in fabricators standard lengths, but not less than 3 feet. Curved curbing shall be employed on a radii up to 150 feet. Curb units shall be true to line, plane, and dimensions.
- E. Provide custom sized and dimensioned units matching profiles indicated on the Drawings.
- F. Finish shall be uniform, smooth texture, free from cracks and other defects. Color of units shall be uniform. Provide a smooth, light sandblasted finish, on all exposed-to-view surfaces as installed, with the surface texture resembling limestone.

2.02 GRANITE CURB

- A. Granite for vertical curb, radius curb, corners, curb inlet and transition curb shall be engineering grade structural granite conforming to ASTM C615 requirements. Sizing of curb and comers shall be as shown on the Drawings. Granite curb shall be Type V A4 as per the "Standard Specification."

- B. Granite shall be of smooth splitting character and free from seams which impair its structural integrity. Natural variations characteristic of the deposit will be permitted. Granite shall come from an approved quarry.
- C. Cement mortar shall meet requirements of Section M4, Paragraph M4.02.15 of the Standard Specifications. Color shall be "natural" to match color of curb.
- D. Concrete shall be 4,000 psi concrete as specified under Section 03300 CONCRETE, herein.
- E. Processed gravel fill as specified under Section 02355 GRAVEL BORROW, herein.

PART 3 - EXECUTION

3.01 INSTALLATION - CONCRETE CURBS

- A. Trench an area to 18 inches wide and 6 inches below bottom of installed curb. Place aggregate fill and compact as defined in Section 02350 to a compacted thickness 6 inches.
- B. Curb shall be set in a concrete cradle, level with elevation required and alignment. Vertical face of curb shall be plumb. Butt ends of curbs, with a maximum joint of 1/8 inch. Mortar all joints.
- C. Do not field cut units without obtaining prior permission from the Architect.
- D. Expansion joints:
 1. Expansion joints shall be 1/2 inch wide, provided with preformed joint filler.
 2. Provide expansions joints every 30 feet on center.
 3. Provide expansion joints where pre-cast curbing meets cast-in-place curbs, granite curb, handicap ramps, and existing concrete.
- E. Backfill with aggregate fill, with no stones larger than 1-1/2 inches. Backfill against curbs with taking care to maintain alignment and position. Curbs sections disturbed during backfilling or otherwise shall be reset to line and grade and properly backfilled.

3.02 GRANITE CURBS

- A. Furnish and install new granite curb and reset existing granite curb removed and stockpiled for reuse, herein. Curb shall be set straight, plumb and as shown on the Drawings.
- B. Curb shall be set in a concrete cradle in a trench excavated to a width of twenty-four inches (24"). The subgrade of the trench shall be at a depth below proposed finish grade of the curb equal to six inches (6") plus the depth of the curb stone. Base course shall then be filled with processed

gravel fill to proper level to support curb at final grade and thoroughly tamped.

- C. Place curb units in accurate line, each piece butting the next with joint spacing no larger than one-quarter inch (1/4). Final points shall be joined by closure pieces made to order. No curb shall be cut in the field. After alignment, the curb shall be carefully backfilled as shown on the Drawings. Extreme care shall be taken not to disturb alignment.
- D. Patch street pavement as required.

END OF SECTION

SECTION 02820

BLACK VINYL CLAD CHAIN LINK FENCE AND GATES

PART I - GENERAL

1.01 SCOPE OF WORK

- a. The work under this Section consists of furnishing and installing vinyl coated chain link fence fabric and hardware and framework of various heights as shown on the Contract Drawings and as specified herein including all labor, materials and equipment necessary to finish the work complete in place.

1.02 REFERENCE STANDARDS

- a. References herein to any technical society, organization, group or body is made in accordance with the following abbreviations:
 1. ASTM American Society for Testing Materials
 2. AWS American Welding Society

1.03 QUALITY ASSURANCE

- a. All fencing shall conform to the specifications of the Chain Link Fence Manufacturer's Institute and as specified herein.

1.04 SUBMITTALS

Per Section SPECIAL CONDITIONS of these Specifications, submit:

- a. Three (3) samples, approximately 3" long or 6" square of fabric material, post sections and typical accessories.
- b. Shop drawings or catalog cuts including details illustrating fence height, fence post spacing, and sizes of posts, rails, braces, footings, gates and all accessories.

1.05 PRODUCT DELIVERY, STORAGE AND HANDLING

- a. Deliver material in manufacturer's original packaging with all tags and labels intact and legible. Handle and store material in such a manner as to avoid damage.

PART II - MATERIALS

2.01 VINYL CLAD STEEL POSTS, RAILS AND BRACES

a. General

1. All fence pipe for posts, rails, and all braces and appurtenances shall be vinyl clad, schedule 40 round, seamless hot dip galvanized pipe conforming to ASTM-A-120-1, or approved equal.
2. All structural shapes shall be vinyl clad, and galvanized in conformance with ASTM Designation A123.
3. All vinyl clad materials shall be fusion bonded in accordance with ASTM-F668 Class 2B.

b. End, Corner and Pull Posts

1. Fence up to and including 5'-0" in height: 2.375" O.D. pipe, 3.65 lbs. per linear foot.
2. Fence over 5'-0" in height: 2.875" O.D. pipe, 5.79 lbs. per linear foot.
3. Fence over 10'-0" in height: 4.00" O.D. pipe, 9.11 lbs. per linear foot.
4. Maximum Spacing 10'-0" on Center.

c. Line Posts (10'-0" Maximum Spacing)

1. Fence up to 5'-0" in height: 1.90" O.D. pipe, 2.28 lbs. per linear foot.
2. Fence over 5'-0" in height: 2.375" O.D. pipe, 3.12 lbs. per linear foot.
3. Fence over 10'-0" in height: 2.875" O.D. pipe, 5.79 lbs per linear foot.

d. Gate Posts

1. Gate posts for single leaf gates six (6) feet or less in width: 2.875" O.D. pipe, 4.64 lbs. per foot min.
2. Gate posts for single leaf gates six (6) to twelve (12) feet in width: 4.00" O.D. pipe, 6.56 lbs. per foot.

e. Rails

1. All rails shall be 1.66" O.D. pipe weighing 2.27 lbs. per linear foot furnished in manufacturer's standard lengths of approximately 21'-0" with outside sleeve type couplings, at least six (6) inches long for each joint – one (1) coupling in each five (5) to have expansion spring. Provide means for attaching rails securely to each corner, pull and end post. Rails shall form continuous brace from end to end of each run of fence.

f. Post Bracing Assembly

1. 1.66" O.D. pipe weighing 2.27 lbs. per linear foot (for horizontal braces). Provide at each side of corner and pull posts and at end posts for fence six (6) feet or higher.

2.02 CHAIN LINK FABRIC (VINYL CLAD)

- a. Chain Link fence fabric shall be factory coated 6 gauge core wire (or 9 gauge in certain circumstances as indicated on the details) with a min .02 inch thick coating of plasticized polyvinyl-chloride applied by the fusion method over a thermoset plastic bonding agent. The bond shall exhibit equal or greater strength than the cohesive strength of the vinyl. All cut ends shall be coated with vinyl at the factory. Fabric shall be 2" mesh and black in color.
- b. Top and bottom of fabric shall have knuckled selvage, both sides.

2.03 FITTINGS AND ACCESSORIES (VINYL CLAD)

- a. All accessories shall be vinyl clad in accordance with paragraph 2.01 above, and galvanized in conformance with ASTM Designation A153.

b. Post Caps

Furnish and install tight fitting pressed steel or malleable iron caps, designed as a weather tight closure cap. Provide one (1) pass-through looped cap for each line post, and one (1) acorn style cape for each end or corner post. Where top rail is used, provide looped cap tops to permit passage of top rail.

c. Tension Bars

1. One (1) piece lengths equal to full height of fabric with minimum cross section of 3/16" x 3/4", conforming to ASTM Designation A123. Provide one (1) stretcher bar for each end post and two (2) for each corner and pull post.

2. Tension bands and brace bands, if utilized, shall be 7/8" x 12 gauge beveled, galvanized, sized to fit pipe sizes and furnished with galvanized fasteners. Galvanizing shall conform with ASTM Designations A123 or A153 as they pertain.
- d. Rail Clamps
1. Rail clamps shall be standard clamps (boulevard clamps) furnished complete with fasteners with ASTM Designation A153.
- e. Fabric Bands for Tying Fabric
1. Fabric shall be attached using a BAND-IT band and buckle system
 2. Bands shall be 0.020" thickness, 200/300 series stainless steel 1/2" wide bands, with a minimum breaking strength of 850 lbs., 1/2" band capacity ear-loct design buckles to be manufactured with 0.050" thick material, 201/301 series stainless steel.
- f. Fittings, lugs, clamps and other accessories shall be steel conforming to ASTM Designation F626 and galvanized in conformance with ASTM Designation A153.

2.04 ANCHORING CEMENT

- a. Cement for anchoring posts in sleeves embedded in concrete walls shall be "POR-ROK", as manufactured by Hallemite (Lehn and Fink Industrial Products, Division of Sterling Drugs, Inc.), Montage, New Jersey, or approved equal.
- b. "Sika Cola-Due" by the Sika Co.
- c. "Five Star Grout" the Five Star Co.

2.05 CEMENT CONCRETE

- a. Cement concrete for post footings shall conform to Section 03300 of these Specifications.

PART III - EXECUTION

3.01 POST INSTALLATION

- a. Install new vinyl coated chain link fence in the location(s) shown on the Contract Drawings, and as approved by the Landscape Architect.
- b. Excavation for post footings as herein before specified in Section 02300 of these Specifications, shall be in firm undisturbed or compacted soil. Post footing

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diameters vary according to post sizes required and are in accordance with attached details. Excavate hole depths six (6) inches lower than post bottom with bottom of posts set not less than thirty-six (36) inches below surface when in firm, undisturbed soil. Where ledge is encountered, the Contractor shall notify the Landscape Architect to determine method of installation. Payment for any additional work required when installations are in ledge shall be in accordance with methods described in SPECIAL CONDITIONS of these Specifications.

- c. Place concrete around posts in a continuous pour, tamp for consolidation. Check each post for vertical and top alignment and hold in position during placement and finishing operation. Crown the top of the concrete footings to pitch water away from posts.
- d. Under bituminous pavements, tops of footings are to be finished smooth and are to pitch one (1) inch from the posts to the outside edge of the foundation.
- e. In mower strip locations, form top twelve (12) inches square and finish to match mower strip with 1/4" pitch away from posts.
 - 1. If applicable, top of fence footings at players' benches and cement concrete mower strips shall terminate six (6) inches below pavement finish grade.

3.02 FENCE ERECTION

- a. Top and Bottom Rails
 - 1. Top and bottom rails shall form a continuous brace from end to end of each fence run. In addition, all end and corner posts shall be braced to the nearest line post with center brace rails. Outside sleeve type top rail coupling shall be placed a maximum of twelve (12) inches from line posts.
- b. Middle Rails
 - 1. All chain link fencing ten (10) feet or more in height shall have a continuous middle rail.
- c. Brace Assemblies
 - 1. Furnish and install braces and appurtenances so posts are plumb when diagonal rod is under proper tension. All "tension" assemblies shall conform to ASTM 567 and the MASS DPW Standard Specifications Section M.8.09

d. Fabric

1. The fabric shall be installed on the “public” or “sports field” side of the fence.
2. All fabric shall be aligned so that the top row of the fabric mesh is tied to the top rail, and so that the bottom selvage of fabric mesh stands one (1) inches above the finish grade of the lawns, pavements or concrete wall grade and that the bottom row of the fabric mesh is tied to the bottom rail.
3. Fabric shall be properly stretched and securely fastened to the posts and rails, and between posts the top and bottom of the fabric shall be fastened to the horizontal braces as herein specified, and approved by the Landscape Architect. Fabric shall be stretched uniformly taut and as tight as possible, true to line and grade and complete in all details. Install tension bars at corners.
4. The fabric shall be fastened to end and corner posts with tension bars and stretcher bar bands spaced at one (1) foot intervals.

e. Stretcher Bars

1. Thread through fabric and secure to posts with approved metal bands spaced not over twelve (12) inches O.C.

f. Fabric Bands

1. Fabric Bands shall be placed at the intervals indicated on the details and securely fastened to all fence posts.
2. All bands shall be pulled tight and raw ends of steel bands shall be secured in buckle by folding ear tabs around steel bands as per manufacturer’s recommended installation procedure. No sharp edges shall protrude from band-it buckles. When applicable, band will be PVC coated, color to match fabric and framework.

g. Fasteners

1. Install nuts for tension band and hardware bolts on side of fence opposite fabric side unless directed otherwise by the Landscape Architect.

3.03 GATE FRAMES (WHERE APPLICABLE)

- a. Gate frames shall be galvanized steel 1.90" O.D. standard weight pipe, 2.72 pounds per linear foot. Gates shall be fabricated using welded construction with all welds ground smooth and coated with 3.0 mil. thickness of cold galvanizing compound. Gates must be properly braced to eliminate any possible sagging

condition. For gates over eight (8) feet in height, provide additional horizontal and vertical interior members to ensure proper strength.

- b. Fabric shall be installed with hookbolts and tension bars on all four (4) sides and attached to gate frame at twelve (12) inches on center.
- c. Hardware materials shall be hot dipped galvanized steel. All moveable parts (e.g., hinges, latch, keeper, and drop bar) shall be field coated with PVC touch-up paint, provided by the manufacturer.
- d. Hinges shall be of sufficient structural strength and design to support gate leaf and to permit easy and trouble free operation. Non-lift-off type hinge design shall permit the gate to swing 180 degrees inward or outward in accordance with the Contract Drawings
- e. All gates shall be equipped with a positive type latching device capable of retaining the gate in a closed position and have provision for padlock. Latches shall permit operation from either side of gate and must be approved by the Landscape Architect prior to the installation. Refer to details for latch device.
- f. Gate keepers shall be provided for each gate leaf over five (5) feet wide. Gate keeper shall consist of mechanical device for securing free end of gate when in full open position.
- g. Double gates: Provide drop rod to hold inactive leaf. Provide gate stop pipe to engage center drop rod. Provide locking device and padlock eyes as an integral part of the latch, requiring one padlock for locking both gate leaves.
- h. Gate Installation
 - 1. Check gate posts for vertical alignment and maintain in position during placement and finishing operations.
 - 2. Set keeper, stops, sleeves into concrete.
 - 3. Install gates plumb, level and secure for full opening without interference.
 - 4. Attach hardware by means which will prevent unauthorized removal.
 - 5. Adjust hardware for smooth operation.

3.03 FINISH PROTECTION

- a. During the fence installation, care shall be taken to avoid damaging the vinyl clad or galvanized surfaces of the fence components. All scratches and abrasions shall be thoroughly corrected in a manner satisfactory to the Landscape Architect before final acceptance.

END OF SECTION

SECTION 02821

GALVANIZED CHAIN LINK FENCE AND GATES

PART I - GENERAL

1.01 SCOPE OF WORK

- a. The work under this Section consists of furnishing and installing chain link fencing with aluminum coated fabric as shown on the Contract Drawings, as specified herein and as necessary to make the work complete and safe, including all labor, materials and equipment necessary to finish the work complete in place.

1.02 REFERENCE STANDARDS

- a. References herein to any technical society, organization, group or body are made in accordance with the following abbreviations:
 1. ASTM - American Society for Testing Materials
 2. AWS - American Welding Society

1.03 QUALITY ASSURANCE

- a. All fencing shall conform to the specifications of the Chain Link Fence Manufacturer's Institute and as specified herein.

1.04 SAMPLES

- a. Samples shall be submitted for approval for all fence materials to be furnished under this Section prior to the start of construction.
- b. Samples shall also be submitted, in factory-sealed containers, of the cold galvanizing compound and the anchoring cement.

1.05 SHOP DRAWINGS

- a. Shop drawings or catalog cuts including details illustrating fence height, fence post spacing, and sizes of posts, rails, braces, footings, gates and all accessories.

1.06 PRODUCT DELIVERY, STORAGE AND HANDLING

- a. Deliver material in manufacturer's original packaging with all tags and labels intact and legible. Handle and store material in such a manner as to avoid damage.

PART II - MATERIALS

2.01 POSTS, RAILS AND BRACES

a. Pipe

1. All fence pipe shall be cold formed steel, Type SS40, as manufactured by the Allied Tube and Conduit Corporation of Harvey, Illinois, Schedule 40, pipe conforming to ASTM-A-1201, or approved equal.

b. Fence Posts and Rails

1. Line posts five (5) feet or less shall be 1-7/8" OD pipe, 2.72 lbs. per linear foot.
2. Line posts over five (5) feet high shall be 2-3/8" OD pipe, 3.65 lbs. linear per foot.
3. Line posts over ten (10) feet high shall be 2.875" OD pipe, 5.79 lbs. per linear foot.
4. End and corner posts five (5) feet or less shall be 2.375" OD pipe, 3.65 lbs. per linear foot.
5. End and corner posts over five (5) feet high shall be 2.875" OD pipe, 5.79 lbs. per linear foot.
6. End and corner posts over ten (10) feet high shall be 4.00" OD pipe, 9.11 lbs. per linear foot.
7. Rails: All rails shall be 1.66" OD, 2.27lbs per linear foot. Rails shall be furnished in manufacturer's standard lengths of approximately 21'-0" with outside sleeve type couplings, at least six (6) inches long for each joint – one (1) coupling in each five (5) to have expansion spring. Provide means for attaching rails securely to each corner, pull and end post. Rails shall form continuous brace from end to end of each run of fence.

2.02 FENCE FABRIC

- a. The fabric shall be woven aluminum coated steel chain link conforming to ASTM-A491-63T in its entirety.
- b. All fabric shall be six (6) gauge (0.192") prior to application of the galvanizing, two (2) inch mesh.

- c. All fabric shall be furnished with top and bottom selvage knuckled.
- d. After fabrication, the fabric shall be thoroughly cleaned and given a clean organic coating by the complete immersion process. The galvanized coating shall be a minimum of 0.40 ounces per square foot of wire fabric with the weight of coating determined by the strip test specified in ASTM designation A428-58T.

2.03 FENCE ACCESSORIES

a. Tension Bars and Bands

- 1. Tension bars shall be three-sixteenth (3/16) inch by three-quarter (3/4) inch galvanized steel conforming to ASTM Designation A123.
- 2. Tension bands and brace bands, if utilized, shall be seven-eighth (7/8) inch by twelve (12) gauge beveled, galvanized, sized to fit pipe sizes and furnished with galvanized fasteners.

b. Fittings, Rail Clamps and Fabric Bands

- 1. Fittings shall be steel conforming to ASTM Designation A307 and galvanized in conformance with ASTM Designation A153.
- 2. Rail clamps shall be standard clamps (boulevard clamps) furnished complete with fasteners, all conforming to the same requirements as for fittings above.
- 3. Fabric shall be attached using the page clip system or approved equal.

c. Post Caps

- 1. Furnish and install tight fitting pressed steel or malleable iron caps, designed as a weather tight closure cap. Provide one (1) pass-through looped cap for each line post, and one (1) acorn style cape for each end or corner post. Where top rail is used, provide looped cap tops to permit passage of top rail.

2.04 COLD GALVANIZING COMPOUND

- a. Cold galvanizing compound shall be a single component zinc rich compound yielding a dry film of at least eighty-five percent (85%) pure zinc. Galvanizing compound shall meet or exceed the requirements of Federal Specifications MIL-P-21035, TT-P-641d primer for zinc rich compounds.

2.05 ANCHORING CEMENT

- a. Cement for anchoring posts in sleeves embedded in concrete walls shall be "POR-ROK", as manufactured by Hallemite (Lehn and Fink Industrial Products, Division of Sterling Drugs, Inc.), Montage, New Jersey, or approved equal.
- b. "Sika Cola-Due" by the Sika Co.
- c. "Five Star Grout" the Five Star Co.

2.06 CEMENT CONCRETE

- a. Cement concrete for post footings shall conform to Section 03300 of these Specifications.

PART III – EXECUTION

3.01 GENERAL POST INSTALLATION

- a. Excavation for post footing, as herein before specified in Section 2.04, shall be in firm undisturbed or compacted soil. Excavate the holes to the lines and grades shown on the drawings with a six (6) inch minimum clearance between the bottom of the hole and the bottom of the fence post in its final location. Where ledge is encountered, the Contractor shall notify the Landscape Architect to determine method of installation. Payment for any additional work required when installations are in ledge shall be in accordance with Section 01025 of these Specifications.
- b. Place concrete around posts in a continuous pour; tamp for consolidation. Check each post for vertical and top alignment and hold in position during placement and finishing operation. Crown the top of the concrete footings to pitch water away from posts.
- c. Under bituminous pavements, tops of footings are to be finished smooth and are to pitch one (1) inch from the posts to the outside edge of the foundation.
- d. In mower strip locations, form top twelve (12) inches square and finish to match mower strip with 1/4" pitch away from posts.
 1. If applicable, top of fence footings at players' benches, and cement concrete mower strips shall terminate six (6) inches below pavement finish grade.

3.02 FENCE ERECTION

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GALVANIZED CHAIN LINK FENCE AND GATES

- a. Top and Bottom Rails
 - 1. Top and bottom rails shall form a continuous brace from end to end of each fence run. In addition, all terminal and corner posts shall be braced to the nearest line post with center brace rails. Outside sleeve type top rail coupling shall be placed a maximum of twelve (12) inches from line posts.

- b. Middle Rails
 - 1. All chain link fencing ten (10) feet or more in height shall have a continuous middle rail.

- c. Brace Assemblies
 - 1. Furnish and install braces and appurtenances so posts are plumb when diagonal rod is under proper tension. All "tension" assemblies shall conform to ASTM 567 and the MASS DPW Standard Specifications Section M.8.09.

- d. Fabric
 - 1. The fabric shall be installed on the "public" side of the fence.
 - 2. All fabric shall be aligned so that the top row of the fabric mesh is tied to the top rail, and so that the bottom selvage of fabric mesh stands one and one-half (1-1/2) inches above the finish grade of the lawns, pavements or concrete wall grade and that the bottom row of the fabric mesh is tied to the bottom rail.
 - 3. Fabric shall be properly stretched and securely fastened to the posts and rails, and between posts the top and bottom of the fabric shall be fastened to the horizontal braces as herein specified, and approved by the Landscape Architect.
 - 4. The fabric shall be fastened to end and corner posts with tension bars and stretcher bar bands spaced at one (1) foot intervals.

- e. Stretcher Bars
 - 1. Thread through fabric and secure to posts with approved metal bands spaced not over twelve (12) inches O.C.

- f. Fabric Bands
 - 1. Fabric Bands shall be placed at the intervals indicated on the details and

securely fastened to all fence posts.

g. Fasteners

1. Install nuts for tension band and hardware bolts on side of fence opposite fabric side unless directed otherwise by the Landscape Architect.

3.03 GATE FRAMES

- a. Gate frames shall be galvanized steel 1.90" OD standard weight pipe, 2.72 pounds per linear foot. Gates shall be fabricated using welded construction with all welds ground smooth and coated with 3.0 mil. thickness of cold galvanizing compound. Gates must be properly braced to eliminate any possible sagging condition. For gates over eight (8) feet in height, provide additional horizontal and vertical interior members to ensure proper strength.
- b. Fabric shall be installed with bands and buckles, as previously specified, on all four (4) sides and attached to gate frame at twelve (12) inches on center.
- c. Hardware materials shall be hot dipped galvanized steel. All moveable parts (e.g., hinges, latch, keeper, and drop bar) shall be field coated with cold galvanizing compound.
- d. Hinges shall be of sufficient structural strength and design to support gate leaf and to permit easy and trouble free operation. Non-lift-off type hinge design shall permit the gate to swing 180 degrees inward or outward in accordance with the Contract Drawings
- e. All gates shall be equipped with a positive type latching device capable of retaining the gate in a closed position and have provision for padlock. Latches shall permit operation from either side of gate and must be approved by the Landscape Architect prior to the installation.
- f. Gatekeepers shall be provided for each gate leaf over five (5) feet wide. Gatekeeper shall consist of mechanical device for securing free end of gate when in full open position.
- g. Double gates: Provide drop rod to hold inactive leaf. Provide gate stop pipe to engage center drop rod. Provide locking device and padlock eyes as an integral part of the latch, requiring one padlock for locking both gate leaves.
- h. Gate Installation
 1. Check gate posts for vertical alignment and maintain in position during placement and finishing operations.

2. Set keeper, stops, sleeves into concrete.
3. Install gates plumb, level and secure for full opening without interference.
4. Attach hardware by means that will prevent unauthorized removal.
5. Adjust hardware for smooth operation.

3.03 FINISH PROTECTION

- a. During the fence installation, care shall be taken to avoid damaging the aluminized and galvanized surfaces of the fence components. All scratches and abrasions shall be thoroughly corrected in a manner satisfactory to the Landscape Architect before final acceptance.

END OF SECTION

SECTION 02825

STEEL PICKET FENCE AND GATES

PART 1 - GENERAL

1.01 SCOPE OF WORK

- a. The work under this Section consists of furnishing and installing steel picket fence and steel picket gates with posts, sleeves and appurtenances as shown on the drawings and as specified herein including all labor, materials and equipment necessary to finish the work complete in place.
- b. Fence must meet all playground code requirements for picket spacing, etc.

1.02 REFERENCE STANDARDS

- a. References herein to any technical society, organization, group or body are made in accordance with the following abbreviations:

ASTM American Society for Testing Materials

AWS American Welding Society

CPSC Consumer Product Safety Commission

1.03 SHOP DRAWINGS

- a. The Contractor shall submit complete manufacturer's shop drawings which shall include the horizontal layout and vertical alignment for the proposed installation to the Engineer for approval. Field verify all post sleeve spacings prior to fabrication. No material may be ordered prior to receiving written approval from the Engineer.

1.04 SAMPLES

- a. The Contractor shall supply representative samples, in factory-sealed containers, of the cold galvanizing compound (for touch up ONLY) and the finish paint and primer, if necessary. Also, provide samples of other fencing materials and hardware as the Engineer directs.
- b. The Contractor shall submit finished samples of all parts of the fences for the Engineer's review and approval. The workmanship and finish of the completed fences shall equal the approved samples.

PART II - MATERIALS

2.01 STEEL MEMBERS

- a. Posts shall be carbon steel structural tubing conforming to ASTM Designation A500.
 1. Line posts shall be 2.5" x 2.5" x 1/4" thick steel tubing, weighing 5.40 lbs./ft.
 2. End posts and corner posts shall be 3" x 3", 17 ga. steel tubing.
 3. Gate posts shall be 3" x 3", 1/4" thick wall steel tubing.
 4. Sleeves for fence posts shall be 3" x 3" x 1/2" thickness steel square tube weighing 20.88 lbs./ft.
 5. Pickets shall be 3/4" pickets.
- b. Galvanizing:
 1. Hot-dip galvanize all items under this section in compliance with ASTM A 123, ASTM A 153, or ASTM A 386. Provide minimum 1.5 oz./ft.² zinc coating. Galvanize after fabrication.
 2. Following galvanizing, each item shall receive surface grinding to remove lumps, sags or spikes resulting from the galvanizing process. The finished surface following grinding shall be hand smooth and without irregularities. Take care not to damage the galvanized surface coating.
- c. Pickets, top and bottom rails and crossbars and hinge assemblies, called for on the drawings, shall conform to ASTM Designation A36.
- d. Bolts, nuts, washers and any other fasteners shall conform to ASTM Designation A307.
- e. Post caps shall be cast iron or steel in the sizes required, finished in conformance with all other fence elements. Caps shall be as manufactured by Julius Blum & Co., Inc., Carlstadt, New Jersey; Boundary Fence and Railing Systems, Inc. Richmond Hill New York; Monumental Iron Works, Inc., Baltimore, Maryland; or approved equal. All caps are to be coated with a minimum 3.0 mil thickness of liquid galvanizing compound by dipping.
- f. All gates shall be equipped with a positive type latching device capable of retaining the gate in a closed position and have provision for padlock. Latches

shall permit operation from either side of gate and must be approved by the Landscape Architect prior to the installation

- g. Double gates: Provide locking cane-bolt style drop rod to hold inactive leaf. Provide gate stop pipe to engage center drop rod. Provide locking device and padlock eyes as an integral part of the latch, requiring one padlock for locking both gate leaves.

2.02 FINISH

- a. Cold galvanizing compound shall be a single component zinc rich compound yielding a dry film of at least 85% pure zinc. Galvanizing compound shall meet or exceed the requirements of Federal Specification MIL-P-21035, TT-P-641d primer for zinc rich compounds.
- b. Finish color coating shall be Color Galvanized Black as provided by Duncan Galvanizing, Inc., or approved equal.

2.03 CEMENT CONCRETE

- a. Cement concrete for footings and edgings shall conform with Section 03300 of these Specifications.

PART III - EXECUTION

3.01 FENCE FABRICATION, GALVANIZING FINISHING AND ERECTION

- a. The fence sections shall be shop fabricated in strict conformance to the sizes and dimensions called for on the approved shop drawings and in accordance with these specifications, all as field verified by the Contractor.
- b. All welding shall be by arc welding process conforming to the latest AWS Specifications. All welds shall be as designated on the drawings, shall be ground smooth to a neat finish and shall be watertight with care to minimize locked-up stresses and distortion due to heat. All welds shall be made on bare, clean metal equal to "white" metal.
- c. After fabrications, all steel surfaces shall be thoroughly cleaned of all mill scale, rust, dirt, weld flux, weld splatter and other foreign matter by power wire brushing or sand blasting.
- d. Prime and finish all materials in accordance with industry requirements. Galvanizing shall provide a visually acceptable substrate for applied coatings, and be free of lumps, globules, or heavy deposits which will interfere with intended use or esthetic appearance of materials.

- e. Field erection of the fabricated fence sections shall be as called for on the drawings. Excavation for post footings shall conform to Section 2.04 of these Specifications. Fence posts shall be set plumb in cement concrete footings which shall be mixed and placed in accordance with Section 9.01 of these Specifications. The fence rails shall be parallel to the walk and the fence posts and pickets shall be set plumb, when the fence is erected into its final position.
- g. Surfaces that are abraded or damaged during field erection or from which galvanizing compound has been damaged shall be thoroughly wire brushed and cleaned, removing all loose and cracked coating, after which the surface shall be painted with two (2) coats of the approved cold galvanizing compound.

3.02 TOUCHUP PAINTING

- a. After erection, all rust spots, scratches or abrasions in the galvanized surface shall be repaired with finish surfacing treatments that are compatible with factory applied color galvanizing applications and satisfactory in all regards to the Engineer.

- - - END OF SECTION - - -

SECTION 02870

SITE FURNISHINGS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. The General Documents, as listed in the Table of Contents, and applicable parts of Division 1, General Requirements shall be included in and made a part of this Section.
- B. Examine all Drawings and all other Sections of the Specifications for requirements therein affecting the work of this trade.

1.02 SCOPE OF WORK

- A. The work of this Section consist of all site improvements and related items as indicated on the Drawings and/or as specified herein and includes, but is not limited to, the following:
 - 1. Trash Receptacles
 - 2. Benches
 - 3. Signage
 - 4. Picnic Tables

1.03 RELATED WORK UNDER OTHER SECTIONS

- A. The following items of related work are specified and included in other Sections of the Specifications:
 - 1. SECTION 02350 – EXCAVATION, BORROW AND BACKFILL
 - 2. SECTION 03300 – CEMENT CONCRETE

1.04 EXAMINATION OF CONDITIONS

- A. The Contractor shall fully inform himself of existing conditions of the site before submitting his bid, and shall be fully responsible for carrying out all site work required to fully and properly execute the work of the Contract, regardless of the conditions encountered in the actual work. No claim for extra compensation or extension of time will be allowed on account of actual conditions inconsistent with those assumed.
- B. Plans, surveys, measurements and dimensions under which the work is to be performed are believed to be correct to the best of the Landscape Architect's knowledge, but the Contractor shall have examined them for himself during the bidding period, as no allowance will be made for any errors or inaccuracies that may be found therein.

1.05 SCHEDULING

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SITE FURNISHINGS

- A. The Contractor shall submit to the Landscape Architect, for approval by the Owner, a progress schedule for all work as specified herein.

1.06 QUALITY ASSURANCE

- A. Materials and methods of construction shall comply with the following standards:
 - 1. ASTM: American Society for Testing and Materials
 - 2. ANSI: American National Standards Institute
 - 3. FS: Federal Specifications
 - 4. IMI: International Masonry Institute
 - 5. PCA: Portland Cement Association
- B. Qualifications of Workers: Use adequate numbers of skilled workers who are trained in the necessary crafts and who are completely familiar with the specified requirements and methods needed for the proper performance of the work of this Section.
- C. Layout: After staking out the work, and before beginning final construction, obtain the Landscape Architect's approval for layout. Contractor shall make adjustments as determined by the Landscape Architect. Landscape Architect may make adjustments to layout as is required to meet existing and proposed conditions without additional cost to the contract price.

1.07 SUBMITTALS

- A. Shop Drawings: Submit shop drawings in accordance with Division 1 requirements.
 - 1. Trash Receptacles
 - 2. Benches
 - 3. Signage
 - 4. Picnic Tables
- B. Product Information: Provide manufacturer's data showing installation and limitations in use. Supply Certificates of Compliance for all materials required for fabrication and installation, certifying that each material item complies with, or exceeds, specific requirements. Work includes but is not limited to:
 - 1. Trash Receptacles
 - 2. Benches
 - 3. Signage
 - 4. Picnic Tables

PART 2 – PRODUCTS

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SITE FURNISHINGS

All furnishings under this Section shall be manufactured by Wabash Valley Manufacturing, Inc., 505 East Main Street, Silver Lake, IN, and by Dumor Site Furnishings of Mifflintown, PA 17059-0142 (800) 598 4018 represented by M.E. O'Brien of 93 West Street, P.O. Box 650 Medfield, Massachusetts 02052 (508) 359 4200. Email mail@obrienandsons.com

All benches and trash receptacles shall be assembled in accordance with the manufacturer's instructions. Components that are chipped, dented, scratched or otherwise damaged shall not be accepted and must be repaired or replaced in a manner acceptable to the City Representative.

2.01 TRASH RECEPTACLES

Trash receptacles shall be Model No. LRD32, each furnished with an in-ground post package Model No. 10056 and plastic liner Model No. RPL32 for direct embedment into concrete footings.

2.02 BENCHES

Benches shall be Dumor Model 185-Recycled plastic bench with backrest, suitable for in-ground installation. Furnish in the quantity indicated on the drawings.

2.03 SIGNAGE

- A. Spray area signage is to be one (5) 24" x 36", 12-color, 1/2" exterior grade high-pressure laminate sign with Mounting hardware Model #SP1218, as manufactured by Fossil Graphics, 1-800-244-9809, or approved equal.
- C. Landscape Architect to supply all signage and kiosk graphics in digital format required by manufacturer to Contractor during construction.

2.04 PICNIC TABLES

Picnic Tables shall be recycled plastic picnic tables Model 100-80PL and Model # 100-68-1PL. Furnish in the quantity indicated on the drawings.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. The installer shall examine previous work, related work, and conditions under which this work is to be performed and notify the Contractor in writing of all deficiencies and conditions detrimental to the proper completion of this work. Beginning work means installer accepts substrates, subgrades, previous work, and conditions.

3.03 TRASH RECEPTACLE, BENCHES, RADIAL BENCHES AND PICNIC TABLES

- A. Install trash receptacles, benches, radial benches, and picnic tables in accordance with the Drawings and the manufacturer's instructions.

- C. The Contractor shall be responsible for timing the delivery of trash receptacles, benches, radial benches and picnic tables so as to minimize on-site storage time prior to installation. All stored materials must be protected from weather, careless handling and vandalism.

END OF SECTION

SECTION 02882

ALUMINUM PLAYERS BENCHES

PART I - GENERAL

1.01 SCOPE OF WORK

- a. The work to be accomplished under this Section shall be the construction and installation of the aluminum team benches. The Contractor shall provide all labor, materials, equipment and transportation to complete the work in this Section as detailed in the Contract Drawings and as specified herein.
- b. Work shall also include the securing of players benches to concrete pads in conformance with the relevant plans, details and approved shop drawings.

1.02 REFERENCE STANDARDS AND SPECIFICATIONS

- a. Reference to the standards, specifications and tests of technical societies, organizations and governmental bodies are made of the Contract Documents.
 1. ANSI - American National Standards Institute.
 2. AASHTO - American Association of State Highway and Transportation Officials (tests or specifications).
 3. ASTM - American Society of Testing and Materials.
 4. Massachusetts Standard Specifications - Latest edition of the Standard Specifications for Highways, Bridges and Waterways, The Commonwealth of Massachusetts, Department of Public Works, 1988 Edition.

1.03 SHOP DRAWINGS

- a. Shop drawings or manufacturer's specifications shall be submitted in accordance with the provisions of the GENERAL CONDITIONS.
- b. Submittals shall be made for all work furnished in this section.
- c. All manufacturer's submitting shop drawings shall be aware that their standard pieces may be required to be adjusted to meet requirements. Manufacturer's model numbers, drawings and details where shown, are to indicate the desired type and quality of the play equipment required.

1.04 SAMPLES

- a. Submit the following samples in accordance with the provisions of the GENERAL CONDITIONS.
 - 1. Submit samples and descriptive literature of the items specified, as directed by the Landscape Architect.

PART II - MATERIALS

2.01 CEMENT CONCRETE-CAST IN PLACE

- a. Cement concrete-cast in place and reinforcement shall be Class "D" cement concrete as specified in Section 9.01 of these Specifications.

2.02 GRAVEL BORROW

- a. All gravel borrow shall be as specified in Section 2.04 of these Specifications.

2.03 ALUMINUM METAL PLAYERS' BENCHES

- a. Players' benches shall be 16' long, double width, without back, suitable for permanent in-ground installation and fabricated to conform to the "DB" series, as manufactured by National Recreation Systems, Inc., and distributed by O'Brien & Sons, Medfield, Massachusetts. All structural framework, angles, substructure, understructure, cross bracing shall be of aluminum alloy 6061-T6, mill finish welded angle, 3/16". All seatboard and footboard extrusions shall be of aluminum alloy, 6063-T6, 1.92 lb./ft., with webbing and flanging, with silver 204 R1 clear anodized finish.
- b. Furnish with the anchoring option for direct embedment into concrete base or pad.

2.04 ZINC CHROMATE PAINT

- a. Zinc chromate primer shall be Sherwin Williams B50Y1 or approved equal.

PART III - EXECUTION

3.01 EXCAVATION WORK

- a. The excavation for the concrete pad shall be done to the line and grades shown on the plans and details in the Contract Drawings and as specified in Section 2.04 of these Specifications.

3.02 GRAVEL BORROW BASE

- a. The gravel borrow base shall be placed and compacted as shown in the Contract Drawings and as specified in Section 2.04 of these Specifications.

3.03 CEMENT CONCRETE PAD

- a. The cement concrete pad with reinforcement shall be poured, finished and cured as specified in Section 9.01 of these Specifications.
- b. Provisions shall be made for placing the necessary fastening in the cement pour to anchor the players' bench as shown in the Contract Drawings.

3.04 PAINTING

- a. All aluminum parts in contact with cement concrete shall be coated with zinc chromate paint to a minimum of a three (3) mils thickness.

3.05 BENCH INSTALLATION

- a. The aluminum player's bench shall be set and bolted in place. Dip all nuts in loctite or locknut epoxy or approved equal, to secure permanently.
- b. Bench plank end caps shall be channel design with a matching finish and pop riveted at two points to underside of seat and foot boards. Die-formed end caps shall not be accepted.

- - - END OF SECTION - - -

SECTION 02883

BALLFIELD FOUL POLE

PART I - GENERAL

1.01 SCOPE OF WORK

- a. The work under this Section consists of erection of foul pole markers to be located on the left and right field foul lines of the field.

1.02 REFERENCE STANDARDS

- a. References herein to any technical society, organization group, or body are made in accordance with the following abbreviations:

ASTM American Society for Testing Materials

AWS American Welding Society

PART II - MATERIALS

2.01 FOUL POLES

- a. Foul pole shall be flagged mesh foul poles as indicated in the photo below, such as Model # BBFP-20 as manufactured by Jaypro Sports, Incorporated of Waterford, CT; Model number 1273 and 1274 as manufactured by P.W. Athletic Mfg. Co. 140 N. Gilbert Road, MESA, AZ 85203 or approved equal.



- b. The foul pole shall be:

20' height for baseball finished above ground, telescoping type post with 3-1/2 inch outside diameter at the base.

2.02 FINISHING

- a. Finishing, including priming and powder coating shall be consistent with the manufacturer's specifications for the particular model.

2.03 CEMENT CONCRETE

- a. All cement concrete for foul pole footings shall be furnished and placed in accordance with Section 03300 of these Specifications.

PART III - EXECUTION

3.01 INSTALLATION OF FOUL POLES

- a. Excavation for foul pole footings shall be in firm, undisturbed or compacted soil, as herein specified before in Section 02300 of these Specifications. Excavate the holes to the lines and grades as shown on contract plans with a six (6) inch minimum clearance between the bottom of the hole and the bottom of the foul pole in its final location.
- b. Place cement concrete around posts in a continuous pour. Tamp for consolidation. Check and adjust each post for vertical and top alignment, as necessary, and hold in position during placement and finishing operation.
- c. Top of foul pole footings shall be flush with finish grade as shown in drawings, pitched to drain.

--- END OF SECTION ---

SECTION 02886

PLAY EQUIPMENT

PART I - GENERAL

1.01 SCOPE OF WORK

- a. The Contractor shall furnish all labor, materials, equipment and transportation required to furnish and install the play equipment as located, described and set forth in the contract plans, specifications and details and in accordance with manufacturer's requirements and recommendations, and as specified herein.

1.02 REFERENCE STANDARDS AND SPECIFICATIONS

- a. Playground equipment design, layout, and installation shall comply with the following standards and guidelines as applicable.
 1. CPSC - Consumer Product Safety Commission Guidelines for Playground Safety, latest edition.
 2. ASTM - American Society for Testing and Materials, Designation: F 1487, Standard Consumer Safety Performance Specification for Playground Equipment for Public Use, latest edition.
 3. ANSI - American National Standards Institute.
 4. AASHTO - American Association of State Highway and Transportation Officials (tests of specifications).
 5. Mass. Standard Specs. - Latest edition of the Standard Specifications for Highways, Bridges and Waterways, 1988 edition, the Commonwealth of Massachusetts, Department of Public Works, hereinafter referred to as "the Massachusetts Standard Specifications".
- b. Requirements not specifically set forth herein, but required by the agencies listed in above shall be understood to be a requirement of this contract since these standards of quality and safety are established as the industry standard(s). Any conflicts between the agency standards and the contract documents shall be brought to the attention of the Engineer, and unless otherwise directed in writing, the agency standards shall be the minimum requirement to be followed.

1.03 SHOP DRAWINGS

- a. Prior to ordering, furnishing and/or installing the play equipment as required by the Contract Documents, the following shall be submitted to the Project Representative for review and approval:
 - 1. Certified product data, shop and fabrication drawings showing all important details of construction and dimensions showing the equipment, arrangement, footing spacing and lengths. Shop drawings shall stipulate and certify to compliance with all CPSC and ASTM standards and guidelines as applicable.
 - 2. Descriptive literature and technical specifications for all play equipment installations.
 - 3. Warranty certificates for all applicable play equipment features, components, hardware, finishes and other applicable items.
 - 4. In the event that it is impossible to conform to certain details of this specification due to differing manufacturing techniques or conventions, submit complete summary of all non-compliant components or elements.

1.04 SAMPLES

- a. Submit the following samples in accordance with the provisions of the GENERAL CONDITIONS.
 - 1. Submit samples and descriptive literature of all items specified in this Section, including treatments, finishes, colors, and test information.

1.05 QUALIFICATIONS

- a. Installer shall have a minimum of three (3) years experience with a minimum of ten (10) playground installations. References will be required.

PART II - MATERIALS

2.01 PLAY EQUIPMENT

- a. Furnish and install the following at the locations designated on the plans with all of the features indicated on the related layout drawings. The play structures shall also comply with the technical specifications included within this of this Specification section:

<u>QTY</u>	<u>MODEL #</u>	<u>DESCRIPTION</u>
<u>1</u>	<u>MEO11488</u>	<u>Weevos Playstructure for 2-5 year olds</u>
<u>1</u>	<u>MEO11488</u>	<u>Evos Playstructure for 5-12 year olds</u>
<u>1</u>	<u>MEO100041</u>	Curved balance beam
<u>1</u>	<u>MEO173591</u>	Omnispin Spinner
<u>3</u>	<u>MEO152179</u>	Saddle Spinners

Play Equipment shall be as manufactured by Land Structures, and as represented locally by M.E. O'Brien and Sons, 508-359-4200, or approved equal.

2.02 RESILIENT SAFETY SURFACE

- a. The resilient safety surface shall meet the requirements as specified in Section 02887 of the Specifications.

2.03 CAST IN PLACE CONCRETE

- a. Concrete for the footings will be cast in place cement concrete as specified in Section 03300 of the Specifications. Top of concrete footings shall be twelve (12) inches minimum below finished grade.

PART III - EXECUTION

- 3.01 The Contractor shall assemble the specified equipment under the supervision of an approved Supervisor according to the manufacturer's instructions, the contract drawings and these Specifications.
- 3.02 The Contractor shall locate the structures to the lines and grades specified in the drawings in these Specifications and according to the specifications of the manufacturer of the equipment. Adjust all equipment to suit site gradients; no sloping platforms, tracks, or members intended to be horizontal shall be accepted.
- 3.03 The excavation for the footings shall be done as specified in Section 02350 of these Specifications and according to the Contract Drawing details.
- 3.04 The equipment shall be located and brought to the heights as shown in the drawings and as recommended by the manufacturer with vertical and horizontal members set plumb

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PLAY EQUIPMENT

and then braced to be held in place.

- 3.05 The concrete shall be poured around the supporting pieces of the equipment to the grades detailed. The concrete shall be poured and cured according to Section 03300 of these Specifications. Slope tops of footings to drain; set bottom of vertical members into gravel base to ensure drainage; do not encase bottom in concrete.
- 3.06 After the specified cure period of the concrete has passed the bracing may be removed.
- 3.07 The fills and surfaces shall then be placed and brought to the grades shown in the Contract Drawings and in accordance with Section 02350 of these Specifications.

PART IV - GUARANTEE AND ACCEPTANCE/LIABILITY

- 4.01 All operating parts and structural elements of the play equipment and safety surface shall be guaranteed against failure or defect during normal use and operation for the entire warranty period as established by the manufacturer.
- 4.02 Any defective elements shall be replaced in part or whole by the Contractor at no cost to the Owner.
- 4.03 The Contractor and the manufacturer shall hold the Owner and Engineer harmless from any and all damages or liability resulting from negligent acts and omissions on the part of the Contractor or manufacturer, or resulting from defective parts, or improperly assembled equipment.
- 4.04 The Contractor is responsible for securing a Certified Playground Safety Inspector to ensure ASTM and SPSC compliance. A certificate of compliance will be issued to the Owner prior to final inspection.

END OF SECTION

SECTION 02887

WOOD MULCH AND POURED IN PLACE SAFETY SURFACING

PART I - GENERAL

1.01 SCOPE OF WORK

- a. The Contractor shall furnish all labor, materials, equipment and transportation required for the placement and compaction of wood mulch safety surfacing and poured-in-place play surfacing at children's play lots. The surfacing shall be placed at all locations identified on the Contract Drawings to the indicated grades.
- b. **Base Bid**- Under the base bid, work shall include the installation of both wood mulch safety surfacing and poured-in-place play surfacing, as described herein and as indicated on the construction details.
- c. **Add Alternate No. 1 & 2**- Under Add Alternates, poured-in-place surfacing shall be used throughout the play lot envelope (below and/or surrounding all play equipment and swing sets). Under Add Alternates, the poured in place surfacing shall be placed directly on to a crushed stone base (½ inch minus). Gravel borrow shall be used to achieve subgrade elevations. Wood mulch safety surfacing shall not be required under these Add Alternates.

1.02 SUBMITTALS

- a. In accordance with Section 01300 of these Specifications submit manufacturer's specification and detail sheets for all materials to be utilized under this section.
- b. Provide samples as directed by the Engineer.

1.03 QUALIFICATIONS

- a. For installation of the poured-in-place play surface the contractor shall provide evidence of successful completion of two (2) like surfaces installed during the past three (3) years with names of clients and phone numbers.

PART II - MATERIALS

2.01 WOOD MULCH SAFETY SURFACE (**BASE BID ONLY**)

- a. The wood mulch safety surfacing shall be "Woodcarpet" as manufactured by Zeager Brothers, Inc., or approved equal. The material used to manufacture the wood mulch safety surfacing shall consist of No. American Hardwoods such as Oak, Maple, Ash, Poplar, Hickory, Beech, Birch, Locust.

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WOOD MULCH AND POURED IN PLACE SAFETY SURFACING

All woods shall be debarked and free of soil, leaves and twig material and other contaminants which hasten decomposition. No chemical treatment or additives are permitted. Wood mulch shall be randomly sized, approximately ten (10) times longer than wide, and shall meet the gradation requirements of ASTM C 136:

<u>Sieve Size</u>	<u>Percent Passing Passing by Weight</u>
3/4 in.	100
3/8 in.	75
No. 4	45
No. 10	15
No. 60	1
No. 200	1

Ninety-eight percent (98%) of wood mulch dimensions shall not exceed 4.00 centimeters in length, 1.30 centimeters in width and 3.25 centimeters in depth.

PERMEABILITY: Coefficient of permeability shall be greater than 0.6 cm/sec ASTM D 2434.

Moisture absorption of wood mulch safety surface shall be no greater than one hundred fifty percent (150%) by weight.

2.02 POURED-IN-PLACE-PLAY SURFACE ((**BASE BID AND ADD ALTERNATE**))

- a. Poured-in-place play surface shall be "Playbound" by Surface America, or approved equal. Play surface shall meet or exceed current Consumer Product Safety Commission (CPSC) guidelines issued in 'A Handbook for Public Playground Safety' (latest edition) for the minimum potential fall height of the play equipment, current Disabilities Act Guidelines (ADA) and current American Society for Testing Materials (ASTM) F-1292-91 requirements.
 1. The Base Mat shall be a monolithic poured-in-place cushioned pad, made from a blend of recycled styrene butyrene rubber (SBR) and a polyurethane binder or approved equal. The depth of the SBR mat shall be such that in conjunction with the specified top-wearing course the total resilient surface system shall provide the required absorbency for the maximum potential fall from the specified play equipment. (Refer to Section 8.01.) SBR shall be mixed with the binder in a ratio of 88% SBR to 12% binder by weight to achieve maximum resilience.
 2. The Top Surface shall be a monolithic poured-in-place top surface made

from a blend of ethylene propylene diene monomer (EPDM) colored rubber particles measuring 1 to 3 mm and a polyurethane binder. EPDM shall be mixed with the binder in a ratio of 82% EPDM to 18% binder to achieve maximum wearability and resilience. The final color shall be determined, although it shall include a standard combination equal to the Berries or Confetti combinations indicated in manufacturers brochures. Top surface shall have a tensile strength of two hundred (200) psi. The urethane binder shall be an aliphatic non-yellowing type.

3. Poured-in-place surfacing shall be placed in the limited areas designated on the plans (Base Bid) or throughout the full extent of the two playlots (Add Alternate No. 1). The total depth of poured-in-place surfacing shall be as follows:

Nine (9) foot wide zone or area surrounding the “Rock”: 4 inches
 Below and surrounding the swingset: 3.5 inches
 Below and surrounding all other play equipment: 3 inches

4. Prefabricated shock pads will not be considered equal.

2.03 FILTER CLOTH/FABRIC (BASE BID ONLY)

- a. A drainage type filter cloth shall be used in conjunction with the wood mulch safety surfacing and shall conform to the requirements specified below.

PROPERTY	TEST PROCEDURE	DRAINAGE TYPE
Weight, oz./sq. yd.	ASTM D-1910	4.1
Thickness, mils	ASTM D-1777	40
Tensile Strength, lbs.	ASTM D-1682	115
Elongation, %	ASTM D-1682	65
Puncture Strength, lbs.	ASTM D-751 Modified	75
Mullen Burst Strength, psi	ASTM D-751	260
Coefficient of Permeability, m/sec.	Constant Head	0.10

2.04 BASE MATERIALS

- a. Gravel borrow and crushed stone materials shall be as specified under Section 2.04 and 2.05 of these Specifications, or as otherwise indicated on the details.

2.05 CEMENT CONCRETE (BASE BID ONLY)

- a. Cement concrete for use below the Poured-in-Place Play Surface shall be as specified under Section 9.01 of the Specifications and constructed as indicated on the related details.

PART III - EXECUTION

3.01 PROCEDURES

- a. The Contractor shall deliver, spread and compact or place safety surfaces to conform to the lines and grades shown on the Contract Drawings. All work shall be done in accordance with the manufacturer's installation recommendations for wood mulch or Poured-in-Place Play Surfaces.
- b. Compaction of wood mulch shall continue until the surface is true to the proposed lines and grades indicated on the Plans and the material consists of a minimum compacted depth of twelve (12) inches.
- c. The Base Mat for the Poured-in-Place Play Surface shall be installed in accordance with the manufacturer's instructions. The Base Mat shall exhibit a minimum installed thickness necessary to provide the required absorbency for the maximum potential fall from the proposed play equipment. At playlot edges, place a board between the end of the poured-in-place base pour and the concrete edge and remove the board after the base has sufficiently cured. Pour the top course of poured-in-place surfacing and allow material to fill the void created by the board.
- d. The Top Surface shall be installed following installation of the cushion course, in accordance with the manufacturer's instructions. The minimum installed thickness of the top wearing course shall be as recommended by the manufacturer. The contractor is responsible for insuring that no foot traffic is allowed on the surface before the curing is complete.
- e. Bevel all pathway edges and feature (slides etc.) exit landing areas (Base Bid Only) in accordance with manufacturer's recommendations.
- f. Any tests of materials, and/or compaction shall be as ordered by the Engineer, and paid for by the Contractor regardless of results.
- g. WARRANTY: Safety surfacing shall be free of defects due to workmanship or material for a minimum of two (2) years from date of installation.

SECTION 02888

SHADE SHELTERS

PART I - GENERAL

1.01 SCOPE OF WORK

- a. Under this Section the Contractor shall furnish all labor, materials, equipment and transportation required to furnish and install metal and polyethylene fabric shade shelters in the locations indicated in the Contract Drawings, in accordance with the manufacturer's recommendations, and as specified herein.

1.02 REFERENCE STANDARDS AND SPECIFICATIONS

- a. Reference to the standards, specifications and tests of technical societies, organizations and governmental bodies as made in the contract documents.
 1. ANSI - American National Standards Institute.
 2. AASHTO (AASHO) - American Association of State Highway and Transportation Officials (tests of specifications).
 3. ASTM - American Society for Testing and Materials.
 4. Mass. Standard Specs. - Latest edition of the Standard Specifications for Highways, Bridges and Waterways, the Commonwealth of Massachusetts, Department of Public Works, hereinafter referred to as "the Massachusetts Standard Specifications".
 5. AISI - American Iron and Steel Institute
 6. AISC - American Institute of Steel Construction.
 7. AWS – American Welding Society
- b. Requirements not specifically set forth herein, but required by the agencies listed above shall apply to this contract since these are established as the industry standards for quality and safety. Any conflicts between the agency standards and the contract documents shall be brought to the attention of the Landscape Architect, and unless otherwise directed in writing, the agency standards shall be the minimum requirement to be followed.

1.03 SHOP DRAWINGS

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SHADE SHELTER

- a. Shop drawings or manufacturer's specifications shall be submitted in accordance with the provisions of the GENERAL CONDITIONS. The specifications provide for "or equal" provision by other manufacturers than specified. However, the equipment shall be equal to, or better than, the specified material, with equal dimensions in order to be considered.
- b. Submittals shall be required for all elements to be furnished under this Section. Drawings may be viewed at the offices of the manufacturer or the Landscape Architect.

1.04 SAMPLES

- a. Submit the following samples in accordance with the provisions of the GENERAL CONDITIONS.
 - 1. Submit samples and/or descriptive literature of all items specified in this Section, including treatments, finishes, colors, and test information.

PART II - MATERIALS

2.01 SHADE SHELTERS

- a. The required shade shelters shall be as manufactured by Shade America of Dallas, TX and represented locally by O'Brien & Sons of Medfield, MA, (Tel: 508-359-4200) or approved equal. Shade Shelters shall be as follows:
 - Bleacher SSA: 12' x 45' x 13' height, Extended Hip, Model No. R104512
 - Picnic Area SSB: 15' x 20' x 10' height, Extended Hip, Model No R102015
 - Spray Area SSC: Modified 10'x15'x 10' height, custom per cut sheet
 - Spray Area SSD: 10' x 20' x 10' height, Extended Hip, Model No. R102010
- b. Shade shelters framing and supports shall be constructed entirely of steel. Roofing shall be polyethylene fabric treated to prevent UV degradation. Steel components shall be galvanized and powder coated.

2.02 FINISH PAINTING

- a. All metal components shall receive the Allied Flo-Coat Process that includes the applications of pure zinc, conversion, clear polymer and powder coatings.
- b. The shade shelter shall be factory primed and factory finish painted in accordance with manufacturer's specifications, subject to the approval of the Landscape Architect.

- d. The paint color(s) shall be selected by the Landscape Architect at the time the product is ordered.
- e. Any priming or finish paint damage shall be repaired to the satisfaction of the Landscape Architect in a manner approved by the Landscape Architect.

2.03 CEMENT CONCRETE - CAST IN PLACE

- a. Concrete for footings will be cast in place cement concrete as set forth in Section 03300 of these Specifications.
- b. Footings shall be a minimum of twenty four (24) inches diameter and 4'-6" in depth. Top of footings shall be kept below finished grades to allow for installation of proposed pavements above all footings/foundations.
- c. Anchoring methods shall be as specified by the manufacturer subject to the approval of the Landscape Architect.

PART III - EXECUTION

- 3.01 The Contractor shall assemble the specified shelter under the supervision of an approved Supervisor according to the manufacturer's instructions, the contract drawings and these Specifications.
- 3.02 The Contractor shall locate the shelter to the lines and grades specified in the drawings, Specifications and according to the specifications of the manufacturer.
- 3.03 The excavation for the footings shall be done as specified in Section 02350 of these Specifications and according to the Contract Drawing details.
- 3.04 The concrete footings shall be poured to the grades specified. The concrete shall be poured and cured according to Section 03300 of these Specifications.

PART IV - GUARANTEE AND ACCEPTANCE/LIABILITY

- 4.01 All elements of the shade shelter shall be guaranteed against failure for a period of one (1) year.
- 4.02 Any defective elements shall be replaced in part or whole by the Contractor, at no cost to the Owner.

END OF SECTION

SECTION 02894

BASKETBALL STANDARDS

PART I - GENERAL

1.01 SCOPE OF WORK

- a. The work under this Section consists of furnishing and installing all labor, materials, equipment, transportation and supervision required to provide complete and functional basketball backstops and supports in the type and quantity indicated on the plans. The equipment will be located and installed according to the Contract Drawings, details included in this Section, and as specified herein.

1.02 REFERENCE STANDARDS AND SPECIFICATIONS

- a. Reference to the standards, specifications and tests of technical societies, organizations and governmental bodies is made in the Contract Drawings.
 1. ANSI - American National Standards Institute.
 2. AASHTO (AASHO) - American Association of State Highway and Transportation Officials (tests or specifications).
 3. ASTM - American Society for Testing and Materials.
 4. Massachusetts Standard Specifications - Latest edition of the Standard Specifications for Highways, Bridges and Waterways, the Commonwealth of Massachusetts, Department of Public Works.

1.03 SUBMITTALS

- a. Submit shop drawings per Section 01300 of these Specifications.

PART II - MATERIALS

2.01 BACKSTOP, GOAL, NET AND SUPPORT

- a. Basketball backstop and support shall be Model #BB-AH6 with 4 ½" OD support post, 72" offset arm, rectangular backboard and twin rim goal with nylon net, as manufactured by Jaypro Sports Equipment, Inc., which is represented locally by O'Brien and Sons (508) 359-4200, or approved equal.

2.02 CAST IN PLACE CLASS CEMENT CONCRETE

- a. The concrete for the base shall be specified in Section 01300 of these Specifications.

2.03 EXCAVATION AND BACKFILL

- a. Excavation and backfill shall be as specified in Section 02350 of these Specifications.

2.04 GRAVEL BORROW

- a. Gravel Borrow shall be as specified in Section 02355 of these Specifications.

PART III - EXECUTION

3.01 The backstop footing excavation shall be done in the correct locations as shown on the Contract Drawings and to the depth and size shown on the drawing in this Section of the Specifications and as specified in Section 02350 of these Specifications.

3.02 Assemble new supports and backboards.

3.03 Place assembly, properly located in footing excavation, block and brace to hold as follows:

- a. Support pole is plumb.
- b. Backboard is horizontal.
- c. Check to be certain that underside of support pipe is 130 inches (10 feet, 10 inches) from the proposed finish grade.
- d. Adjust the height of the backboard and goal to be 10'-0" above finished grade.
- e. Install new nets.

3.04 Pour concrete around pipe support and properly place as specified in Section 03300 of these Specifications, to the base of bituminous pavements; float finish with light brooming is required to ensure bonding; cure as specified.

3.05 Secure all nuts and bolts with Locknut or Locktite epoxy, or approved equal.

PART IV - GUARANTEE AND ACCEPTANCE

- a. All structural elements of the basketball backstop and support shall be guaranteed against failure or defect during normal use and operation for a period of one (1) year. Net shall not be subject to the guarantee.
- b. Any defective elements shall be replaced in part or whole by the Contractor, at no cost to the Owner.

END OF SECTION

SECTION 02896

BLEACHERS

PART I - GENERAL

1.01 SCOPE OF WORK

- a. The work under this Section shall generally include the repair and refurbishment of existing bleachers as follows:
 - Removal, relocation and reinstallation of three (3) bleacher structures onto new concrete pads at the locations designated on the drawings.
 - Purchase and installation of three (3) bleacher modification kits that generally shall include double foot planks, risers, chain link guardrails and related components. The bleacher modification kits allow for consistency with state and local building codes.
- b. The work under this Section consists of furnishing and installing one new aluminum five (5) row bleachers on a concrete pad. The Contractor shall provide all labor, materials, equipment and transportation to finish the work complete in place as shown in the Contract Drawings and as specified herein.
- c. The Contractor shall provide all labor, materials, equipment and transportation to finish the work complete in place as shown in the Contract Drawings and as specified herein.

1.02 REFERENCE STANDARDS AND SPECIFICATIONS

- a. Reference to the standards, specifications and tests of technical societies, organizations and governmental bodies are made of the Contract Documents.
 1. AASHTO-American Association of State Highway and Transportation Officials (tests or specifications).
 2. ASTM-American Society of Testing and Materials.
 3. Massachusetts Standard Specifications-Latest edition of the Standard Specifications for Highways, Bridges and Waterways, The Commonwealth of Massachusetts, Department of Public Works, 1988 edition.

1.03 SHOP DRAWINGS

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BLEACHERS

- a. Within two (2) weeks after the award of the contract and before ordering any materials or equipment, the Contractor shall submit to the Landscape Architect for approval, a complete list in six (6) copies, of all materials and equipment proposed for use indicating manufacturers' names and addresses, identifying data and expected delivery dates. No consideration will be given to partial lists submitted from time to time. Intention of using specified materials and equipment shall not relieve the Contractor from submitting the above list, nor shall submission of the list relieve him from submission of shop drawings. Any item of material or of equipment not submitted for approval on the list will not be approved unless of the exact make and characteristics specified. If the material or equipment is installed before it is approved, the Contractor shall be liable for the removal and replacement at no extra charge to the Owner, if, in the opinion of the Landscape Architect, the material or equipment does not meet the intent of the Contract Documents.
- c. The Contractor shall submit the following information with all equipment shop drawings:
 - 1. Manufacturer's certified scale drawings, cuts or catalogs, including installation details.
 - 2. Manufacturer's specifications, including certified performance characteristics and capacity ratings.
- d. The Contractor shall submit complete shop drawings in accordance with the provisions of the GENERAL CONDITIONS. The Landscape Architect, however, reserves the right to require submittal of shop drawings on any other material or equipment to be installed under this section.

1.04 SAMPLES

- a. The Contractor shall submit the following samples in accordance with the provisions of the GENERAL CONDITIONS.
 - 1. Any samples requested by the Landscape Architect. Samples accepted will be returned to the Contractor and may be incorporated into the work. Samples not accepted will be returned for disposition by the Contractor.

PART II - MATERIALS

2.01 STEEL & ALUMINUM BLEACHER

- a. The bleachers shall be five (5) row all-aluminum, 15'-0" in length each section, Model NB-0515APRF, as manufactured by National Recreation Systems, Inc., and as represented locally by M.E. O'Brien & Sons, Inc. (800-835-0056). Seat

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BLEACHERS

and foot planks shall be continuous length.

2.01 BLEACHER MODIFICATION KIT

- a. The bleacher modification kit shall be furnished in the quantities necessary to retrofit each existing bleacher at the Little League Field to be renovated under this project. Prospective bidders are advised that the kit shall be as manufactured by National Recreation Systems, Inc., (represented locally by O'Brien & Sons, Inc. of Medfield, MA at Tel. 800-835-0056) or approved equal. The eventual contractor shall work with the Owner and the Engineer to identify each bleacher manufacturer (if different from above) and to order appropriate components from alternative manufacturers.

2.02 PROCESSED GRAVEL

- a. Processed gravel shall be as specified in Section 2.04 of these Specifications.

2.03 CEMENT CONCRETE-CAST IN PLACE

- a. Cement concrete cast in place and reinforcing shall be as specified in Section 9.01 of these Specifications.

2.04 ANCHOR BOLTS

- a. Anchor bolts shall be hot dipped galvanized steel 3/8" OD x 8" long.

PART III- EXECUTION

3.01 EXCAVATION

- a. The excavation for the concrete base shall be brought to line and grade as shown in the contract drawings and as specified in Section 2.04 of these Specifications. The excavation shall be brought to the proper depth to provide for the detailed amount of processed gravel base.

3.02 PROCESSED GRAVEL BASE

- a. The processed gravel base shall be installed and compacted, as specified in Section 2.04 of these Specifications and as shown on the Contract Drawings.

3.03 BASE PAD

- a. The base pad shall be formed as specified in Section 9.01 of these Specifications and to the line and grade shown on the contract drawings.

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- b. The base pad shall be cement concrete-cast in place, finished and cured as specified in Section 9.01 of these Specifications and to the line and grade shown on the contract drawings. There shall be four anchor bolts (two on each side) cast in the proper location in the pour.
- c. Provide positive pitch away from pad for drainage.

3.04 INSTALLATION OF BLEACHER UNITS

- a. The bleachers shall be set over the anchor bolts and securely bolted down. The ends of the bolts shall be cut off one-eighth (1/8) inch above the bolts and then carefully peened over the nut.

3.05 INSTALLATION OF BLEACHER MODIFICATION KITS

- a. Install all foot planks, risers, chain link guardrails and related bleacher modification kit components as recommended by the manufacturer.
- b. Set the refurbished bleachers onto the concrete pads and secure to pad with approved expansion bolts.

END OF SECTION

SECTION 02910

SCREENED LOAM BORROW AND TOPSOIL RE-USED

PART I - GENERAL

1.01 SCOPE OF WORK

- a. Under this Section, the Contractor shall furnish all labor, materials, equipment and transportation required to furnish and place ½" Screened Loam Borrow as shown on the drawings and as specified. Where proposed tree and shrub planting mix and/or sod or seed is noted on the drawings, it shall be composed of Loam Borrow, or Topsoil Reused in compliance with this specification.
- b. Prospective bidders are advised that significant quantities of topsoil are present at the property and presumably available for reuse if compatible with the requirements of this specification. The Contractor shall be responsible for amending topsoil, as required to comply with this specification.
- c. Contractor shall also cultivate and amend the existing topsoil in-place within the repair area as indicated on the drawings. Refer to soil analysis report attached herein at the end of this section. Contractor shall amend the topsoil per the recommendation contained in the analysis.

1.02 SAMPLES/TESTS

- a. The Contractor shall furnish a Certified Laboratory Report showing the soils classification and nutrient analysis of representative samples of the Loam that is proposed to be used, including the extent of lime and fertilizer required. Samples submitted for approval must be representative of the total volume to be furnished, taken in the presence of the Engineer, and delivered to a certified laboratory by the Contractor; all costs for such shall be borne by the Contractor.
- b. At least ten (10) days prior to shipment/delivery of materials, the Contractor shall submit to the Owner a one (1) cubic foot representative sample, certifications, certified test results for materials as specified below. The Contractor shall provide a listing of the addresses (locations) identifying the origin of the soil to be delivered. If the origin is from multiple locations, all locations shall be provided at the time of submission of required information specified above. No materials shall be ordered or delivered until the required submittals have been reviewed and approved by the Owner. Delivered materials shall closely match the approved samples. Approval shall not constitute final acceptance. The Owner shall reserve the right to reject, on or after delivery, any material that does not meet these Specifications.

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SCREENED LOAM BORROW AND TOPSOIL RE-USED

- c. If the material does not conform to the above requirements it shall be rejected and additional sources shall be found. Sampling and testing shall be accomplished as specified herein until an approved material is found, all at the Contractor's expense.
- d. To assure that materials fulfill specified requirements regarding textural analysis, organic matter content, pH, and fertility testing may be undertaken:
 - 1. Prior to site delivery; at source;
 - 2. At time of delivery; on-site; and/or
 - 3. Immediately following spreading on site. Soil sampling shall also indicate if specified soil was supplied uniformly to the minimum specified depth.

1.03 STANDARDS

- a. ASTM - American Society for Testing and Materials.

1.04 NOTIFICATION

- a. The Contractor shall notify the Owner in writing at least ten (10) days in advance of the time he intends furnishing Screened Loam Borrow stating the location and amount of such deposit, the name and address of the supplier and also shall furnish such facilities, transportation and assistance as the Owner may require for collecting and forwarding samples.

PART II - MATERIALS

2.01 LOAM BORROW

- a. In accordance with the specific requirements of this project, existing on-site soil may be re-used as Loam Borrow only if it meets this Specification. Existing topsoil that does not meet this Specification may be re-used only up to the subgrade elevation within the limits of areas to receive new Loam Borrow. The Contractor shall furnish all required Loam Borrow, from off site sources, as necessary, to complete the project.
- b. Screened Loam shall be “fine sandy loam” or “sandy loam” determined by mechanical analysis (ASTM D-422) and based on the “USDA” Classification System”. Screened Loam has the following mechanical analysis:

<u>Textural Class</u>	<u>Percentage of Total Weight</u>	<u>Average Percentage</u>
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Sand (0.05 – 2.0mm)	45 – 75	60
Silt (0.002 – 0.05mm)	15 – 35	25
Clay (Less than 0.002mm)	5 – 20	15

- c. Screened Loam shall be a natural product consisting primarily of natural topsoil, free from subsoil, and obtained from an area that has never been stripped, as noted above, the location of the source of the loam must be submitted to the Owner. Screened Loam shall not contain less than five percent (5%) nor more than ten percent (10%) organic matter as determined by the loss on ignition of oven-dried samples, at 100°C ± 5°C. To adjust organic matter content, the soil may be amended, prior to site delivery, by the addition of composted leaf mold or peat moss. Use of organic amendments is accepted only if random soil sampling indicates a through incorporation of these materials. No mixing or amending of Loam will be permitted on site. The Loam shall not be delivered when in a wet or frozen condition.
- d. Screened Loam shall consist of fertile, friable, natural loam capable of sustaining vigorous plant growth. Loam shall be without admixture of subsoil, and refuse, resulting in a homogeneous material free of stones greater than ½” in the longest dimension, be free of lumps, plants, glass, roots, sticks, excessive stone content, debris, and extraneous matter as determined by the Owner. Screened Loam shall be within the pH range of 6.0 to 6.5 except as where noted on plans and details. It shall be uncontaminated by salt water, foreign matter and substances harmful to plant growth. The maximum soluble salt index shall be 100. Screened Loam shall not have levels of aluminum great than 200 parts per million.
- e. If limestone is required to amend the screened loam to bring it within a pH range of 6.0 to 6.5 no more than 200 pounds of limestone per 1,000 square feet of loam, incorporated into the soil, or 50 pounds of limestone per 1,000 square feet of loam, surface application, within a single season.
- f. The Landscape Architect will reject any material delivered to the site that does not meet these Specifications after post-delivery testing. If the delivered screened loam does not meet the specifications stated in this document, the delivered screened loam will be removed by the Contractor at the Contractor’s expense and at the time of rejection.
- g. The topsoil shall not be handled or moved when in a wet or frozen condition.

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SCREENED LOAM BORROW AND TOPSOIL RE-USED

- h. Topsoil structure shall not be destroyed through excessive and unnecessary handling or compaction. Inappropriate handling leading to the compaction or deterioration of soil structure will result in rejection of topsoil for use.
- i. At no time should equipment or material rest on the soil.
- j. Loam Borrow shall be free of plants and their roots, debris and other extraneous matter. It shall be uncontaminated by salt water, foreign matter and substances harmful to plant growth. The electrical conductivity (EC2) of a 1:2 soil-water suspension shall be equal to, or less than, 1.0 millimhos/cm. (test material passing #4 sieve).

2.02 REUSE OF EXISTING TOPSOIL

- a. The reuse of topsoil that does not meet the specifications for use as loam borrow may only be permitted for use as a general fill material to subgrade elevations at the limits of proposed fields, lawn and planting areas.
- b. Care shall be taken not to overwork the soil, causing it to break down, utilizing only agricultural equipment such as plows, discs, or harrows and portable quarry sieves, screens, or blenders.

PART III - EXECUTION

3.01 PLACEMENT

- a. The Contractor shall furnish and spread Loam Borrow to the depths shown on the contract drawings, which depth shall be the minimum required depth after settlement. No compaction shall be required beyond that extent necessary to place sod or to plant trees and shrubs to ensure against unevenness or settling below accepted growth lines.

3.02 ADDITIVES

- a. The Contractor shall apply all necessary fertilizer and lime to the soil in accordance with the manufacturer's and laboratory's recommendations and as required by the sodding, seeding and/or planting specifications referenced elsewhere. Refer to the laboratory test attached herein at the end of this section.

3.03 AMEND EXISTING SOILS IN-PLACE

- a. Apply a 1-inch deep layer of compost and a 1.5" deep layer of sand to the existing soil. Refer to section 02911 for specified compost and sand. Retain copies of

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SCREENED LOAM BORROW AND TOPSOIL RE-USED

receipts for compost delivered. to the site, as they may be used during inspection to verify the soil requirements have been met. Amend the topsoil per the recommendation contained in the analysis attached herein at the end of this section.

- b. Rototill or disc harrow compost and sand into the soil to a depth of at least 8-inches. Note that tilling to this depth will require repeated passes with a large machine, such as a tractor-mounted or heavy reartine rototiller.
- c. Under no circumstances will loaded rubber tired vehicles in excess of 1 ton be allowed on the repair area prior to, during or after the spreading of the root zone mix. operation should be conducted with low ground pressure (lgp) vehicles with a maximum effective ground pressure of 5.0 psi.
- d. Finish grades shall be verified by the Contractor using laser operation survey instruments with a tolerance of +/- 1/4 inch.

END OF SECTION

SECTION 02950

PLANTING

PART I – GENERAL

1.01 SCOPE OF WORK

- a. The work to be done under this section shall require the Contractor to provide all labor, material, equipment and transportation necessary for the furnishing and planting of new trees, shrubs and groundcovers for both interior and exterior, free-standing and built-in, planters as shown on the Contract Drawings and as specified herein.

1.02 APPLICABLE SPECIFICATIONS AND STANDARDS

- a. STANDARDIZED PLANT NAMES, 1942 Edition, American Joint Committee on Horticultural Nomenclature.
- b. AMERICAN STANDARD FOR NURSERY STOCK, Z 60.1, latest edition, American Association of Nurserymen.
- c. Massachusetts Standard Specifications - Latest edition of the Standard Specifications for Highways, Bridges and Waterways, The Commonwealth of Massachusetts, Department of Public Works, 1988 Edition.
- d. Standards of the Association of Official Agriculture Chemists regarding soil analysis.
- e. United States Department of Agriculture – ‘Soil Classification System’.

1.03 SUBMITTALS

- a. Inspection certificates for plant materials, as required by governmental agencies, shall be submitted to the Engineer.
- b. Samples and manufacturer’s product data, as applicable, shall be submitted for the following materials:
 1. Prepared planting mix.
 2. Commercial Fertilizer.
 3. Agricultural Limestone.
 4. Sphagnum Peat Moss.

5. Humus.
6. Organic Compost.
7. Mulch.
8. Zinc Planters.
9. Stakes.
10. Flexible Nylon Braided Webbing.

1.04 SOILS TESTING

a. Loam Borrow

1. Representative samples of loam borrow shall be sent to a testing laboratory for analysis. Test results with recommended treatments shall be submitted to the Engineer. Deficiencies in the loam and stockpiled topsoil shall be corrected by the Contractor as directed by the testing agency and shall include the use of soil additives listed below. The Contractor shall bear any and all costs for this analysis.
2. Mechanical and chemical (pH soluble salts) analysis shall be by a public extension service agency or a private certified testing lab in accordance with the current 'Standards' of the Association of Official Agriculture Chemists.
3. Soils test report shall be submitted at least one (1) month before any loaming is to be done. Soils tests shall include Nitrate Nitrogen, Ammonium Nitrogen, Phosphorous, Potassium, Calcium, Aluminum, Magnesium, Manganese, Ferric Iron, Sulfate, Soluble Salts (1:2 soil-water ratio) and pH (1:1 soil water ratio), percent organic matter content, and mechanical gradation (sieve analysis) which shall be compared to the USDA Soil Classification System.

1.05 PERSONNEL QUALIFICATIONS

- a. The planting shall be done by contractors regularly engaged in landscape construction work, specifically planting installation, and by skilled workers, trained and experienced in accepted horticultural/nursery practices. The work shall be done under the supervision of a qualified planting foreman. Plant installer shall have a minimum of three (3) years of experience in the landscape contracting profession and be able to provide references to the Owner of past related project work.

1.06 PLANTING SEASON

- a. Deciduous plants shall be planted only when dormant, either prior to bud break, before leaves appear in the spring, or subsequent to their loss in the fall, unless otherwise directed by the Engineer.
- b. Evergreen plants may be planted either in the spring until new growth appears or at any time between September 15 and November 30.
- c. If the construction completion date prohibits in-season planting, the Contractor shall complete his work within the project date and prepare himself for out-of-season planting, including application of antitranspirant and extra water. Plant guarantee periods remain as stated below. Frozen ground planting shall not be permitted.

1.07 TRANSPORTATION, DELIVERY, STORAGE AND HANDLING

- a. Each plant shall be handled and packed in the approved manner for that species or variety and all necessary precautions shall be taken to insure that the plants arrive on-site in proper condition for successful growth. Trucks used for transporting plants shall be equipped with covers to protect plants from windburn during transport.
- b. No plants shall be transported to the planting site that are not thoroughly wet through the ball of earth surrounding the roots. Any plants that are dry or in a wilted condition when delivered to the site will not be accepted and shall be replaced by the Contractor at his expense.
- c. Plants shall be delivered only after preparations for planting have been completed. They shall be planted immediately upon arrival to the site. If planting is delayed more than six (6) hours after delivery, plants shall be heeled in, protected from sun, wind, weather and mechanical damage, and kept watered.
- d. Packaged materials shall be delivered to the site in original unopened packaging showing weight, analysis and the name of the manufacturer.

PART II – MATERIALS

2.01 LOAM BORROW

- a. Loam borrow shall meet the requirements as specified in Section 2.10 of these Specifications. Loam shall be of a uniform composition throughout without admixture of subsoil, and shall be clean and reasonably free from clay, lumps, stones, roots two (2) inches or more in diameter, or other similar substances. Loam shall not contain toxic substances harmful to plant growth. It shall be free

of weeds, weed seeds and debris, or other objects that might hinder planting operations.

- b. Loam shall have a pH value range between 5.0 and 7.0. If the soil does not fall within the pH range specified, it may be amended to bring it within the specified limit.
- c. Loam shall not contain less than four percent (4%) nor more than twenty percent (20%) organic matter, as determined by the loss ignition of samples oven-dried at a constant weight at a temperature of 230°F, ± 9°F.
- d. Loam shall not be worked, excavated or delivered while in a frozen or muddy state.

2.02 PREPARED PLANTING MIX

- a. The prepared planting soil mix shall consist of the following materials and quantities:
 - 1. Seven (7) parts loam borrow as specified in Section 02910 of these Specifications.
 - 2. One (1) part organic compost, humus, or peat borrow as specified in the Mass. Std. Spec. M1.06.0.
 - 3. To this mixture add fertilizer and/or soil amendments in accordance with the recommendations of the soils testing laboratory.

2.03 SOIL AMENDMENTS

- a. The Contractor shall be encouraged to use materials that are naturally occurring, derived from renewable resources, and non-toxic. Alternative materials and products shall be permitted provided that the specifications and application information are submitted to the Engineer for approval prior to use.
- b. Limestone
 - 1. Limestone shall be an approved agricultural limestone containing no less than fifty percent (50%) total carbonates and twenty-five percent (25%) total magnesium, with a neutralizing value of at least one-hundred percent (100%). The material shall be ground to such fineness that forty percent (40%) will pass through a No. 100 U.S. Standard Sieve and ninety-eight percent (98%) will pass through a No. 20 U.S. Standard Sieve. The lime shall be uniform in composition, dry, and free flowing, and shall be delivered to the site in the original, unopened containers, each bearing the manufacturer's guaranteed analysis. Any lime that becomes caked or otherwise damaged, making it unsuitable for use, will be rejected.

c. Fertilizer

1. Commercial Fertilizer shall be a complete, standard product complying with State and Federal Fertilizer Laws. The fertilizer shall be uniform in composition, dry and free flowing, and shall be delivered to the site in the original, unopened containers, each bearing the manufacturer's guaranteed analysis. Fertilizer shall contain the following minimum percentage of available plant nutrients by weight in which fifty percent (50%) minimum of the nitrogenous elements shall be derived from organic sources or Urea-form. The following fertilizer analysis shall be used for all tree and shrub plantings.

Nitrogen	Phosphorous	Potash
10%	10%	10%

2. As an option for tree plantings, a slow-release, root contact fertilizer packet, "Easy Grow" (16-8-16), or approved equal product complying with State and Federal Fertilizer Laws, may be used in place of the above, at the discretion of the Engineer.

d. Organic Compost

1. Compost shall be a standard commercial product comprised of fully decomposed, one hundred percent (100%) plant derived, natural organic matter. Its composition shall furnish ample water holding capacity and cation exchange capacity for the retention of plant nutrients. Compost shall be free of sticks, stones, weed seeds, roots, mineral or other foreign matter and delivered air dry. It shall be free from excessive soluble salts, heavy metals, phytotoxic compounds, and/or substances harmful to plant growth and viability. Organic compost shall have an acidity range of 4.5 to 7.0 pH, as determined in accordance with the testing methods of the AOAC, latest edition.

e. Sphagnum Peat Moss

1. Sphagnum peat moss shall be a standard, commercial product. Its composition shall furnish ample water holding capacity and cation exchange capacity for the retention of plant nutrients. Peat moss shall be free of sticks, stones, weeds or weed seeds, roots, mineral or other foreign matter. It shall be free from toxic substances and/or compounds harmful to plant growth and viability. It shall be delivered air dry in standard bales and shall have an acidity range of 3.5 to 5.5 pH, as determined in accordance with the testing methods of the AOAC, latest edition.

f. Humus

1. Humus shall be natural humus, reed peat, or sedge peat. Its composition shall furnish ample water holding capacity and cation exchange capacity for the retention of plant nutrients. Humus shall be free of sticks, stones, weeds, roots, mineral or other foreign matter and/or toxic substances harmful to plant growth and viability. It shall be low in wood content, free from hard lumps and excessive amounts of zinc and delivered air dry in a shredded or granular form. According to the testing methods of the AOAC, latest edition, the acidity range shall be 5.5 to 7.5 pH, and the organic matter content shall be not less than eighty-five percent (85%), as determined by loss on ignition. The minimum water holding capacity shall be two hundred percent (200%) by weight on an oven-dry basis.

2.04 WATER

- a. Water shall be is available at the site for use, but costs associated with use of the water shall be born solely by the contractor. Hose and other equipment required for application of water shall be furnished by the Contractor.

2.05 MULCH

- a. Shredded softwood bark mulch shall be fibrous pliable slices, not exceeding one half (1/2) inch in width. It shall be ninety-eight percent (98%) organic matter with a pH range of 3.5 to 4.5 and a moisture content not to exceed thirty-five percent (35%). It shall be free of weeds, weed seeds, debris, phytotoxic compounds and materials harmful to plant growth and viability. Organic mulch shall be aged not longer than two (2) years and shall conform with M.6.04.5 of the Massachusetts Standard Specifications.

2.06 PLANT MATERIALS

a. Selection of Nursery Stock

1. At least twenty (20) days prior to the expected planting date, the Contractor shall request in writing, that the Engineer provide a representative to select and tag stock to be planted under this Section. This request shall be made ten (10) days prior to the date on which stock selections are to be made. The Contractor shall arrange for and bear the cost of transportation, meals in transit, and overnight accommodations, if necessary, for the Engineer's representative during the period of time required to select and tag the required number of sized stock.
2. The letter of request shall also have attached a letter of certification from the supplier attesting to the availability of the required plants in specified sizes prior to requesting the Engineer to make plant source inspections.

3. Plants shall be selected by the Engineer's representative at the place of growth for conformity to specification requirements as to quality, size and variety. Such approval shall not impair the right of inspection and rejection upon delivery at the site or during the progress of work. Any material so rejected shall be removed from the site immediately. Costs of replacements will be borne by the Contractor.
 4. All plants shall be legibly tagged with their proper latin name (i.e., genus, species and cultivar) and size. The Contractor shall supply the necessary tags or seals which shall be durable and capable of accepting weather-resistant ink or an embossed process. The tags or seals shall be attached directly and securely to each selected plant.
- b. The Contractor shall furnish and plant all plants shown on the drawings, as specified, and in quantities and sizes as designated on the PLANT LIST. No substitutions will be permitted.
 - c. All plants shall be grown in nurseries that have been inspected by the appropriate State agency and have complied with the regulations thereof. All plants shall comply with Federal and State Laws requiring inspection for plant diseases and pest infestations. Inspection certification, as required by law, shall accompany each shipment of plants, and certificates shall be submitted to the Engineer. The Contractor shall obtain clearance from the applicable Governing Agency, as required by law, before planting any plants delivered from outside the state in which they are to be planted. Evidence that such clearance has been obtained shall be submitted to the Engineer.
 - d. All plants shall conform to the American Standard for Nursery Stock of the American Association of Nurserymen, publication Z60.1. All trees and shrubs shall be typical of their species or variety and shall have a normal habit of growth.
 - e. The root system of each plant shall be well provided with fibrous roots. All parts shall be sound, healthy, and vigorous, well branched and densely foliated when in leaf. They shall be free of disease, insect pests, eggs or larvae.
 - f. The Contractor shall take note that only plant stock grown specifically for hardiness in Zone 5 of the Hardiness Zones established by the Arnold Arboretum, Jamaica Plain, Massachusetts, will be accepted. The Contractor's suppliers must certify in writing that the stock has actually been grown under Zone 5 conditions and is hardy, or that the stock was asexually propagated from and grafted onto stock from a strain proven hardy to Zone 5 conditions. Trees and shrubs not so certified may not be accepted.
 - g. Balled and Burlapped Plants

1. All plants designated balled and burlapped or 'B & B' must be moved with the root systems as solid units with balls of earth firmly wrapped with biodegradable burlap and bound carefully with twine or cord. The diameter and depth of the balls of earth must be sufficient to encompass the fibrous root feeding system necessary for the healthy development of the plant. No plant shall be accepted when the ball of earth surrounding its roots has been badly cracked or broken preparatory to or during the process of planting, or after the burlap, staves, ropes or platform required in connection with its transplanting have been removed. The plants and root balls shall remain intact as a unit during all planting operations. All plants shall be freshly dug. No plants from cold storage or previously heeled-in will be accepted.
2. Soil characteristics (i.e., composition, texture, pH, etc.) of all field-grown balled and burlapped plants shall closely match that of the soil where plant materials are to be planted.
3. All balled and burlapped plants that cannot be planted at once must be heeled in, protected and watered

h. Container Grown Plants

1. All container grown plants shall be well established in the container in which they are sold and shall have been have acclimitized for at least one (1) growing season. Plants shall have a fibrous, healthy root system with sufficient roots to hold earth intact after removal from the container. Plants shall have no girdling roots and shall not be in a rootbound condition. Plants shall remain in their container until planted.
- i. The height of the trees (measured from the crown of the root flare to the tip of the top branch) shall be not less than the minimum size designated. Caliper measurement shall be taken at six (6) inches above ground level for trees up to and including four (4) inch caliper size, and at twelve (12) inches above ground level for larger sizes. The branching height for shade trees next to walks shall be seven (7) feet minimum. This may be obtained by pruning after planting if this does not ruin the shape or form of the trees or cause unsightly scars.
- j. All pruning cuts shall comply with acceptable horticultural practice.
- k. Trees shall have single straight trunks, unless otherwise indicated by the contract drawings, growing from a single unmutilated crown of roots. No part of the trunk shall be conspicuously crooked as compared with normal trees of the same variety. Tree trunks shall be free from sunscald, frost cracks, disfiguring knots or wounds resulting from abrasions, fire or other causes. All abrasions and cuts

shall be completely callused over. No pruning wounds shall be present having a diameter exceeding two inches and such wounds must show vigorous bark on all edges. No trees which have had their leaders cut will be accepted.

2.07 STAKING MATERIALS

- a. Stakes for trees shall be wooden, as shown in the contract drawing details.
- b. Flexible braided nylon webbing shall be 'Arbortie', or approved equal. Nylon webbing shall be three-quarters ($\frac{3}{4}$) inch wide and have a tensile strength of nine hundred (900) pounds.

2.08 TREE PAINT

- a. Tree paint shall not be permitted to be used.

2.09 ANTITRANSPIRANTS

- a. Antitranspirant shall be 'Wilt-Pruf', manufactured by Nursery Specialty Products, Inc., Groton Falls, New York, or approved equal. It shall be delivered in the manufacturer's containers and used in accordance with the manufacturer's instructions.

2.10 PESTICIDES

- a. No pesticide shall be used on-site without the knowledge and prior approval of the Engineer. Pesticides shall be E.P.A. registered and approved for use in public open spaces. All pesticides shall be handled by State licensed operators only, delivered in the manufacturer's containers, and used in accordance with the manufacturer's instructions.

2.11 HERBICIDES

- a. Herbicide shall be glyphosate contact, 'Roundup', manufactured by Monsanto, Inc., or approved equal. It shall be delivered in the manufacturer's containers, and used in accordance with the manufacturer's instructions.

2.12 ZINC PLANTERS

- a. Free-standing planters shall be zinc as manufactured by Authentic Provence, West Palm Beach, Florida, 1-561-805-9995. Interior planters shall be Model #PM-1001-d. Exterior planters shall be Model # PM-1007-d.

PART III – EXECUTION

3.01 PLANT LOCATIONS

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PLANTING

- a. All plant locations and outlines for planting beds shall be staked out on the ground and approved by the Engineer before any excavation is begun. If it is necessary to adjust any of the locations, because of unforeseen problems, the changes shall be under the direction of the Engineer and there shall be no extra charges for these adjustments.

3.02 PLANTING HOLE EXCAVATIONS

- a. Planting holes for trees shall be at least two (2) feet greater in diameter than the spread of the root ball or root system; holes for shrubs shall be at least one (1) foot greater in diameter than the root ball. Planting holes shall not be deeper than the height of the root ball. The walls of the hole shall be sloped, wider at the top than at the bottom, and shall be scarified to eliminate glazing.

3.03 PLANTING TREES, SHRUBS AND GROUNDCOVERS

- a. All ties, tags, rope, twine and/or other materials that would potentially girdle plant stems, trunks or branches shall be removed prior to planting.
- b. Plants shall be moved being lifted by their root ball masses and shall be set to the lines and grades as shown in the contract drawings. All trees and shrubs shall be faced properly, plumbed straight and planted at the center of the planting pits, at the same level as they had been previously grown.
- c. Balled and Burlapped Trees and Shrubs
 1. Root ball masses of balled and burlapped (B&B) plants shall not be disturbed, loosened, broken or otherwise damaged during planting operations. All tying materials, twine and ropes shall be cut off and removed. Biodegradable burlap shall be laid back and/or cut away from the top half of the ball. No burlap shall be pulled out from under the ball. Any and all non-biodegradable materials, synthetic and/or treated burlap, shall be entirely removed prior to planting. If a wire basket is present, the upper two-thirds (2/3) of the metal basket shall be cut away and removed. Do not remove the entire basket.
- d. Container Grown Plants
 1. Container plants shall be removed from the grow container before planting. If roots are densely matted, the outer root mass shall be scored, sliced vertically with a sharp knife to separate roots.
- e. Groundcover Planting

1. All groundcover plants shall be evenly spaced to produce a uniform effect, and staggered in rows at intervals detailed in the contract drawings.
- f. Planting pits shall be backfilled with the existing, unamended soil removed from the hole, or prepared soil mix, as specified in the contract drawings, in layers not to exceed eight (8) inches. Each layer is to be tamped firmly and watered to sufficiently settle the backfilled soil. When the pit is approximately two-thirds (2/3) backfilled, water deeply and thoroughly, allowing it to drain through undisturbed. Continue backfilling and tamping in eight (8) inch layers until soil is at the level at which the plant was formerly grown. Water thoroughly and adjust soil level.
- g. At the time of planting, during backfill, install fertilizer at a depth of six (6) to eight (8) inches, equally spaced around the plant. Packets and/or granular applications shall be placed approximately three (3) inches away from the plant roots or root ball. Packets shall not be cut, ripped or otherwise damaged. If it becomes necessary to remove and replace dead or unhealthy plants, any damaged or broken packets shall be replaced.
 1. The Contractor shall follow the manufacturer's recommendation for fertilizer packets or granular applications to trees and shrubs.
- h. The planting mixture shall be spread around the plant to form a temporary saucer, a minimum of three (3) inches deep and equal to the diameter of the planting hole. On slopes, a ridge of soil shall be formed on the downhill side to catch and hold water. Saucers shall not be formed around individual plants in planting beds.
- i. After all planting and watering, soil in planting beds shall be cultivated and raked smooth to eliminate compaction between the planting pits.
- j. All plants shall be flooded with water twice within the first twenty-four (24) hours from the time of planting.
- k. Immediately after planting operations are complete, all tree saucers and plant beds shall be covered with an approved mulch to a depth of no less than three (3) inches. Mulch shall not contact tree trunk bark, nor cover the root flare. No mulch shall be applied prior to the first watering.
- l. All thin barked, deciduous, non-evergreen trees shall be wrapped immediately after they are planted and before they are staked. Tree trunks shall be wrapped spirally from the bottom to the top with the specified wrapping material and secured. The wrapping shall overlap and completely cover the trunk from the ground to the height of the first branch and shall be neat and snug. Overlap shall be approximately two (2) inches. Wrapping shall be tied securely in place with jute twine.

- m. All trees shall be staked or guyed, in accordance with standard practice. Care shall be taken to ensure that the stakes do not pierce the root ball mass and that stakes and guying will not create pedestrian or vehicular hazards. Tree trunks shall be secured at one-third (1/3) the height of the tree with flexible nylon webbing, fastened to staking apparatus. The Contractor shall remove all staking apparatus, stakes, and guys after one (1) growing season.
- n. Immediately after planting and staking, spray all plant material with an approved antitranspirant, applied in strict accordance with the manufacturer's recommendations.

3.04 PRUNING NEW PLANTS

- a. Trees and shrubs shall be pruned in accordance with American Association of Nurserymen Standards to preserve the natural character of the plant.
- b. Trees shall be pruned only after the plant has been completely planted. All large pruning cuts, one-half (1/2) inch diameter and larger, shall be made along the bark branch ridge. Pruning cuts shall not be made to breach or otherwise interfere with the branch collar. All pruning cuts less than one-quarter (1/4) inch diameter shall be made with a sharp pair of hand pruners as close to the main stem as possible without damaging the cambium or bud.
- c. All dead or dying limbs and tips, sucker growth, water sprouts, crossing or rubbing branches, broken or damaged branches, and/or diseased or insect infested limbs shall be removed. Questionable weak limb and branch removal that may disfigure the tree should be left for final approval by the Engineer.
- d. Never cut the tree leader.
- e. Any and all pruning shall be done with clean, sharp tools.
- f. Tree paint shall not be used to cover pruning cuts.

3.07 MAINTENANCE

- a. Maintenance shall begin immediately after each plant is planted and shall continue until final acceptance of the project.
- b. Maintenance shall consist of keeping plants in a healthy viable growing condition. Plants shall be watered, mulched, weeded, pruned, sprayed, fertilized, cultivated, and otherwise maintained and protected. Settled plants shall be reset to proper grade and position, planting saucer restored and dead material removed. Stakes and guys shall be tightened and repaired. Defective work shall be corrected as soon as possible after it becomes apparent and weather and season permit.
- c. Planting beds and individual plant pits shall be kept free of weeds. Mulch shall

be replaced as required to maintain a three (3) inch depth. Beds and individual pits shall be neat in appearance and maintained to the original laid out lines.

- d. Planting areas that have been compacted for any reason during planting operations and/or the maintenance period, shall be recultivated by the Contractor, at his expense.
- e. Application of pesticides shall be included during the maintenance period, as required, with approved materials, at clearly announced and safe hours, by a State licensed pesticide operator.
- f. Sidewalks and other paved areas shall be kept clean during planting and maintenance operations.
- g. Upon completion of planting, excess soil and debris shall be removed from the site, and all damage resulting from planting operations shall be repaired.
- h. Planting areas and plants shall be protected against trespassing and damage of any kind for the duration of the maintenance period. This shall include the provisions and installation of approved temporary fencing if necessary. If any plants become damaged during the maintenance period, they shall be treated or replaced as directed by the Engineer, at no additional cost to the Owner.

3.08 GUARANTEE

- a. All plant materials shall be guaranteed for a period of one (1) year after the completion of the specified maintenance period and the date of final acceptance of the entire project, in writing from the Landscape Architect. Plants shall exhibit satisfactory growth and have no less than seventy-five percent (75%) of their branches alive at the end of the guarantee period. If the leader of any single-leader species is dead, the entire plant shall be considered dead.
- b. All replacements shall be plants of the same kind and size specified on the PLANT LIST. They shall be furnished and planted as specified above. The cost shall be borne by the Contractor. Replacements resulting from the removal, loss or damage, vandalism or acts of neglect on the part of others, physical damage by animals, vehicles, etc., and losses due to curtailment of water by local authorities, will be approved and paid for by the Owner.
- c. At the end of the guarantee period, inspection will be made again. Any plant required under this Contract that is dead or unsatisfactory shall be removed from the site. These shall be replaced during the normal planting season, until the plants live through one (1) year.

END OF SECTION

SECTION 03300

CEMENT CONCRETE – CAST IN PLACE

PART I - GENERAL

1.01 SCOPE OF WORK

- a. The work under this section shall consist of furnishing all labor, materials, equipment, transportation, reinforcing, forming, finishing and curing of cast in place concrete.

1.02 TEST SPECIMENS

- a. Test specimens shall conform to the requirements of Subsection M4.02.13 of the M.D.P.W. Standard Specifications.
- b. Standard test cylinders to determine the compressive strength of the concrete as mixed for the work shall be made by the Contractor in the presence of the Engineer at the site. In addition to furnishing the concrete for the test specimens, the Contractor shall furnish approved cylindrical molds (6" x 12") and assist in sampling, fabricating, protecting and curing the specimens. A test cylinder may be ordered from each day's concrete. The Contractor shall include the cost of test cylinders under his base bid.

1.03 REFERENCE STANDARDS AND SPECIFICATIONS

- a. Reference to the standards, specifications and tests of technical societies, organizations, and governmental bodies is made of the Contract Documents.
 1. AASHTO - American Association of State Highway And Transportation Officials (tests or specifications).
 2. ASTM - American Society of Testing and Materials.
 3. M.D.P.W. Standard Specifications - Latest edition of the Standard Specifications for Highways, Bridges and Waterways, The Commonwealth of Massachusetts, Department of Public Works, 1988 Edition.
 4. Plate #206.4.0, M.D.P.W., Construction Standards, March 1977, as attached.

1.04.1 JOB CONDITIONS

- a. Examine all surfaces to receive concrete to see that they are in proper condition to receive the work specified. Report to the Engineer in writing all unacceptable surfaces. Starting work in any area shall constitute the Contractor's acceptance of that surface. All defects resulting from use of accepted surfaces shall be corrected by the Contractor at no additional expense to the owner.
- b. Subbase and base preparation, including material shall be of proper approved quality as specified under other sections of these Specifications. Start of work under this SECTION shall constitute acceptance of the foundation conditions to which this work is to be applied. Any defects in work resulting from such conditions shall be corrected under this section at no extra cost to the Owner.
- c. Maintain base in satisfactory condition and properly drained until surface improvement is placed.

PART II - MATERIALS

2.01 GENERAL

- a. Unless otherwise specified, all materials shall conform to the relevant provisions of Section 901, CEMENT CONCRETE MASONRY, and Section M4, CEMENT AND CEMENT CONCRETE MATERIALS, of the Massachusetts Standard Specifications.

2.02 CONCRETE

- a. Cement concrete to be used shall be Class 4,000 PSI according to the classification defined in the Massachusetts Standard Specifications and shall meet the following requirements.

CLASS MINIMUM 28 DAY COMPRESSIVE STRENGTH	CEMENT CONTENT LBS/CY FOR COURSE AGGREGATE
4,000 PSI	610

AIR-ENTRAINED CONTENT OF 7.0 +/- 1.0%

2.03 FORMWORK

Forms shall be strong enough to resist pressure of the concrete without springing, and tight enough to prevent leakage of mortar. Forms shall be staked, braced, or tied together to maintain their position and shape when concrete is compacted in place. Forms shall be clean and shall produce a smooth, even finish for exposed surfaces.

2.04 REINFORCING (AS REQUIRED)

- a. Welded wire fabric shall be 6" x 6", W1.4 x W1.4 gauge cold-drawn steel wires formed into a mesh and welded together at points of intersection in conformance with ASTM A-185-70. Welded wire fabric shall be furnished in mats and not rolls.
- b. Reinforcing bars shall consist of deformed bars unless otherwise specified. The bars will be rolled from new billet steel conforming to the requirements of AASHTO-M31, Grade 60.
- c. All reinforcement shall be free from imperfections and surface coatings of rust, dirt, oils, paint, grease, and mill scale and shall present a clean, fresh surface when placed in the structure. Rust that occurs in scales or that pits the steel will be considered an imperfection, but the surface shall be brushed to remove loose material.
- d. Dowels for installation at expansion joints, as detailed, shall be #4 smooth steel dowels, paper capped at one end.

2.05 PREFORMED EXPANSION JOINT FILLER

Preformed expansion joint filler shall be of a non-extruding and resilient non-bituminous type conforming to AASHTO-M135

2.06 POLYURETHANE SEALANT

- a. Polyurethane Joint Sealant shall be cold applied, elastomeric joint sealing compound suitable for use on horizontal joint Portland cement concrete surfaces and shall conform to the Commonwealth of Massachusetts, Department of Public Works, Standard Specifications for Highways and Bridges, 1988 Edition, Section M9.14.3, except that only single component sealants shall be utilized.

PART III - EXECUTION

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CEMENT CONCRETE – CAST IN PLACE

3.01 GRADING AND COMPACTION OF SUBGRADE AND BASE

- a. Do all grading and compaction of subgrade and base in conformance with Section 2.04 of these Specifications.
- b. Bring subbase and base to required grades and sections after final compaction. Tamp traces of trenches. Remove spongy and otherwise unsuitable material and replace with approved material. Loosen exceptionally hard spots and recompact. Take every precaution to obtain a foundation of uniform bearing capacity. In absence of specific requirement, compact subbase and base by such means to provide firm base and insurance against settlement and cracking of superimposed work.

3.02 GENERAL FORMWORK

- a. Forms shall be smooth, free from warp, sufficient in strength to resist springing out of shape, equal in height to the depth of concrete, and free from all dirt or mortar if previously used. The forms shall be rigidly supported, well staked, thoroughly braced and set to the proper lines with the upper edges conforming to the finish grades. Forms shall be coated with non-staining mineral oil prior to placing concrete.
- b. Forms shall not be removed for at least twenty-four (24) hours after the concrete has been placed, or for a longer period if directed by the Engineer. Extreme care shall be taken in removing forms in order to prevent damage to the concrete. Under no conditions shall any bar, pick or other tool be used which depends upon leverage on the concrete for removal of the forms.

3.03 CAST-IN ITEMS

- a. Reinforcing shall be placed as shown on the plans.

3.04 CONCRETE PLACING AND FINISHING

- a. Placing and finishing of cement concrete pavements on grade.
 1. The concrete shall be placed in such quantity that after being thoroughly consolidated in place it shall be to the lines, grades and thicknesses indicated. No finishing operation shall be performed until all bleed water and water sheen has left the surface and the concrete has started to stiffen. After water sheen has disappeared, edging operations where required shall be completed. All tool marks shall be eliminated. After edging and jointing operations, the surface shall be floated with aluminum or magnesium floats. Immediately following floating, the surface shall be

steel-troweled. After trowelling, the Contractor shall draw a fine nylon push broom lightly over the surface to produce a non-slip condition. If necessary, tooled joints and edges shall be rerun before and after trowelling to maintain uniformity and all tool marks shall be eliminated by brooming.

- b. Placing and finishing of cement concrete walls, curbs, steps and other structures.
1. Concrete placing and finishing shall be in accordance with applicable provisions of Section 9.01 of the Commonwealth of Massachusetts Standard Specifications referenced herein.
 2. In conveying the material from the place of mixing to the place of deposit, the operation shall be conducted in such a manner that no cement will be lost, and the concrete shall be so handled that it will be of uniform composition throughout, showing neither excess nor lack of cement in any area.
 3. Concrete shall be placed in the forms in an approved manner in order to prevent stone pockets, voids or segregation and to reduce rehandling and flowing in the forms to a minimum. Concrete shall be evenly distributed in the forms. Each layer shall be thoroughly consolidated by rodding and vibrating. The face of the forms shall be carefully spaded to bring a dense mortar to the face in order to produce a good surface finish. Compaction shall be accomplished by applying approved mechanical vibrators to the mass of concrete at the point and time of deposit using care to avoid over vibration. Vibration of forms or reinforcing shall not be permitted and extreme care shall be taken to prevent disturbing previously placed concrete which has become partially set.
 4. Within forty-eight (48) hours after forms have been removed, all surfaces shall be finished as follows: Remove all fins, projections and irregularities from surfaces exposed to view. All voids and cavities on all surfaces shall be completely filled with stiff mortar of same composition and air-entrainment as the mortar in the original concrete mix. The same brand and color of cement, and the same kind and color of fine aggregate used in the original concrete mix shall be used in this mortar. The mortar shall be mixed, allowed to set for thirty (30) minutes and then remixed before placing in the work. Carefully remove surface film from these pointed areas before the mortar sets. If surfaces exposed to view do not present a uniformly smooth, clean surface of even texture and appearance when prepared in accordance with the foregoing, they shall be rubbed to obtain a satisfactory finish. Surfaces shall be wetted with clean water and rubbed with a carborundum brick without applying any cement or other coating until smooth and uniform in appearance.

5. Protection and curing shall be accomplished by one of the applicable methods specified in Section 901 of the Massachusetts Standard Specifications.
6. The Contractor shall be responsible for the quality and strength of the concrete. Inferior concrete, including that damaged by frost action, shall be removed and replaced at no additional cost to the Owner.
7. Existing concrete work damaged by the Contractor during operations under this contract shall be restored to the original condition acceptable to the Engineer.

PART IV - GUARANTEES

4.01 WARRANTEE

- a. The Contractor shall be responsible to repair or replace any concrete exhibiting deficient materials or workmanship within one (1) year of final acceptance.

END OF SECTION

SECTION 03320

CEMENT CONCRETE MOWSTRIP

PART I - GENERAL

1.01 SCOPE OF WORK

The work to be done in this section shall be to construct a cast in place reinforced concrete mower strip as located and detailed in the plans and as specified herein. The Contractor shall furnish all labor, material, equipment and transportation necessary to accomplish this task.

1.02 REFERENCE STANDARDS

- a. References herein to any technical society, organization, group of body are made in accordance with the following abbreviations.

AASHTO American Association of State Highway and Transportation Officials

ANSI American National Standards Institute

ASTM American Society for Testing Materials

- b. "Massachusetts State Specifications" refers to the Standard Specifications for Highways and Bridges, 1988 Edition and all supplements thereto, as published by the Commonwealth of Massachusetts, Department of Public Works.

PART II - MATERIALS

2.01 Gravel base shall conform to Section 02355 of these Specifications.

2.02 Forms, reinforcing steel and cement concrete cast-in-place shall conform to Section 03300 of these Specifications.

2.03 All fence posts shall be set into place in accordance with shop drawings and fencing layout; mower strip to be poured between post footings with tooled construction joints.

2.04 Cement Concrete shall conform to Section 03300 of these Specifications.

2.05 Preformed expansion joint filler shall be of a non-extruding and resilient non-bituminous type conforming to AASHTO-M135.

PART III- EXECUTION

- 3.01 Excavation shall conform to these Specifications.
- 3.02 Placement and compaction of processed gravel shall conform to Section 02355 of these Specifications.
- 3.03 Placement of reinforcing steel shall conform to Section 03300 of these Specifications; coordinate with fencing sections; cast cement concrete against post footings and tool joints.
- 3.04 Placement and Finish of Cement Concrete: The concrete shall be placed in such quantity that after being thoroughly consolidated in place it shall be six (6) inches or twelve (12) inches in depth as designated on the plans and details. No finishing operation shall be performed until all bled water and water sheen has left the surface and the concrete has started to stiffen. After water sheen has disappeared, edging operations where required shall be completed. All tool marks shall be eliminated. After edging and jointing operations, the surface shall be floated with aluminum or magnesium floats. If necessary, tooled construction joints and edges shall be rerun to maintain uniformity.
- 3.05 Curing of cement concrete shall conform to Section 03300 of these Specifications.

END OF SECTION

SECTION 03370

CEMENT CONCRETE PAVEMENT

PART I - GENERAL

1.01 SCOPE OF WORK

- a. The work under this Section shall include the furnishing and construction of cement concrete walks, gutters and pavement areas to the lines and grades shown on the plans and in accordance with these Specifications.
- b. Cement concrete pavements shall contain haunches, swales or gutters as indicated on the drawings and in general, shall match the widths, lines and cross sections of existing cement concrete walks to be retained.

1.02 REFERENCE STANDARDS AND SPECIFICATIONS

- a. Reference to the standards, specifications and tests of technical societies, organizations, and governmental bodies is made in the Contract Documents.
 1. AASHTO - American Association of State Highway and Transportation Officials (tests or specifications).
 2. ASTM - American Society for Testing and Materials.
 3. Mass. Standard Specs. - Latest edition of the Standard Specifications for Highways, Bridges and Waterways, 1988 Edition, the Commonwealth of Massachusetts, Department of Public Works, hereinafter referred to as "the MDPW Standard Specifications."

PART II - MATERIALS

2.01 GRAVEL BORROW

- a. Gravel Base as specified in Section 02355 of these Specifications.

2.02 CEMENT CONCRETE

- a. Cement Concrete as specified in Section 03300 of these Specifications.

2.03 EXPANSION JOINTS

- a. Premoulded non-extruding resilient non bituminous type filler conforming to AASHTO-M135 per Section 9.01 of these Specifications.

2.04 SEALANT

- a. Clear, matte-finish polyurethane sealant per Section 09980 of these Specifications.

2.05 CURING COMPOUND

- a. Type 2 liquid membrane forming compound for curing concrete ASTM C-309-58.

2.06 REINFORCING

- a. All steel reinforcing and dowels, as required, shall be in conformance with Section 03300 of these Specifications. Dowels shall be incorporated at the intersection of all new and existing cement concrete walkways.

PART III - EXECUTION

3.01 SUBGRADE

- a. The subgrade for the walk shall be shaped to a true surface conforming to the proposed slope of the walk, thoroughly rolled at optimum moisture content and tamped with a power roller weighing not less than one (1) ton and not more than five (5) tons. All depressions occurring shall be filled with suitable material and again rolled or tamped until the surface is smooth and hard.

3.02 BASE

- a. After the subgrade has been prepared as herein before specified, a base of gravel borrow, at optimum moisture content, shall be placed upon it and shall be thoroughly rolled by a power roller and tamped.

3.03 FORMS

- a. The forms for one (1) course sidewalks shall be smooth, free from warp, of sufficient strength to resist springing out of shape, and of depth to conform to the thickness of the proposed walk. All mortar or dirt shall be completely removed from forms that have been previously used. The forms shall be well stacked and thoroughly braced and set to the established lines with their upper edge conforming to the grade of the finished walk, which will have sufficient pitch from the outside to the edge of the walk to provide for surface drainage, but which shall be three-eighths (3/8) inch per one (1) foot unless shown otherwise on the plans or directed by the Supervisor. Before the concrete is placed the subbase shall be thoroughly dampened so that it is moist throughout, but without puddles of water. The concrete shall be placed to as under to the final a position as practicable with precautions taken not to overwork it while it is still plastic. The

concrete shall be thoroughly spaded along the forms or screeded to eliminate voids or honeycombs at the edges.

3.04 EXPANSION JOINTS

- a. Expansion joints shall be located as shown on the plans and details and as directed by the Engineer.

3.05 CONCRETE

- a. On the base specified above, the concrete shall be thoroughly consolidated in place. Concrete shall be placed to the limits and to the depths indicated on the details. Install concrete haunches at all designated locations. In conveying the concrete from the place of mixing to the place of deposit, the operation must be conducted in such a manner so that no mortar will be lost, and the concrete must be so handled that the concrete will be of uniform composition throughout, showing neither excess nor lack of mortar in any one place. The concrete materials shall be mixed to produce a concrete of such consistency that the water will flush to the surface under heavy tamping. Retampering of the concrete will not be permitted. The application of neat cement to the surface in order to hasten hardening is prohibited. Experienced and competent cement finishers approved by the Engineer shall do the finishing of concrete surface.

3.06 FINISH

- a. No finishing operation shall be performed until all bled water and water sheen has left the surface and the concrete has started to stiffen. After water sheen has left the surface and the concrete has started to stiffen, edging operations where required shall be completed. All tool marks shall be eliminated. After edging and jointing operations, the surface shall be floated with aluminum or magnesium floats. Immediately following floating, the surface shall be steel-troweled. After trowelling, the Contractor shall draw a fine nylon push broom lightly over the surface to produce a non-slip condition. If necessary, tooled joints and edges shall be rerun before and after trowelling to maintain uniformity and all tool marks shall be eliminated by brooming.

3.07 CURING

- a. Type 2 pigmented liquid membrane-forming curing compound shall be applied immediately following final finishing before any marked dehydration of the concrete or surface checking occurs. The compound shall be applied in one or two applications, as directed by the Engineer. When the compound is applied in two applications, the second shall follow the first within thirty (30) minutes. The compound shall be applied in a continuous film by means of power-operated pressure spraying equipment at a rate not less than one gallon per two hundred

(200) square feet of surface. Sufficient pressure shall be applied to the spray machine to force the compound to leave the nozzle as a fine spray. The material shall adhere to the surface and make a tight bond to the concrete but shall have a fugitive dye. The compound shall form a uniform continuous coherent film that will not check, crack, or peel, and be free from pinholes or other imperfections.

- b. Whenever the atmospheric temperature is ninety degrees F (90°F) or more, the Engineer shall have the right to require a second application of compound at no expense to the Town. Any section damaged by rain or in any other way before the compound has dried to a stable coating shall be retreated by the Contractor at no additional expense to the Town.
- c. Concrete surfaces to which the compound has been applied shall be protected for a period of at least three (3) days. All vehicular and pedestrian traffic is considered injurious to the film of the applied compound. Any damage to the film within the three (3) day period shall be promptly repaired by application of the compound. Adequate protection shall be provided where temperatures of forty degrees F (40°F) or lower occur during placing of concrete and during the early curing period. The minimum temperature of fresh concrete after placing and for the first three (3) days shall be maintained above fifty-five degrees F (55°F). In addition to the above requirements, an additional three (3) days of protection from freezing shall be maintained.

END OF SECTION

SECTION 03410

PRE-CAST CONCRETE CURB AND BLOCK

PART I - GENERAL

1.01 SCOPE OF WORK

- a. The work to be performed under this Section consists of the furnishing of all labor, materials, equipment and transportation required to install precast concrete blocks as shown on the Contract Drawings and as specified, including excavation, removals, subgrade preparation and compaction.

1.02 SUBMITTALS

- a. Submit catalogue cuts or shop drawings of the precast concrete blocks to be furnished under this Section.
- b. Shop drawings shall provide certification of concrete aggregate, air entrainment, and total lineal footage for straight sections plan referenced.

PART II - MATERIALS

2.01 CONCRETE BLOCK

- a. All material shall be new, hard and durable concrete minimum four thousand (4000) psi with air content per ASTM C173 of a quality approved by the Landscape Architect, free from seams, depressions or other imperfections, and shall be of uniform color throughout and shall in lengths of not less than six (6) feet, except where other dimensions are given. Surfaces shall be rubbed with carborundum stone to remove all laitance or imperfections.
- b. Any form mark in excess of one-eighth (1/8) inch shall be removed.
- c. Exterior corner shall be chamfered at a 45 degree angle. Dimensions for chamfer shall be reviewed through the shop drawing process and approved prior to ordering.
- d. Protect blocks until accepted by the Owner.

2.02 MORTAR (AS REQUIRED)

- a. Mortar for joints shall be composed of one (1) part Portland Cement conforming to AASHO M-85 and two (2) parts sand for cement mortar with sufficient water for forming a workable mixture.

2.03 CONCRETE

- a. Concrete for setting bed and keying the blocking in place shall conform to Section 03300 of these Specifications.

PART III - EXECUTION

3.01 SUBGRADE PREPARATION

- a. The subgrade shall be constructed true to grade and cross section. The subgrade shall be of materials equal in bearing quality to the subgrade under the adjacent roadway, street or open storage areas and shall be placed and compacted to conform to applicable requirements of Section 02350 of these Specifications.
- b. As applicable, the subgrade shall be tested for grade and cross section by means of a template extending the full width including blocks, gutters, and entrances.
- c. The subgrade shall be maintained in smooth compacted condition, in conformity with the required section and established grade. The subgrade shall be in a moist condition when block is set. In cold weather, the subgrade shall be prepared and protected so as to produce a subgrade free from frost when the blocking is set. All subgrade materials shall be compacted to ninety-five percent (95%) dry density per AASHTO-T-180-86 Modified Proctor tests.

3.02 SETTING PRE-CAST BLOCK AND CURB PIECES

- a. Place block sections on prepared bed area. Blocks should be set to grades and horizontal controls indicated on Contract Drawings. Note top and bottom of block spot elevations as reveals may be varied; twelve (12) inch reveal is typical for all terraced seating areas.
- b. Set blocks butt tight to each succeeding piece and no top shall project above the adjoining section by more than one eighth (1/8) inch. Pieces will be reset as required at no extra cost to the Owner.

- - - END OF SECTION - - -

SECTION 05000

MISCELLANEOUS METALS

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

- A. All of the Contract Documents, including the General and Supplementary Conditions and Division 0 – Bidding Documents, Contract Forms, and Conditions of the Contract and Division 1 – General Requirements, apply to the work of this Section.
- B. Carefully examine all the Contract Documents for requirements which affect the work of this Section. The exact scope of this Section cannot be determined without a thorough review of all specification sections and other Contract Documents.

1.02 REFERENCES

- A. The General Documents, as listed on the Table of Contents, and applicable parts of Division 1, GENERAL REQUIREMENTS, shall be included in and made a part of this Section.
- B. Examine all Drawings and all other Sections of the Specifications for requirements therein affecting the work of this trade.

1.03 WORK INCLUDED

- A. The work of this Section consists of all miscellaneous site metals and related items as indicated on the Drawings and/or as specified herein and includes, but is not limited to, the following:
 - 1. Skate stops
 - 2. Hand Railings
- B. Under work of this Section provide color finish for material items furnished under SITE FURNISHINGS Section.

1.04 RELATED WORK UNDER OTHER SECTIONS

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

1. Site Furnishings
2. Concrete
3. Curbing

1.05 STANDARDS

A. The following standards including all current amendments form a part of these Specifications:

1. American Society for Testing and Materials (ASTM):

A36	Structural Steel
A53	Pipe, Steel, Black and Hot-Dipped, Zinc Coated, Welded and Seamless
A120	Pipe, Steel, Black and Hot-Dipped Zinc Coated (Galvanized), Welded and Seamless, for Ordinary Uses
A307	Carbon Steel Externally and Internally Threaded Standard Fasteners
A325	High Strength Bolts for Structural Steel Joints
A500	Cold Formed Welded and Seamless Carbon Steel Structural Tubing Rounds and Shapes

2. American Welding Society (AWS):
D1.1 Structural Welding Code

3. Steel Structures Painting Council (SSPC):
SSPC Surface Preparation Specifications

1.06 SAMPLES AND SUBMITTALS

A. At least thirty days prior to intended use, the Contractor shall provide the following samples and submittals for approval in conformance with requirements this specification. Do not order materials until Landscape Architect's approval of samples, certifications or test results have been attained. Delivered materials shall closely match the approved samples.

1. Shop Drawings: Submit detailed shop drawings for each item required to be fabricated or installed under work of this Section. Include plans, sections, and details as required to show completely materials, layout, jointing, clearances and connections for all items required. Shop drawings for handrails at stairs and at other site conditions requiring accurate dimensional relationships to as-built construction shall be prepared following a review and confirmation of as-built measurements and conditions for areas scheduled to receive miscellaneous metal items. Submit shop drawings for the following:
 - a. Skate stops
 - b. Handrails
2. Material Samples: Submit samples for each material for the following:
 - a. Railing tube material and finishes – submit one (1) sample
 - b. Sheet metal material and finishes – submit three (3) samples of finishes for brushed stainless steel per manufacturer’s recommendation and Owner’s direction.
3. Manufacturer's Literature: Submit three (3) copies each of manufacturer's material descriptions and installation instructions for the following:
 - a. Non-shrink cement grout,
 - b. Sealant.
4. Finishing Schedule: Submit a complete schedule outlining all items to be color finished under work of this Section together with a breakdown of surface preparation techniques and primer and color finish materials to be applied.

PART 2 - PRODUCTS

2.01 SKATE STOPS

- A. Skate stops shall be Model # FA135 as manufactured by Intelliccept, 1444 Pioneer Way. Ste 13, El Cajon, CA 92020-1640. Telephone (619) 447-6374 or approved equal.

2.02 STEEL PIPE HANDRAILS

- A. Steel pipe for straight sections and for pipe sleeves shall be schedule 40 circular

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Waltham, Massachusetts

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seamless steel pipe in accordance with ASTM A120.

- B. Steel pipe for all railings with curved sections shall be Schedule 40, circular, seamless steel pipe in accordance with ASTM A53 requirements. Curves shall be formed to maintain uniform cross-section of pipe and to produce smooth and continuous alignments.
- C. Square or rectangular steel tubing as required, shall conform to requirements for ASTM A500, Grade B, structural steel tubing. Wall thickness shall be one-eighth inch (1/8") or as detailed.
- D. Steel hardware for designated structural purposes shall conform to ASTM A325 requirements for galvanized hardware.
- E. Handrail, guardrail, and tubular steel pipe size shall be one and one-half inches (1.5") O.D. unless designated otherwise on the details.
- F. Fabrication: Steel railings shall be fabricated in accordance with details, specifications and approved shop drawings. Steel fabrication shall be accomplished using the highest standards of workmanship. Individual steel pieces shall be saw-cut, formed with "fish-mouth" joints, and shall be full seam welded, ground smooth and sanded to produce a high standard of surface smoothness. No grinding marks shall be visible in the finished work.
- G. Welding shall be in conformance to AWS code.
- H. Following fabrication, pipe rails shall be painted in accordance with metal finishing in Section 09900 PAINTING.
- I. Cement grout for anchoring of railings shall be a pourable, quick-setting, non-metallic and non-shrinking hydraulic cement grout equal to "Por-Rok Cement" supplied by Waldo Bros., Roslindale, MA, "Rockite" as manufactured by Hartline Co., Cleveland, OH, "Wedj-Rok" as manufactured by Metalcrete Manufacturing Co., Cleveland, OH, or approved equal.
- J. Sealants shall be polyurethane-based, one component, elastomeric sealants complying with Fed. Spec. TT-S-00230C, Class A, Type 2. Color to be selected by Landscape Architect. Sealants shall be non-sag, gun-grade type, equal to the following:
 - a. Vulkem 116, as manufactured by Mameko International, Cleveland, OH.

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- b. Sikaflex 1-a, as manufactured by Sika Corp., East Hartford, CT.
- c. Dynatrol 1, as manufactured by Pecora Corporation and supplied by Waldo Brothers, Boston, MA.
- K. Poured-in-place concrete footings, where required, shall conform to requirements for twenty-eight (28) day compressive strength 3,000 psi, three-quarter inch (3/4") aggregate concrete, in accordance with requirements of Section 03300, CAST-IN-PLACE CONCRETE.
- L. FINISHES shall be as follows: Cold galvanizing compound shall be a single component zinc rich compound yielding a dry film of at least 85% pure zinc. Galvanizing compound shall meet or exceed the requirements of Federal Specification MIL-P-21035, TT-P-641d primer for zinc rich compounds. Finish color coating shall be Color Galvanized Black as provided by Duncan Galvanizing, Inc., or approved equal.

2.03 ANCHORING CEMENT

- A. Cement for anchoring posts in sleeves embedded in concrete walls or walkway haunches shall be "SUPER POR-ROK", as manufactured by Hallemite (Lehn and Fink Industrial Products Division of Sterling Drugs, Inc.), Montvale, New Jersey, or approved equal.

2.04 MISCELLANEOUS HARDWARE

- A. Steel dowels for anchoring or aligning concrete and granite work described under Other Sections shall be fabricated of AISI Type 304 stainless steel, meeting requirements of ASTM A276.
- B. Miscellaneous stainless steel hardware as required for the project shall be 18-8 stainless steel (AISI Type 304).
- C. Bolts: 3/8" Dia. SS Kwik Bolt II Expansion Anchor – Countersunk Version by HILTI Inc., PO Box 21148, Tulsa, OK, 74121

PART 3 - EXECUTION

3.01 SKATE STOPS

- A. The skate stops shall be located along the pre-cast concrete curb every 4' o.c. for

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the length of the concrete blocks, seat walls and terraced seating.

- B. The skate stops shall be installed with the “smart pin plus” system of installation as manufactured by Intelliccept, 1444 Pioneer Way. Ste 13, El Cajon, CA 92020-1640. Telephone (619) 447-6374 or approved equal.
- C. Fasteners shall be hardened alloy steel with zinc plate.

3.02 STEEL PIPE HANDRAILS

- A Fabrication of rail sections shall be in strict conformance with the approved shop drawings.
- B All welding shall conform to the requirements of structural welding code AWDS1-1-79.
- D. All welds shall be ground smooth, and all sharp edges, burrs, and other potentially hazardous irregularities shall be ground smooth and otherwise removed prior to cold galvanizing

3.03 RAIL ERECTION

- A. Post sleeves, in the appropriate sizes, as shown on the drawings shall have been placed during the construction of the stairs in accordance with the details shown on the drawings and the pertinent provisions of Section 9.01 of these specifications.
- B. After the ramp and stairs have sufficiently set and cured, as determined by the Engineer, the handrail posts shall be positioned in the sleeves and temporarily wedged in place so that the handrail is vertically plumb and horizontally straight for its complete length.
- C. After the handrail has been satisfactorily positioned, the sleeves shall be filled with the approved anchoring cement with care taken not to create voids between the post and sleeves nor spill excess cement on adjacent concrete. The fence shall be braced in position until the cement has properly set. Any movement caused by the Contractor's negligence shall be remedied as directed by the Engineer.

3.04 TOUCH-UP OF SURFACES

- A. After erection, all scratches or abrasions in the color galvanized surface shall be repaired or replaced to the satisfaction of the Engineer.

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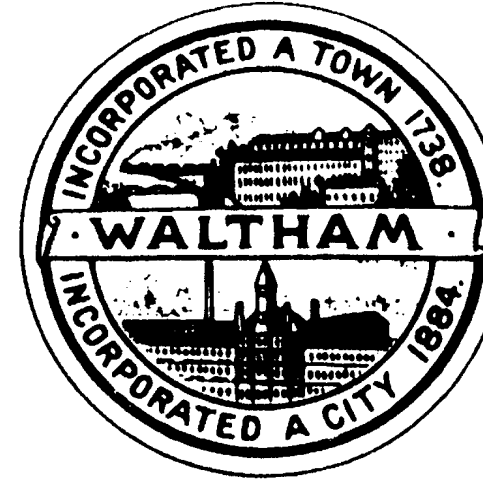
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- B. Fabricate and install steel pipe handrails in conformance to details, and approved shop drawings. Measure on-site conditions to receive rails prior to preparing shop drawings.
- C. For railings longer than twenty feet (20'), provide an internal sleeved expansion coupling joint at approximately fifteen foot on center (15' o.c.) intervals, using a six inch (6") length of internally sleeved pipe welded to one side of joint.
- D. At stairways and at other locations as directed, install railings within cored holes. Grout rails to within one-half inch (1/2") of top surface and provide a sealant joint to finished grade. Sealant color to be approved by Landscape Architect.

3.05 MISCELLANEOUS HARDWARE

- A. Furnish dowels and other miscellaneous hardware items for work of other Sections as specified and/or as required on the Drawings.
- B. All anchoring systems employed shall be vandal-proof.

--- END OF SECTION ---



PLANS FOR THE IMPROVEMENTS TO:

Lazazzero Park

7 Shore Road
Waltham, Massachusetts

Monsignor McCabe Playground

90 Charlotte Road / 69 Candace Avenue
Waltham, Massachusetts



Lazazzero Park



NOVEMBER 2011

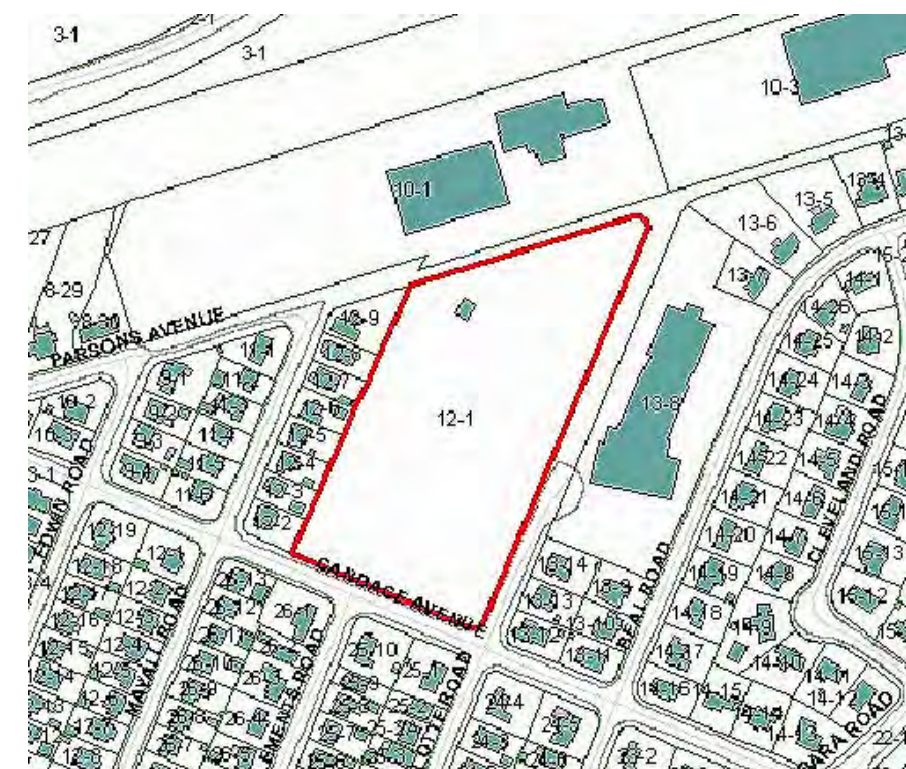
Prepared By

Weston&Sampson

100 Foxborough Blvd., S.250 Foxborough, MA
(508) 698-3034 (800) Sampson
www.westonandsampson.com



Monsignor McCabe Playground



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GENERAL NOTES

- REFER TO INDIVIDUAL PLANS FOR SURVEY NOTES.
- LOCATIONS OF ANY UTILITIES SHOWN ON THIS PLAN ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND PROTECTING ALL EXISTING UTILITIES AND REPAIRING ANY DAMAGE DONE DURING CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ON-SITE COORDINATION WITH UTILITY COMPANIES AND PUBLIC AGENCIES AND FOR OBTAINING ALL REQUIRED PERMITS AND PAYING ALL REQUIRED FEES. IN ACCORDANCE WITH M.G.L. CHAPTER 82, SECTION 40, INCLUDING AMENDMENTS, CONTRACTORS SHALL NOTIFY ALL UTILITY COMPANIES AND GOVERNMENT AGENCIES IN WRITING PRIOR TO EXCAVATION. CONTRACTOR SHALL ALSO CALL "DIG SAFE" AT (888) 344-7233 NO LESS THAN 72 HOURS (EXCLUSIVE OF WEEKENDS AND HOLIDAYS), PRIOR TO SUCH EXCAVATION. DOCUMENTATION OF REQUESTS SHALL BE PROVIDED TO PROJECT REPRESENTATIVE PRIOR TO EXCAVATION WORK.
- CONSULT ALL OF THE DRAWINGS AND SPECIFICATIONS AND COORDINATE REQUIREMENTS BEFORE COMMENCING CONSTRUCTION. CONTRACTOR AND SUB-CONTRACTOR SHALL BE FAMILIAR WITH ALL DRAWINGS PRIOR TO COMMENCING THE CONSTRUCTION.
- CONTRACTOR SHALL BE RESPONSIBLE FOR REVIEWING ALL DRAWINGS AND SPECIFICATIONS TO DETERMINE THE EXTENT OF EXCAVATION AND DEMOLITION REQUIRED TO RECEIVE SITE IMPROVEMENTS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR VISITING THE SITE AND REVIEWING THE ABOVE NOTED DRAWINGS AND ASSUMES RESPONSIBILITY OF VERIFYING ALL EXISTING CONDITIONS AND MATERIALS SHOWN WITHIN THE PROJECT CONTRACT LIMITS BEFORE BIDDING.
- ANY DISCREPANCIES OR CONFLICTS BETWEEN THE DRAWINGS AND EXISTING CONDITIONS, EXISTING CONDITIONS TO REMAIN, TEMPORARY CONSTRUCTION, PERMANENT CONSTRUCTION AND WORK OF ADJACENT CONTRACTS SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER BEFORE PROCEEDING. ITEMS ENCOUNTERED IN AREAS OF EXCAVATION THAT ARE NOT INDICATED ON THE DRAWINGS, BUT ARE VISIBLE ON SURFACE, SHALL BE THE CONTRACTOR'S RESPONSIBILITY AND SHALL BE REMOVED AT NO ADDITIONAL COST TO THE OWNER.
- ANY ALTERATIONS TO THESE DRAWINGS MADE IN THE FIELD DURING CONSTRUCTION SHALL BE RECORDED BY THE GENERAL CONTRACTOR ON "AS-BUILT" DRAWINGS.
- ALL AREAS DISTURBED BY THE CONTRACTOR'S OPERATIONS OUTSIDE THE PROJECT TERMINI, SHALL BE RESTORED TO THE ORIGINAL CONDITION BY THE CONTRACTOR AT NO ADDITIONAL COST TO AND TO THE SATISFACTION OF THE OWNER.
- THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT HIS EMPLOYEES, AS WELL AS PUBLIC USERS FROM INJURY DURING THE ENTIRE CONSTRUCTION PERIOD USING ALL NECESSARY SAFEGUARDS, INCLUDING BUT NOT LIMITED TO, THE ERECTION OF TEMPORARY WALKS, STRUCTURES, PROTECTIVE BARRIERS, COVERING, OR FENCES AS NEEDED.
- THE CONTRACTOR SHALL SUPPLY THE OWNER WITH THE NAME OF THE OSHA "COMPETENT PERSON" PRIOR TO CONSTRUCTION.
- FILLING OF EXCAVATED AREAS SHALL NOT TAKE PLACE WITHOUT THE PRESENCE OR PERMISSION OF THE OWNER.
- EXISTING TREES TO REMAIN SHALL BE PROTECTED FROM CONSTRUCTION ACTIVITIES. NO STOCKPILING OF MATERIAL, EQUIPMENT OR VEHICULAR TRAFFIC SHALL BE ALLOWED WITHIN THE DRIP LINE OF TREES TO REMAIN. NO GUYS SHALL BE ATTACHED TO ANY TREE TO REMAIN. WHEN NECESSARY OR AS DIRECTED BY THE ENGINEER, THE CONTRACTOR SHALL ERECT TEMPORARY BARRIERS FOR THE PROTECTION OF EXISTING TREES DURING CONSTRUCTION.
- NO FILLING SHALL OCCUR AROUND EXISTING TREES TO REMAIN WITHOUT THE APPROVAL OF THE OWNER OR OWNER REPRESENTATIVE.
- ANY QUANTITIES SHOWN ON PLANS ARE FOR COMPARATIVE BIDDING PURPOSES ONLY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VISIT THE PROJECT SITE TO VERIFY ALL QUANTITIES AND CONDITIONS PRIOR TO SUBMITTING BID.
- THE LAYOUT OF ALL NEW WALKWAYS AND THE GRADING OF ALL SLOPES AND CROSS SLOPES SHALL CONFORM TO THE COMMONWEALTH OF MASSACHUSETTS RULES AND REGULATIONS FOR HANDICAP ACCESS CMR 521, AND THE AMERICANS WITH DISABILITIES ACT (ADA), TITLE 3. THE CONTRACTOR SHALL NOTIFY THE OWNER IMMEDIATELY OF ANY DISCREPANCIES BETWEEN ACTUAL CONDITIONS AND THOSE REQUIRED.
- ALL EXISTING DRAINAGE FACILITIES TO REMAIN SHALL BE MAINTAINED FREE OF DEBRIS, SOIL, SEDIMENT, AND FOREIGN MATERIAL AND OPERATIONAL THROUGHOUT THE LIFE OF THE CONTRACT. REMOVE ALL SOIL, SEDIMENT, DEBRIS AND FOREIGN MATERIAL FROM ALL DRAINAGE STRUCTURES, INCLUDING BUT NOT LIMITED TO, DRAINAGE INLETS, MANHOLES AND CATCH BASINS WITHIN THE LIMIT OF WORK AND DRAINAGE STRUCTURES OUTSIDE THE LIMIT OF WORK THAT ARE IMPACTED BY THE WORK FOR THE ENTIRE DURATION OF CONSTRUCTION.
- CONTRACTOR'S STAGING AREA MUST BE WITHIN THE CONTRACT LIMIT LINE. ANY OTHER AREAS THAT THE CONTRACTOR MAY WISH TO USE FOR STAGING MUST BE COORDINATED WITH THE OWNER.
- CONTRACTOR SHALL COORDINATE ALL WORK WITH THE CITY OF WALTHAM'S DEPARTMENT OF RECREATION.

EROSION AND SEDIMENT CONTROL NOTES

- ALL SEDIMENT AND EROSION CONTROL DEVICES SHALL BE PUT INTO PLACE PRIOR TO BEGINNING ANY CONSTRUCTION OR DEMOLITION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONTINUAL MAINTENANCE OF ALL CONTROL DEVICES THROUGHOUT THE DURATION OF THE PROJECT AT NO ADDITIONAL COST TO THE OWNER.
- CONTRACTOR SHALL MEET ALL OF THE STATE OF MASSACHUSETTS D.E.P. AND THE CITY OF WALTHAM'S WETLAND ORDINANCE REGULATIONS FOR SEDIMENT AND EROSION CONTROL.
- EXCAVATED MATERIAL STOCKPILED ON THE SITE SHALL BE SURROUNDED BY A RING OF UNBROKEN SEDIMENT AND EROSION CONTROL FENCE. THE LIMITS OF ALL GRADING AND DISTURBANCE SHALL BE KEPT TO A MINIMUM WITHIN THE APPROVED AREA OF CONSTRUCTION. ALL AREAS OUTSIDE OF THE LIMIT OF CONTRACT SHALL REMAIN TOTALLY UNDISTURBED UNLESS OTHERWISE APPROVED BY OWNER'S REPRESENTATIVE.
- ALL CATCH BASINS AND DRAIN GRATES WITHIN LIMIT OF CONTRACT SHALL BE PROTECTED WITH FILTER FABRIC DURING THE ENTIRE DURATION OF CONSTRUCTION.
- EROSION CONTROL BARRIERS TO BE INSTALLED AT THE TOE OF SLOPES. SEE GRADING & DRAINAGE PLANS, NOTES, DETAILS AND SPECIFICATIONS.
- ANY AREA OUTSIDE THE PROJECT LIMIT THAT IS DISTURBED SHALL BE RESTORED TO ITS ORIGINAL CONDITION AT NO COST TO THE OWNER.
- THE CONTRACTOR SHALL PROVIDE DUST CONTROL FOR CONSTRUCTION OPERATIONS AS APPROVED BY OWNER.
- ALL POINTS OF CONSTRUCTION EGRESS OR INGRESS SHALL BE MAINTAINED TO PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC/PRIVATE ROADS.

DEMOLITION & SITE PREPARATION NOTES

- THE CONTRACTOR SHALL INCLUDE IN THE BID THE COST OF REMOVING ANY EXISTING SITE IMPROVEMENTS NECESSARY TO ACCOMPLISH THE CONSTRUCTION OF THE PROPOSED SITE IMPROVEMENTS. THE CONTRACTOR SHALL ALSO INCLUDE IN THE BID THE COST NECESSARY TO RESTORE SUCH ITEMS IF THEY ARE SCHEDULED TO REMAIN AS PART OF THE FINAL SITE IMPROVEMENTS. REFER TO PLANS AND DETAILS TO DETERMINE EXCAVATION AND DEMOLITION REQUIRED TO RECEIVE PROPOSED SITE IMPROVEMENTS AND TO DETERMINE THE LOCATION OF PROPOSED SITE IMPROVEMENTS.
- THE OWNER RESERVES THE RIGHT TO REVIEW ALL MATERIALS DESIGNATED FOR REMOVAL AND TO RETAIN OWNERSHIP OF SUCH MATERIALS. IF THE OWNER RETAINS ANY MATERIAL THE CONTRACTOR SHALL MAKE ARRANGEMENTS WITH THE OWNER TO HAVE THOSE MATERIALS REMOVED OFF SITE AT NO ADDITIONAL COST TO THE OWNER.
- UNLESS SPECIFICALLY NOTED TO BE SAVED OR REUSED, ALL SITE FEATURES CALLED FOR REMOVAL SHALL BE TRANSPORTED FROM THE SITE AND DISPOSED OF IN A LAWFUL MANNER AT AN ACCEPTABLE DISPOSAL SITE. ALL MATERIALS NOT APPROVED OR SCHEDULED FOR REUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN A LEGAL MANNER AT NO COST TO THE OWNER.
- ALL EXISTING SITE FEATURES TO REMAIN SHALL BE PROTECTED THROUGHOUT THE CONSTRUCTION PERIOD. ANY FEATURES DAMAGED DURING CONSTRUCTION OPERATIONS SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE OWNER'S REPRESENTATIVE AT NO ADDITIONAL COST.
- DURING EARTHWORK OPERATIONS, CONTRACTOR SHALL TAKE CARE TO NOT DISTURB EXISTING MATERIALS TO REMAIN, OUTSIDE THE LIMITS OF EXCAVATION AND BACKFILL AND SHALL TAKE WHATEVER MEASURES NECESSARY, AT THE CONTRACTOR'S EXPENSE, TO PREVENT ANY EXCAVATED MATERIAL FROM COLLAPSING. ALL BACKFILL MATERIALS SHALL BE PLACED AND COMPACTED AS SPECIFIED TO THE SUBGRADE REQUIRED FOR THE INSTALLATION OF THE REMAINDER OF THE CONTRACT WORK.
- IT SHALL BE THE CONTRACTOR'S OPTION, WITH CONCURRENCE OF THE OWNER, TO REUSE EXISTING GRAVEL PAVEMENT BASE COURSE IF IT MEETS THE REQUIREMENTS OF THE SPECIFICATIONS FOR GRAVEL BORROW.
- ALL ITEMS CALLED FOR REMOVAL SHALL BE REMOVED TO FULL DEPTH INCLUDING ALL FOOTINGS, FOUNDATIONS, AND OTHER APPURTENANCES, EXCEPT AS SPECIFICALLY NOTED OTHERWISE.
- 'CLEAR AND GRUB VEGETATION' INDICATED ON PLAN SHALL INCLUDE REMOVAL OF SHRUBS AND UNDERBRUSH, REMOVAL OF ROOTS, ROUGH GRADING, INSTALLATION OF LOAM (IF APPLICABLE), FINE GRADING, SEEDING AND TURF ESTABLISHMENT BY THE CONTRACTOR.
- STRIP & STORE EXISTING TOPSOIL FOR LATER REUSE WHERE APPROPRIATE, AND AS NOTED ON PLAN, WITH APPROPRIATE EROSION AND SEDIMENT CONTROLS IN PLACE.
- LOAM / TOPSOIL DESIGNATED FOR REUSE AS GENERAL FILL SHALL BE BLENDED WITH SUITABLE BORROW MATERIAL.
- TREES DESIGNATED FOR REMOVAL SHALL BE TAGGED BY CONTRACTOR AND APPROVED BY OWNER'S REPRESENTATIVE PRIOR TO COMMENCEMENT OF CONSTRUCTION. THE CONTRACTOR SHALL PROTECT EXISTING TREES TO REMAIN. CONTRACTOR SHALL INSTALL TREE PROTECTION BARRIER AFTER CLEARING UNDERBRUSH AND TAKE DUE CARE TO PREVENT INJURY TO TREES DURING CLEARING OPERATIONS. TREE PROTECTION SHALL BE MAINTAINED IN PLACE TO THE SATISFACTION OF THE OWNER OR OWNER'S REPRESENTATIVE. ROOTS OF EXISTING TREES TO REMAIN SHALL BE PROTECTED & AIR SPADING SHALL BE USED FOR EXCAVATION WITHIN DRIPLINE.
- THE STORAGE OF MATERIALS AND EQUIPMENT WILL BE PERMITTED AT LOCATIONS DESIGNATED BY OWNER OR OWNER'S REPRESENTATIVE. PROTECTION OF STORED MATERIALS AND EQUIPMENT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- THE SITE IS TO REMAIN SECURE AT ALL TIMES DURING THE CONSTRUCTION PERIOD. THE CONTRACTOR SHALL INSTALL TEMPORARY CONSTRUCTION FENCING AS NECESSARY TO ENSURE PUBLIC SAFETY, AS DIRECTED BY THE OWNER'S REPRESENTATIVE.
- THE CONTRACTOR IS RESPONSIBLE TO REVIEW ALL SITE GRADING, LAYOUT AND IMPROVEMENT DRAWINGS PRIOR TO DEMOLISHING THE ITEMS SHOWN. THE CONTRACTOR IS RESPONSIBLE FOR ALL DEMOLITION AND SITE PREPARATION AS NECESSARY FOR THE INSTALLATION OF SITE IMPROVEMENTS SHOWN HEREIN.
- ALL WORK SHALL CONFORM TO MASSACHUSETTS DEP GUIDELINES FOR HERBICIDAL TREATMENTS, EROSION AND SEDIMENTATION CONTROL, LATEST VERSION. EROSION CONTROL BARRIERS TO BE INSTALLED AT THE TOE OF SLOPES. SEE GRADING & DRAINAGE NOTES, DETAILS AND SPECIFICATIONS.
- PRIOR TO COMMENCING WORK THE CONTRACTOR SHALL ENSURE PROPER PROVISIONS ARE IN PLACE FOR CONTROLLING DUST DURING CONSTRUCTION ACTIVITIES. THIS INCLUDES PROVISIONS FOR ON SITE WATER, WATER TRUCKS, AND ANY OTHER ITEM TO PREVENT DUST MIGRATION AS APPROVED BY THE LANDSCAPE ARCHITECT. NO CALCIUM CHLORIDE SHALL BE PERMITTED.
- THE CONTRACTOR SHALL SAW CUT ALL EXISTING CONCRETE SIDEWALK PAVEMENT ALONG EXISTING STREETS WHERE NOTED PRIOR TO REMOVAL AND DISPOSAL OF ADJACENT PAVEMENTS.
- CONSTRUCTION ACCESS TO THE PROJECT SITE SHALL BE LIMITED TO AN ENTRANCE DESIGNATED BY THE OWNER.
- THE STORAGE OF MATERIALS AND EQUIPMENT WILL BE PERMITTED AT LOCATIONS DESIGNATED BY OWNER OR OWNER'S REPRESENTATIVE. PROTECTION OF STORED MATERIALS AND EQUIPMENT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. NO REFUELING SHALL OCCUR WITHIN 1200' OF HARDY'S POND.
- CONTRACTOR IS RESPONSIBLE FOR SECURING NECESSARY TRAFFIC CONTROL DETAILS AND MEASURES PER STATE AND LOCAL REQUIREMENTS FOR ANY CONSTRUCTION ACTIVITY IN THE ROAD RIGHT-OF-WAY.

PLANTING NOTES

- REFER TO PLANTING PLANS FOR PLANT SCHEDULES
- COORDINATE ALL PLANTING ACTIVITIES WITH THE SCOPE OF WORK CALLED FOR BY DEMOLITION, GRADING AND UTILITIES PLANS ENCOMPASSED BY THIS CONTRACT. SET, PROTECT AND REPLACE REFERENCE STAKES AS NECESSARY OR AS DIRECTED BY THE OWNER'S REPRESENTATIVE.
- ALL PLANT MATERIAL WILL NEED TO BE APPROVED BY OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION.
- THE CONTRACTOR SHALL IDENTIFY PROPOSED TREE LOCATIONS PRIOR TO PLACEMENT WITH A STAKE AND COORDINATE WITH THE LANDSCAPE ARCHITECT TO MAKE ANY NECESSARY ADJUSTMENTS BEFORE ACTUAL PLACEMENT. THE CONTRACTOR SHALL NOT PLACE NEW TREES DIRECTLY UNDER OVERHEAD WIRES OR ABOVE UTILITY LINES.
- EXISTING TREES TO REMAIN AND BE PROTECTED ARE TO BE PRUNED FOR CROWN CLEANING AND DEADWOOD REMOVAL.
- PLANT LOCATIONS SHOWN ON THIS PLAN ARE APPROXIMATE ONLY AND SHALL BE APPROVED IN THE FIELD BY LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.
- IF NECESSARY THE CONTRACTOR SHALL MAINTAIN TEMPORARY EROSION CONTROL BLANKET DURING GROUND COVER APPLICATION UNTIL AREAS ARE ESTABLISHED.
- GROUND COVER ARE TO BE EQUALLY SPACED WITHIN BED AREAS.
- STAKE ALL PROPOSED TREE PLANTINGS FOR REVIEW AND POTENTIAL ADJUSTMENT BY THE LANDSCAPE ARCHITECT.

LAYOUT AND MATERIALS NOTES

- REFER TO EXISTING CONDITIONS PLANS FOR SURVEY INFORMATION.
- COORDINATE ALL LAYOUT ACTIVITIES WITH THE SCOPE OF WORK CALLED FOR BY DEMOLITION, GRADING AND UTILITIES OPERATIONS ENCOMPASSED BY THIS CONTRACT. SET, PROTECT AND REPLACE REFERENCE STAKES AS NECESSARY OR AS DIRECTED BY THE OWNER'S REPRESENTATIVE AT NO ADDITIONAL COST TO THE OWNER.
- TO FACILITATE LAYOUT OF PROPOSED SITE FEATURES AND FACILITIES, LAYOUT INFORMATION FOR CERTAIN FUTURE WORK, WHICH IS NOT INCLUDED WITHIN THE SCOPE OF THIS CONTRACT (E.G., FUTURE COURTS AND APPURTENANCES, PAVING, ETC.), HAS BEEN PROVIDED ON THE LAYOUT AND MATERIALS PLAN FOR INFORMATION ONLY. THE LAYOUT OF SITE AMENITIES AND FENCES MUST BE APPROVED BY THE OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION. SOME ITEMS ARE "NOT IN CONTRACT" AND SHOWN FOR LOCATION REFERENCE ONLY.
- ALL LINES AND GRADING WORK AS PER DRAWINGS AND SPECIFICATIONS SHALL BE LAID OUT BY A REGISTERED CIVIL ENGINEER OR LICENSED SURVEYOR ENGAGED BY THE GENERAL CONTRACTOR.
- ALL LAYOUT LINES, OFFSETS, OR REFERENCES TO LOCATING OBJECTS ARE EITHER PARALLEL OR PERPENDICULAR UNLESS OTHERWISE DESIGNATED WITH ANGLE OFFSETS NOTED.
- ALL PROPOSED SITE FEATURES SHALL BE LAID OUT AND STAKED FOR REVIEW AND APPROVAL BY THE OWNER'S REPRESENTATIVE PRIOR TO COMMENCEMENT OF INSTALLATION. ANY REQUIRED ADJUSTMENTS TO THE LAYOUT SHALL BE UNDERTAKEN AS DIRECTED, AT NO ADDITIONAL COST TO THE OWNER.
- ALL PROPOSED PAVEMENTS SHALL MEET THE LINE AND GRADE OF EXISTING ADJACENT PAVEMENT SURFACES. HOT MIX ASPHALT PAVEMENTS SHALL BE TREATED WITH AN RS-1 TACK COAT AT POINT OF CONNECTION TO OTHER PAVEMENT EDGES. ALL PATHWAY WIDTHS SHALL BE AS NOTED ON THE LAYOUT AND MATERIALS PLAN.
- THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND GRADES ON THE GROUND AND REPORT ANY DISCREPANCIES IMMEDIATELY TO THE OWNER.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD MEASUREMENT OF ALL PROPOSED FENCES AND GATES.
- THE DEPTH OF LOAM BORROW FOR ALL PROPOSED LAWN AREAS SHALL BE 4" MINIMUM. ALL DISTURBED AREAS SHALL BE RESTORED WITH LOAM AND SEED UNLESS OTHERWISE NOTED
- ALL REFERENCES TO LOAM AND SEED REFER TO HYDROMULCH SEEDED LAWN.
- LOAM AND SEED ALL DISTURBED AREAS UNLESS OTHERWISE NOTED
- ALL BENCHES, PICNIC TABLES, TRASH RECEPTACLES, PLAYERS BENCHES, AND BLEACHERS SHALL BE INSTALLED ON CONCRETE PADS AS DETAILED.
- ANY FENCE CALLED FOR TO BE REMOVE AND RESET, RELOCATED, OR TO HAVE NEW FABRIC SHALL BE INSTALLED IN ACCORDANCE WITH THE FENCE DETAIL.

GRADING AND DRAINAGE NOTES

- REFER TO EXISTING CONDITIONS AND DEMOLITION PLAN FOR GENERAL NOTES AND SURVEY LEGEND. SEE LAYOUT AND MATERIALS PLAN FOR SITE IMPROVEMENTS LEGEND.
- ALL PAVED AREAS SHALL BE PITCHED TO DRAIN.
- ALL WORK RELATING TO INSTALLATION, RENOVATION OR MODIFICATION OF WATER, DRAINAGE AND/OR SEWER SERVICES SHALL BE PERFORMED IN ACCORDANCE WITH THE STANDARDS OF THE CITY OF WALTHAM.
- THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND GRADES ON THE GROUND AND REPORT ANY DISCREPANCIES IMMEDIATELY TO THE OWNER.
- ALL GRADING IS TO BE SMOOTH AND CONTINUOUS, WHERE PROPOSED SURFACE MEETS EXISTING SURFACE, BLEND THE TWO PAVEMENTS AND ELIMINATE ROUGH SPOTS AND ABRUPT GRADE CHANGES AND MEET LINE AND GRADE OF EXISTING CONDITIONS WITH NEW IMPROVEMENTS.
- CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE AWAY FROM ALL FEATURES AND STRUCTURES. ALL NEW CONCRETE PADS AND PLANTING BEDS ABUTTING BUILDING FOUNDATIONS SHALL SLOPE AT 1.5% MINIMUM AWAY FROM THE BUILDING.
- ALL NEW WALKWAYS MUST CONFORM TO CURRENT AMERICANS WITH DISABILITIES ACT (ADA) REGULATIONS: WALKWAYS SHALL MAINTAIN A CROSS PITCH OF NOT MORE THAN ONE AND A HALF (1.5%) PERCENT AND THE RUNNING SLOPE (PARALLEL TO THE DIRECTION OF TRAVEL) OF 1:20 OR 5% MAXIMUM.
- MINIMUM SLOPE ON ALL WALKWAYS WILL BE 1:100 OR 1% TO PROVIDE POSITIVE DRAINAGE. ANY DISCREPANCIES NOT ALLOWING THIS TO OCCUR SHALL BE REPORTED TO THE OWNER PRIOR TO CONTINUING WORK.
- ALL UTILITY GRATES, COVERS OR OTHER SURFACE ELEMENTS INTENDED TO BE EXPOSED AT GRADE SHALL BE FLUSH WITH THE ADJACENT FINISHED GRADE AND ADJUSTED TO PROVIDE A SMOOTH TRANSITION AT ALL EDGES UNLESS OTHERWISE INDICATED.
- THE CONTRACTOR SHALL SET SUBGRADE ELEVATIONS TO ALLOW FOR POSITIVE DRAINAGE AND PROVIDE EROSION CONTROL DEVICES, STRUCTURES, MATERIALS AND CONSTRUCTION METHODS TO DIRECT SILT MIGRATION AWAY FROM DRAINAGE AND OTHER UTILITY SYSTEMS, PUBLIC/PRIVATE STREETS AND WORK AREAS. CLEAN BASINS REGULARLY AND AT THE END OF THE PROJECT.
- EXCAVATION REQUIRED WITHIN PROXIMITY OF KNOWN EXISTING UTILITY LINES SHALL BE DONE BY HAND. CONTRACTOR SHALL REPAIR ANY DAMAGE TO EXISTING UTILITY LINES OR STRUCTURES INCURRED DURING CONSTRUCTION OPERATIONS AT NO COST TO THE OWNER.
- WHERE NEW EARTHWORK MEETS EXISTING EARTHWORK, CONTRACTOR SHALL BLEND NEW EARTHWORK SMOOTHLY INTO EXISTING, PROVIDING VERTICAL CURVES OR ROUNDS AT ALL TOP AND BOTTOM OF SLOPES.
- WHERE A SPECIFIC LIMIT OF WORK LINE IS NOT OBVIOUS OR IMPLIED, BLEND GRADES TO EXISTING CONDITIONS WITHIN 5 FEET OF PROPOSED CONTOURS.
- RESTORE ALL DISTURBED AREAS AND LIMITS OF ALL REMOVALS TO LOAM AND SEED UNLESS OTHERWISE NOTED.
- SEE EARTHWORK SECTION OF SPECIFICATIONS FOR SPECIFIC EXCAVATION AND FILLING PROCEDURES.
- INSTALL JUTE MESH ON ALL SLOPES GREATER THAN 4:1.

ABBREVIATIONS

R & D	REMOVE & DISPOSE OF ALL ELEMENTS, POSTS, CONCRETE PADS, FOOTINGS AND APPURTENANCES, COMPLETE.
R & R	REMOVE & RESET IN SAME LOCATION
R & S	REMOVE & STORE IN LOCATION AGREED UPON BY OWNER.
BLDG.	BUILDING
EXIST. OR EX	EXISTING
C.L.F.	CHAIN LINK FENCE
BVCL	BLACK VINYL CLAD CHAIN LINK FENCE
VCP	VITRIFIED CLAY PIPE
INV	INVERT
TOC	TOP OF CURB
TOW	TOP OF WALL
BOW	BOTTOM OF WALL
BOC	BOTTOM OF CURB
CONC	CONCRETE
PVMT OR PVT.	PAVEMENT
TYP	TYPICAL
APPROX.	APPROXIMATE
LF	LINEAR FEET
PROP OR PR	PROPOSED
LP	LIGHT POLE

Project:

CITY OF WALTHAM



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**CONSTRUCTION
DOCUMENTS**

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Scale: N.T.S.

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Reviewed By: MSM

Checked By: LFK

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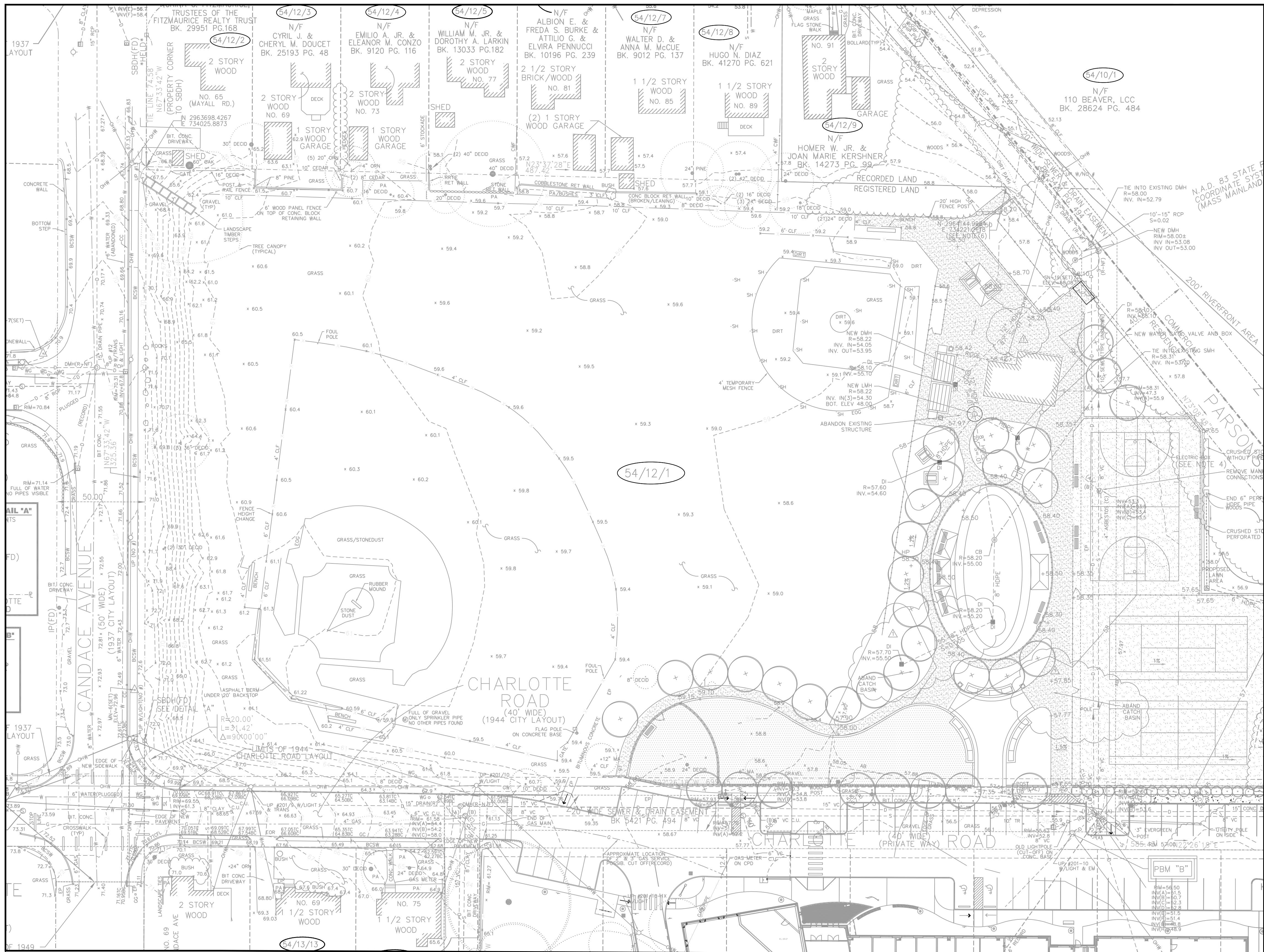
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GENERAL NOTES

Sheet Number:

GN1

11-22-2011 CONSTRUCTION DOCUMENTS



LEGEND

AP(FD)	ALUMINUM PIPE(FOUND)
AB	ASPHALT BERM
BIT CONC	BITUMINOUS CONCRETE
BCSW	BITUMINOUS CONCRETE SIDEWALK
BOL	BOLLARD
BOS	BOTTOM OF CURB
⊠	BOTTOM OF STRUCTURE
⊞	CATCH BASIN
CLF	CHAIN LINK FENCE
CWF	CHICKEN WIRE FENCE
CSC	COBBLESTONE CURB
CONC	CONCRETE
CC	CONCRETE CURB
CPD	CONCRETE PAD
CRW	CONCRETE RETAINING WALL
CP(FD)	COPPER PIPE(FOUND)
C.U.	CONTINUATION UNKNOWN
DECID	DECIDUOUS TREE
DR	DRAIN
⊙DMH	DRAIN MANHOLE
EOG	EDGE OF GRASS
EP	EDGE OF PAVEMENT
EOR	EDGE OF ROAD
	FIRE BOX
	FULL OF WATER
GG	GAS GATE
	GRANITE CURB
	GUY WIRE
	HANDRAIL
	HYDRANT
IP(FD)	IRON PIPE(FOUND)
	LIGHT POLE
	MANHOLE
MW	MAPLE TREE
	MONITORING WELL
	NET HOLE
	NO PIPES FOUND
OHW	OVERHANG
	OVERHEAD WIRES
	ORNAMENTAL TREE
	PAINTED LINE
	PLANTED AREA
RR TIE	RAILROAD TIE
R-NF	RECORD-NOT FOUND
	RETAINING
	ROOF DRAIN
SMH	SEWER MANHOLE
	SIGN
	SPEED BUMP
	SPIGOT
	SPRINKLER HEAD
	STOP LINE
	STUMP
	THRESHOLD
TCFL	TOP OF CURB
	TOP OF CURB(FLUSH)
	TOP OF ELBOW
TRANS	TOP OF HOOD
	TRANSFORMER
(TYP)	TREE
	TYPICAL UNDERGROUND CONDUIT
	UTILITY FLOW
	UTILITY POLE
	VENT PIPES
WG	WATER GATE

UTILITY LEGEND

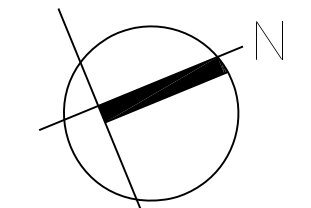
SEWER	S
DRAIN	D
WATER	W
GAS	G
CABLE	C

PBM "B"

PROJECT BENCHMARK "B" (PBM "B")
RAILROAD SPIKE SET 1.0' ABOVE GRADE ON
SOUTHEAST FACE OF UTILITY POLE #201-10.
ELEVATION= 57.56 (NAVD 1988)

EXISTING CONDITIONS NOTES

- THIS TOPOGRAPHIC/DETAIL PLAN WAS PREPARED BY DON ROSA, P.L.S., 54 LIBERTY STREET, RANDOLPH, MA BASED ON FIELD DATA COLLECTED AUGUST 2010.
- THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING "DIG SAFE" AT 1-888-DIG-SAFE (344-7233) PRIOR TO THE START OF ANY WORK AND TO NOTIFY THE ENGINEER OF ANY APPARENT CONFLICT.
- WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR AND FURNISHED TO THE OWNER'S REPRESENTATIVE FOR RESOLUTION OF THE CONFLICT.
- ALL EXISTING SITE FEATURES TO REMAIN SHALL BE PROTECTED THROUGHOUT THE CONSTRUCTION PERIOD. ANY FEATURES DAMAGED DURING CONSTRUCTION OPERATIONS SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE OWNER'S REPRESENTATIVE AT NO ADDITIONAL COST.
- THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT HIS EMPLOYEES, AS WELL AS PUBLIC USERS FROM INJURY DURING THE ENTIRE CONSTRUCTION PERIOD USING ALL NECESSARY SAFEGUARDS.
- PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL SUPPLY THE OWNER WITH THE NAME OF THE OSHA "COMPETENT PERSON" WHO WILL BE ON SITE DURING ACTIVE CONSTRUCTION.



Project:
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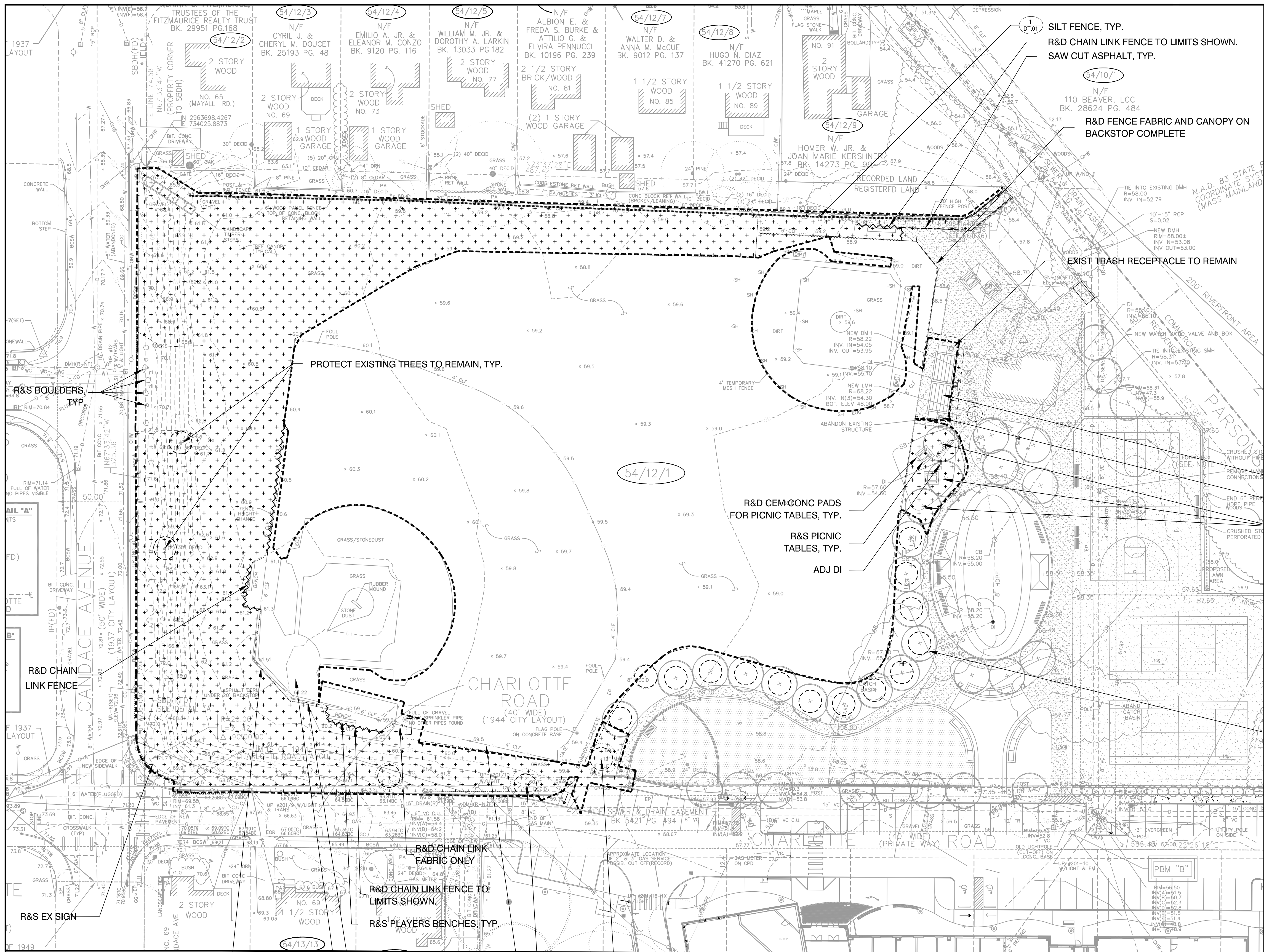
CONSTRUCTION DOCUMENTS

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MONSIGNOR MCCABE
PLAYGROUND
EXISTING CONDITIONS
PLAN

Sheet Number:
M-EX1

11-22-2011 CONSTRUCTION DOCUMENTS



SITE PREPARATION & DEMOLITION LEGEND

- CLEAR & GRUB AREAS, R&D EXISTING SURFACE AS REQUIRED TO IMPLEMENT PROPOSED IMPROVEMENTS, TYP.
- SKIM & STOCKPILE TOP LAYER TO IMPLEMENT PROPOSED SURFACES
- R&D TREE COMPLETE
- R&D EXISTING STRUCTURES
- R&D FENCE, COMPLETE.

SITE PREPARATION & DEMOLITION ABBREVIATIONS

- R & D REMOVE & DISPOSE ALL ELEMENTS, POSTS, CONCRETE PADS AND APPURTENANCES.
- R & R REMOVE & RELOCATE TO LOCATION APPROVED BY OWNER'S REPRESENTATIVE.
- R & S REMOVE & STORE IN LOCATION AGREED UPON BY OWNER.
- BLDG. BUILDING
- EXIST. EXISTING
- C.L.F. CHAIN LINK FENCE
- SPECS. SPECIFICATIONS

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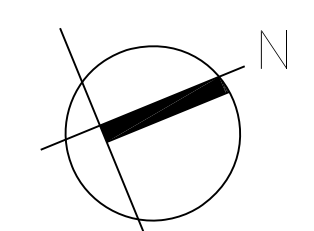
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MONSIGNOR MCCABE
PLAYGROUND
SITE PREPARATION PLAN

Sheet Number:
M-SP1



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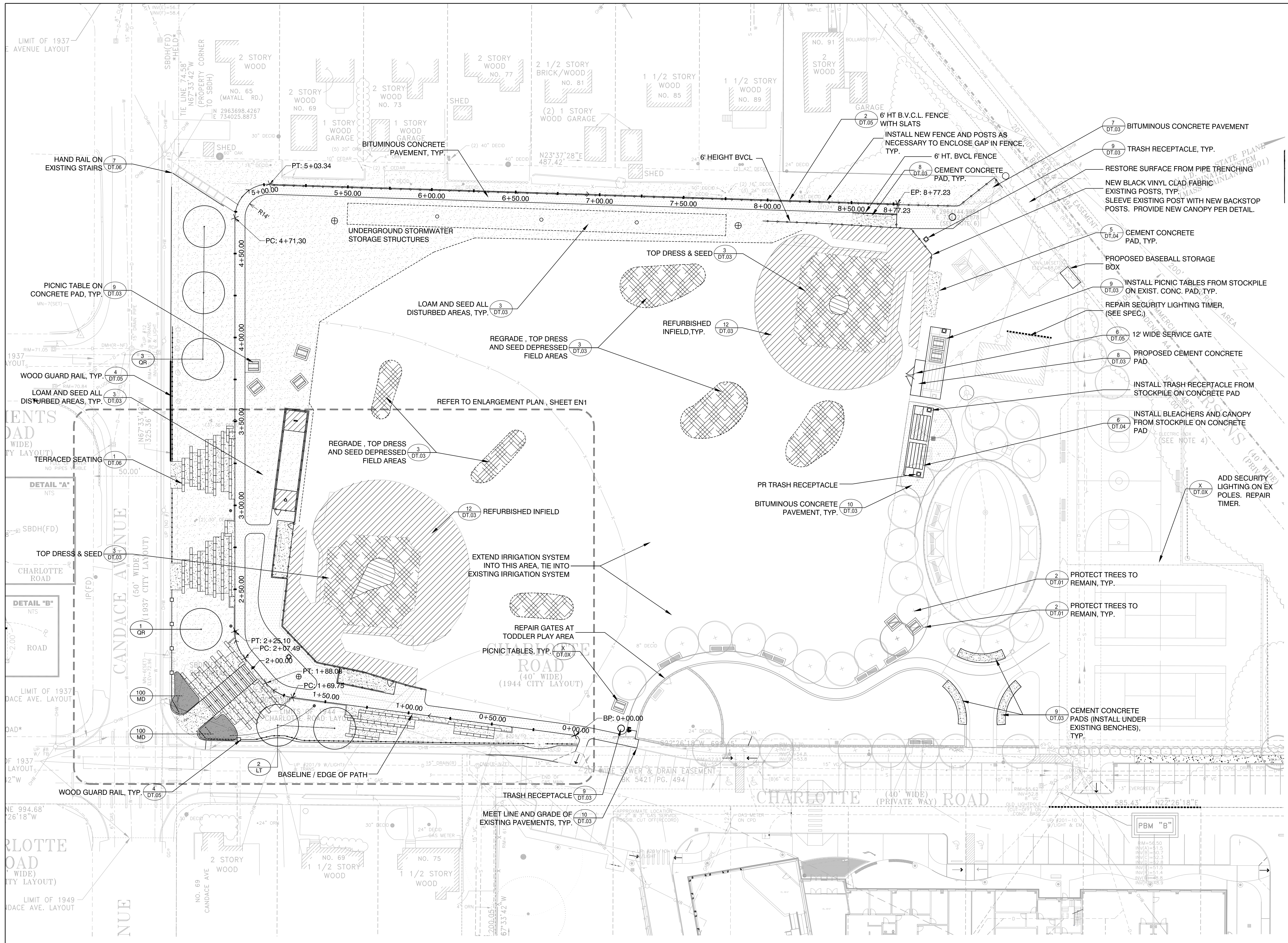
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MONSIGNOR MCCABE PLAYGROUND LAYOUT & MATERIALS PLAN

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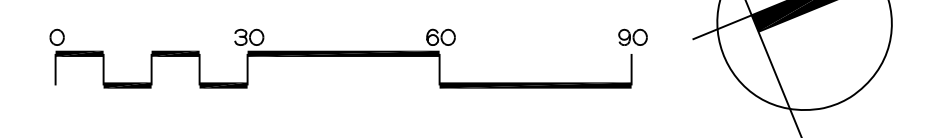
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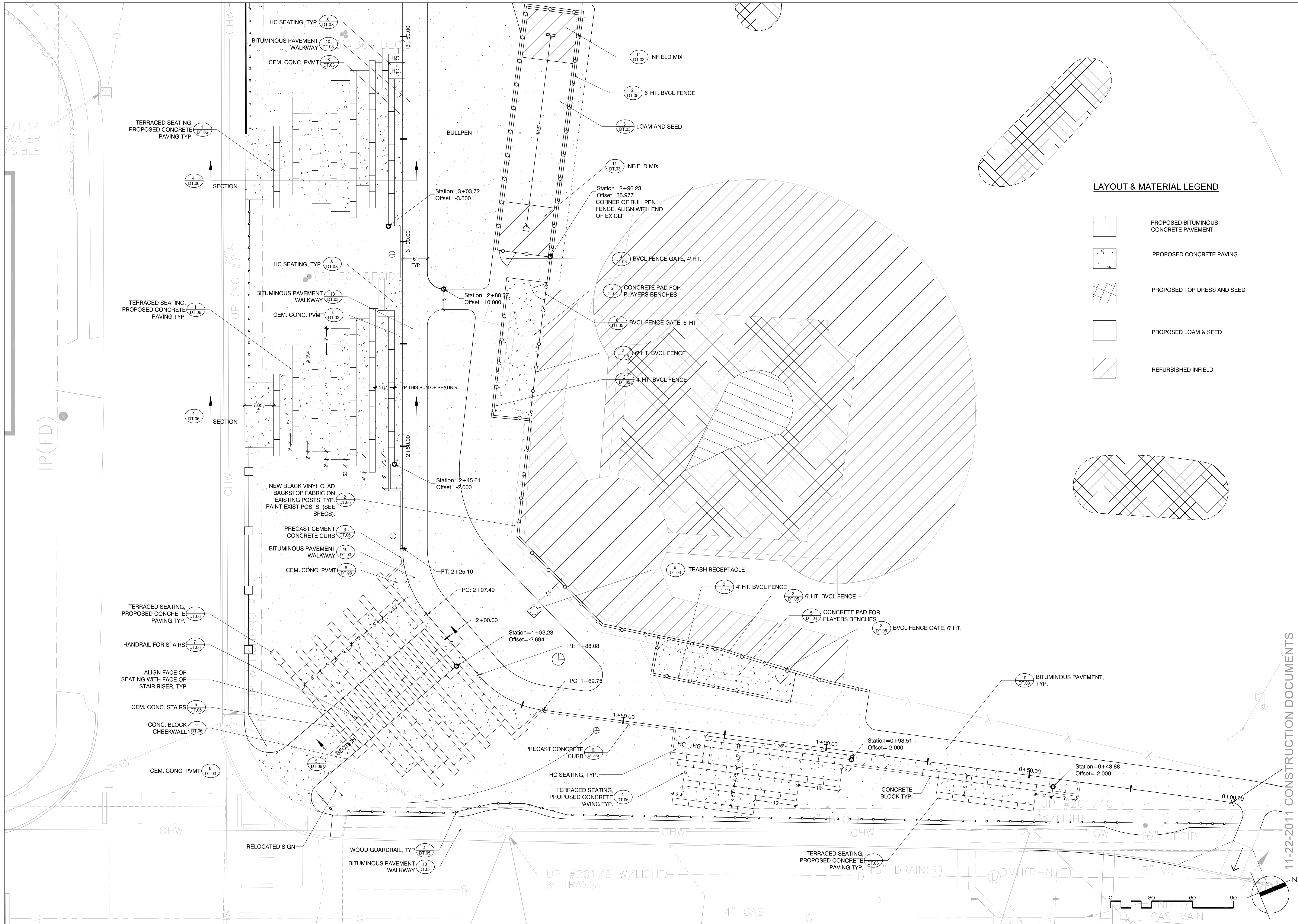
LAYOUT & MATERIALS LEGEND

- EX EXISTING
- PR PROPOSED
- PVT. PAVEMENT
- BENCH
- PICNIC TABLES
- SEATWALLS
- FENCE
- NEW TREELINE, TYP.
- EX TREE TO REMAIN, TYP.
- PROPOSED BITUMINOUS CONCRETE PAVEMENT
- PROPOSED CONCRETE PAVING
- PROPOSED TOP DRESS AND SEED
- PROPOSED LOAM & SEED
- REFURBISHED INFIELDS
- GROUND COVER


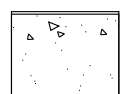


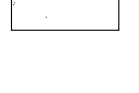
Monsignor McCabe Playground PLANTING SCHEDULE					
KEY	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	Comments
DECIDUOUS TREES					
LT	2	Liriodendron tulipifera	Tulip Tree	3"-3.5" caliper	B&B, well-branched. Dense form
QR	4	Quercus rubra	Northern Red Oak	3"-3.5" caliper	B&B, well-branched. Dense form
SHRUBS					
MD	200	Microbiota decussata	Siberian Cypress	1 gallon	

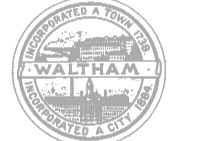


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LAYOUT & MATERIAL LEGEND

-  PROPOSED BITUMINOUS CONCRETE PAVEMENT
-  PROPOSED CONCRETE PAVING
-  PROPOSED TOP DRESS AND SEED
-  PROPOSED LOAM & SEED
-  REFURBISHED INFIELD

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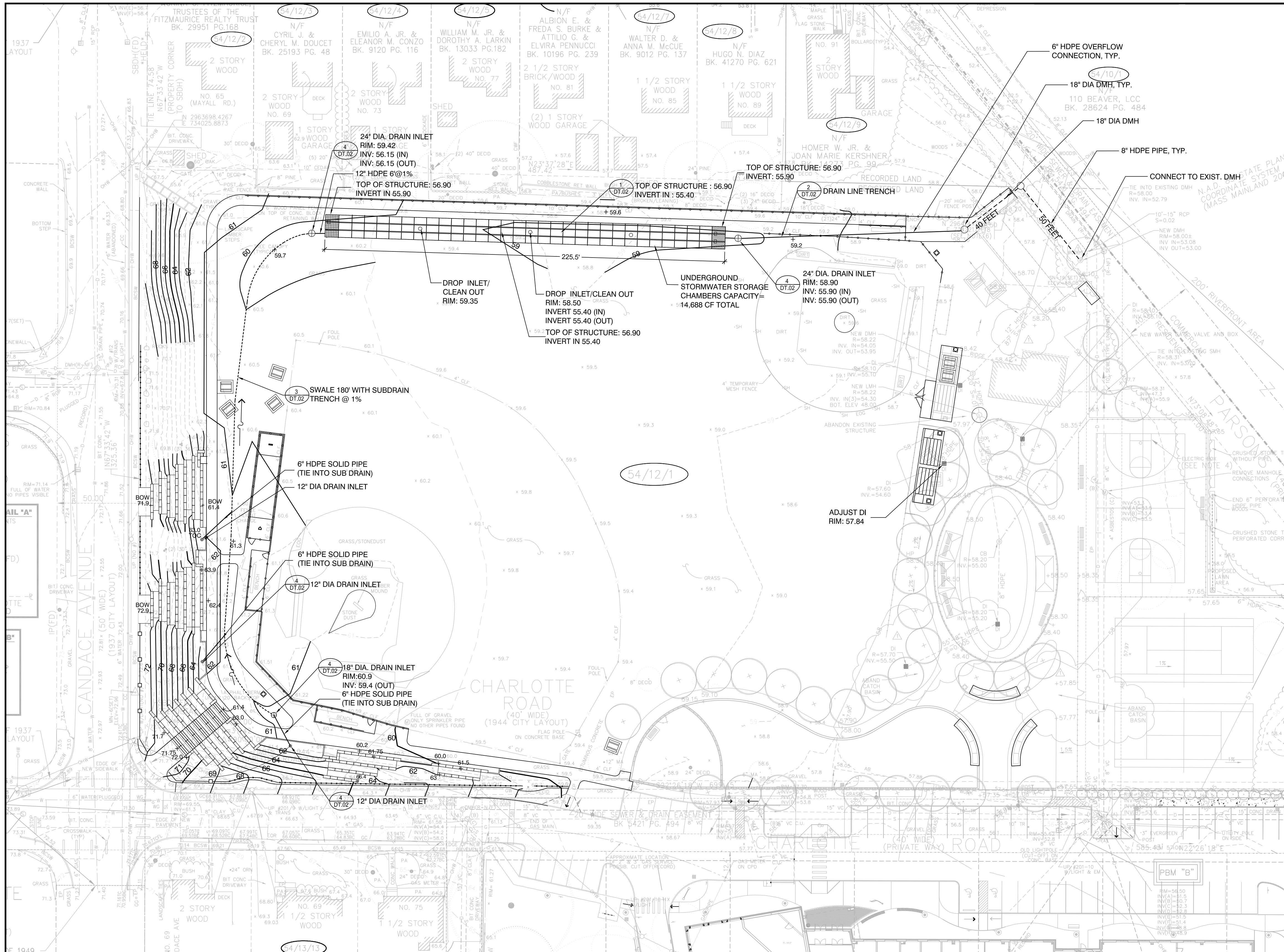
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MONSIGNOR MCCABE PLAYGROUND ENLARGEMENT PLAN

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M-EN1

11-22-2011 CONSTRUCTION DOCUMENTS



GRADING, DRAINAGE & UTILITY LEGEND

EXISTING CONTOUR	---
PROPOSED 1 FT. CONTOUR	— 199 —
PROPOSED 5 FT. CONTOUR	— 195 —
PROPOSED SPOT ELEVATION	+199.5
EXISTING SPOT ELEVATION	+(199.5)
PROPOSED DRAIN INLET	⊕ DI
PROPOSED CATCH BASIN	⊞ CB
PROPOSED DRAIN LINE	— E —
PROPOSED ELECTRICAL SERVICE	— E —
PROPOSED WATER SERVICE	— W —

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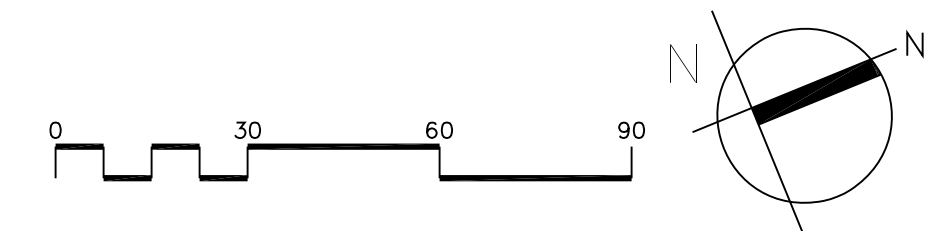
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MONSIGNOR MCCABE
PLAYGROUND GRADING &
DRAINAGE PLAN

Sheet Number:
M-GD1

11-22-2011 CONSTRUCTION DOCUMENTS



Consultants:

Revisions:

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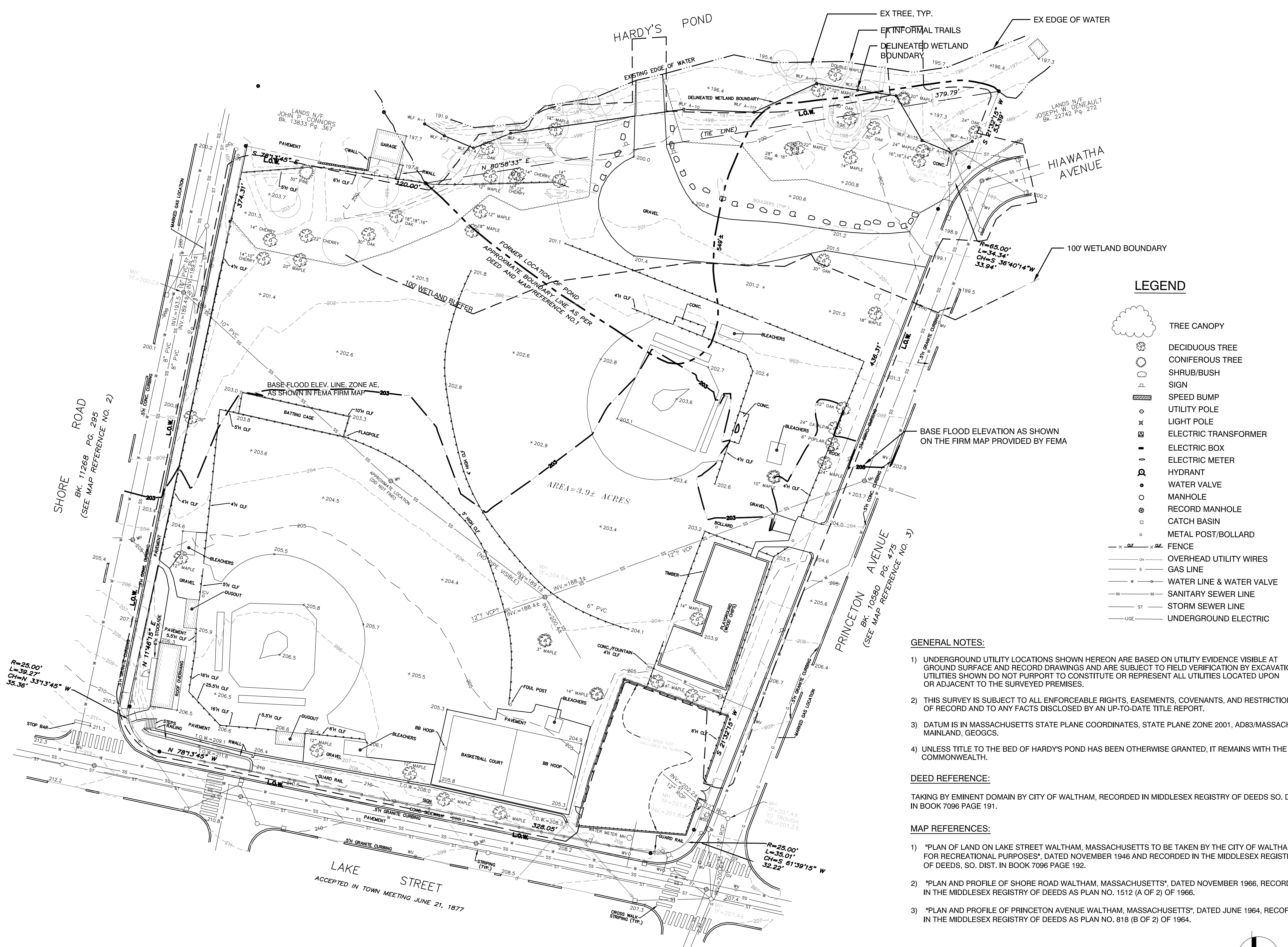
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Approved By:	ERB




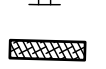
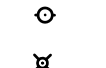



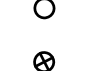
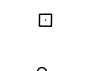
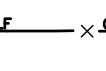
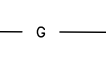
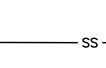
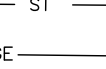










Drawing Title:
LAZAZZERO PARK
EXISTING CONDITIONS
PLAN

Sheet Number:

L-EX1



LEGEND

-  TREE CANOPY
-  DECIDUOUS TREE
-  CONIFEROUS TREE
-  SHRUB/BUSH
-  SIGN
-  SPEED BUMP
-  UTILITY POLE
-  LIGHT POLE
-  ELECTRIC TRANSFORMER
-  ELECTRIC BOX
-  ELECTRIC METER
-  HYDRANT
-  WATER VALVE
-  MANHOLE
-  RECORD MANHOLE
-  CATCH BASIN
-  METAL POST/BOLLARD
-  FENCE
-  OVERHEAD UTILITY WIRES
-  GAS LINE
-  WATER LINE & WATER VALVE
-  SANITARY SEWER LINE
-  STORM SEWER LINE
-  UNDERGROUND ELECTRIC

GENERAL NOTES:

- UNDERGROUND UTILITY LOCATIONS SHOWN HEREON ARE BASED ON UTILITY EVIDENCE VISIBLE AT GROUND SURFACE AND RECORD DRAWINGS AND ARE SUBJECT TO FIELD VERIFICATION BY EXCAVATION. UTILITIES SHOWN DO NOT PURPORT TO CONSTITUTE OR REPRESENT ALL UTILITIES LOCATED UPON OR ADJACENT TO THE SURVEYED PREMISES.
- THIS SURVEY IS SUBJECT TO ALL ENFORCEABLE RIGHTS, EASEMENTS, COVENANTS, AND RESTRICTIONS OF RECORD AND TO ANY FACTS DISCLOSED BY AN UP-TO-DATE TITLE REPORT.
- DATUM IS IN MASSACHUSETTS STATE PLANE COORDINATES, STATE PLANE ZONE 2001, AD83/MASSACHUSETTS MAINLAND, GEOGCS.
- UNLESS TITLE TO THE BED OF HARDY'S POND HAS BEEN OTHERWISE GRANTED, IT REMAINS WITH THE COMMONWEALTH.

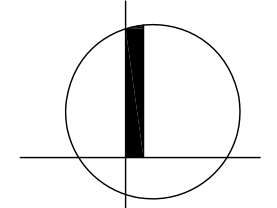
DEED REFERENCE:

TAKING BY EMINENT DOMAIN BY CITY OF WALTHAM, RECORDED IN MIDDLESEX REGISTRY OF DEEDS SO. DIST. IN BOOK 7096 PAGE 191.

MAP REFERENCES:

- "PLAN OF LAND ON LAKE STREET WALTHAM, MASSACHUSETTS TO BE TAKEN BY THE CITY OF WALTHAM FOR RECREATIONAL PURPOSES", DATED NOVEMBER 1946 AND RECORDED IN THE MIDDLESEX REGISTRY OF DEEDS, SO. DIST. IN BOOK 7096 PAGE 192.
- "PLAN AND PROFILE OF SHORE ROAD WALTHAM, MASSACHUSETTS", DATED NOVEMBER 1966, RECORDED IN THE MIDDLESEX REGISTRY OF DEEDS AS PLAN NO. 1512 (A OF 2) OF 1966.
- "PLAN AND PROFILE OF PRINCETON AVENUE WALTHAM, MASSACHUSETTS", DATED JUNE 1964, RECORDED IN THE MIDDLESEX REGISTRY OF DEEDS AS PLAN NO. 818 (B OF 2) OF 1964.

11-22-2011 CONSTRUCTION DOCUMENTS



SHORE ROAD
 BK. 11268 PG. 295
 (SEE MAP REFERENCE NO. 2)

PRINCETON AVENUE
 BK. 10580 PG. 475
 (SEE MAP REFERENCE NO. 3)

LAKE STREET
 ACCEPTED IN TOWN MEETING JUNE 21, 1877

AREA=3.9± ACRES

BASE FLOOD ELEVATION AS SHOWN ON THE FIRM MAP PROVIDED BY FEMA

BASE FLOOD ELEV. LINE, ZONE AE, AS SHOWN IN FEMA FIRM MAP

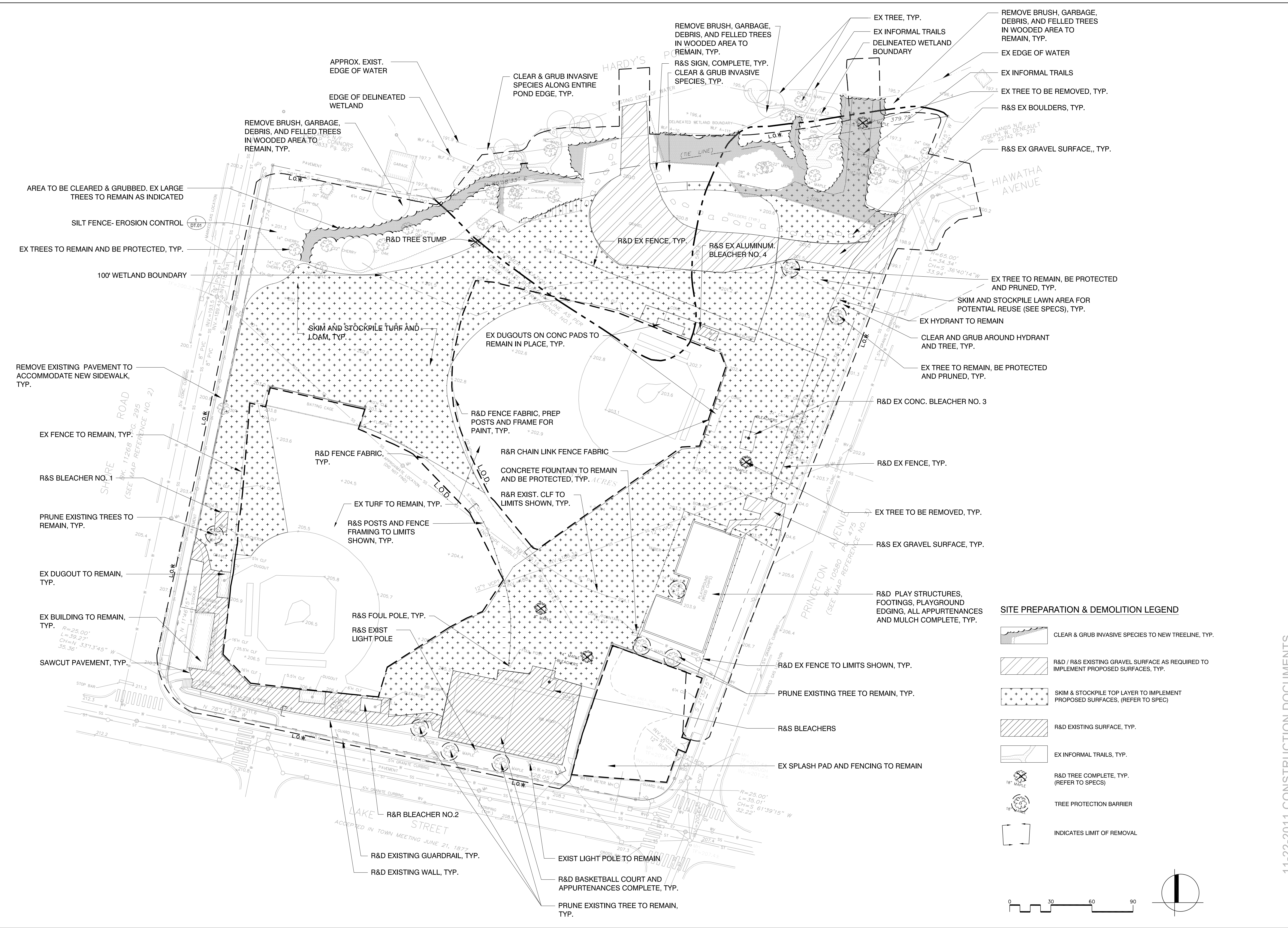
FORMER LOCATION OF POND APPROXIMATE BOUNDARY LINE AS PER DEED AND MAP REFERENCE NO. 1

100' WETLAND BUFFER

100' WETLAND BOUNDARY

R=25.00'
 L=39.27'
 CH=N 33°13'45" W
 35.36'

R=25.00'
 L=35.01'
 CH=S 61°39'15" W
 32.22'



Project:
CITY OF WALTHAM

Lazazzero Park
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Monsignor McCabe
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 Charlotte Road
 Waltham, MA

Weston & Sampson
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 (508) 698-3034 (800) Sampson
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Consultants:

Revisions:

Rev	Date	Description

Seal:

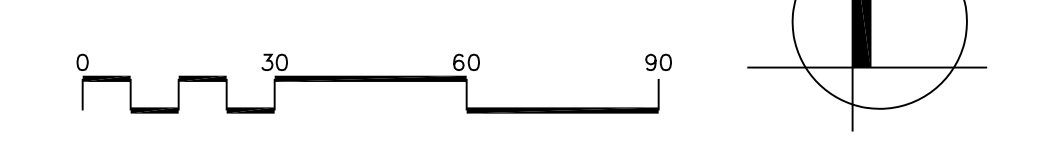
CONSTRUCTION DOCUMENTS

Date: 11.22.2011
 Scale: AS SHOWN
 Drawn By: MMM
 Reviewed By: MSM
 Checked By: LFK
 Approved By: ERB

Drawing Title:
LAZAZZERO PARK
SITE PREPARATION
PLAN

Sheet Number:
L-SP1

- SITE PREPARATION & DEMOLITION LEGEND**
- CLEAR & GRUB INVASIVE SPECIES TO NEW TREELINE, TYP.
 - R&D / R&S EXISTING GRAVEL SURFACE AS REQUIRED TO IMPLEMENT PROPOSED SURFACES, TYP.
 - SKIM & STOCKPILE TOP LAYER TO IMPLEMENT PROPOSED SURFACES, (REFER TO SPEC)
 - R&D EXISTING SURFACE, TYP.
 - EX INFORMAL TRAILS, TYP.
 - R&D TREE COMPLETE, TYP. (REFER TO SPECS)
 - TREE PROTECTION BARRIER
 - INDICATES LIMIT OF REMOVAL



11-22-2011 CONSTRUCTION DOCUMENTS

HARDY'S POND



LAYOUT & MATERIALS LEGEND

EX	EXISTING
PR	PROPOSED
PVT.	PAVEMENT
	WETLAND DELINEATION
	100' WETLAND BUFFER
	SILT FENCE
	BENCH
	PICNIC TABLES
	SEATWALLS
	RETAINING WALLS
	FENCE
	NEW TREELINE, TYP.
	EX TREE TO REMAIN, TYP.
	PROPOSED BITUMINOUS CONCRETE PAVEMENT
	PROPOSED CONCRETE PAVING
	PROPOSED BOAT RAMP
	PROPOSED LOAM & SEED

Project:
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Revisions:

Rev	Date	Description

CONSTRUCTION DOCUMENTS

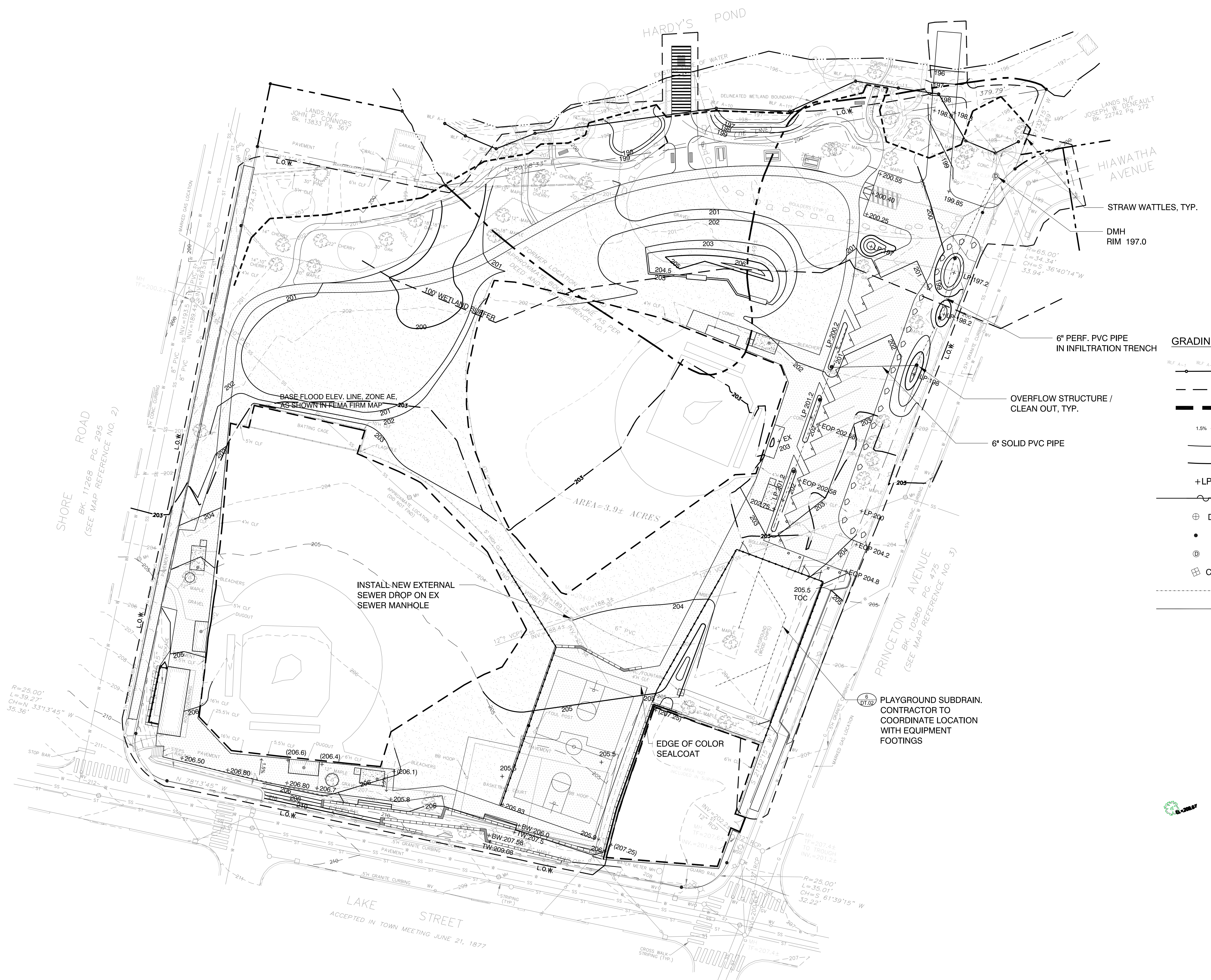
Date: 11.22.2011
 Scale: AS SHOWN
 Drawn By: MMM
 Reviewed By: MSM
 Checked By: LFK
 Approved By: ERB

Drawing Title:
LAZZERO PARK
 LAYOUT & MATERIALS
 PLAN

Sheet Number:
L-LM1

11-22-2011 CONSTRUCTION DOCUMENTS





GRADING & DRAINAGE LEGEND

	WETLAND DELINEATION
	100' WETLAND BUFFER
	STRAW WATTLES
	PR GRADIENT
	PR 1' CONTOURS
	PR 5' CONTOURS
	PR SPOT ELEVATIONS
	PR SWALE
	PR DRAIN INLET
	PR OVERFLOW STRUCTURE / CLEAN OUT
	PR DRAINAGE MANHOLE (DMH)
	PR CATCH BASIN
	PR PERFORATED DRAIN LINE
	PR SOLID RAIN LINE

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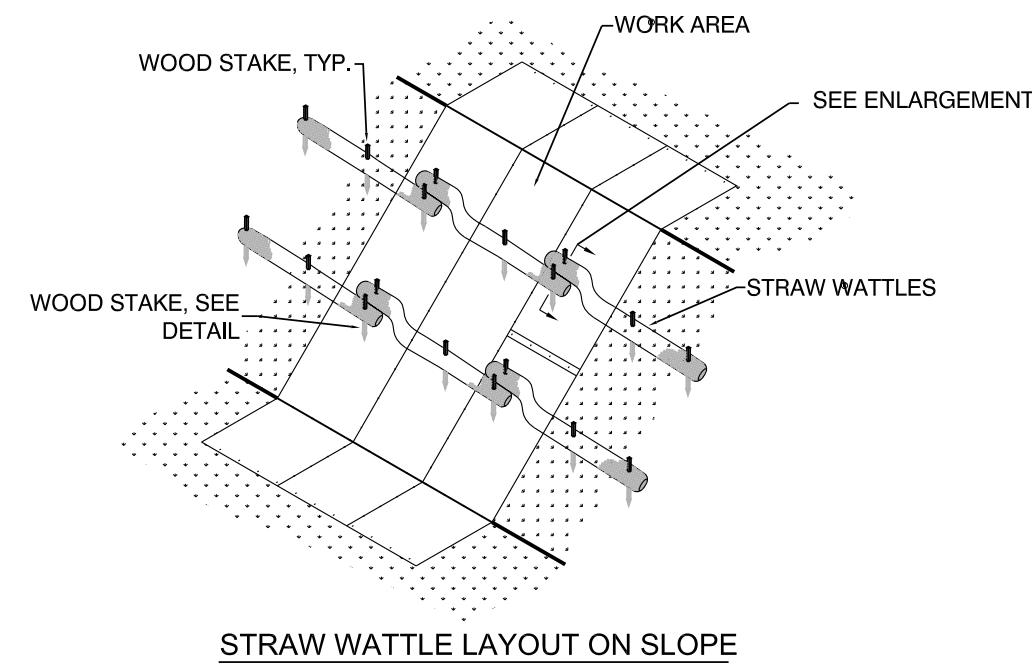
CONSTRUCTION DOCUMENTS

Date: 11.22.2011
 Scale: AS SHOWN
 Drawn By: MMM
 Reviewed By: MSM
 Checked By: LFK
 Approved By: ERB

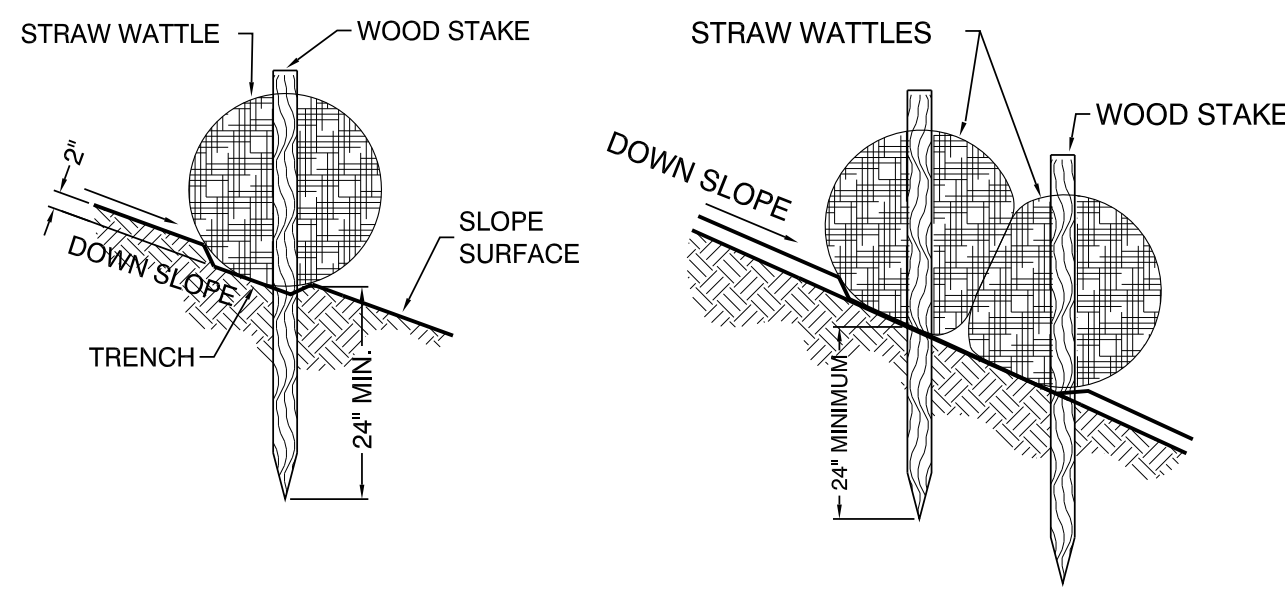
Drawing Title:
LAZAZZERO PARK
GRADING & DRAINAGE
PLAN

Sheet Number:
L-GD1

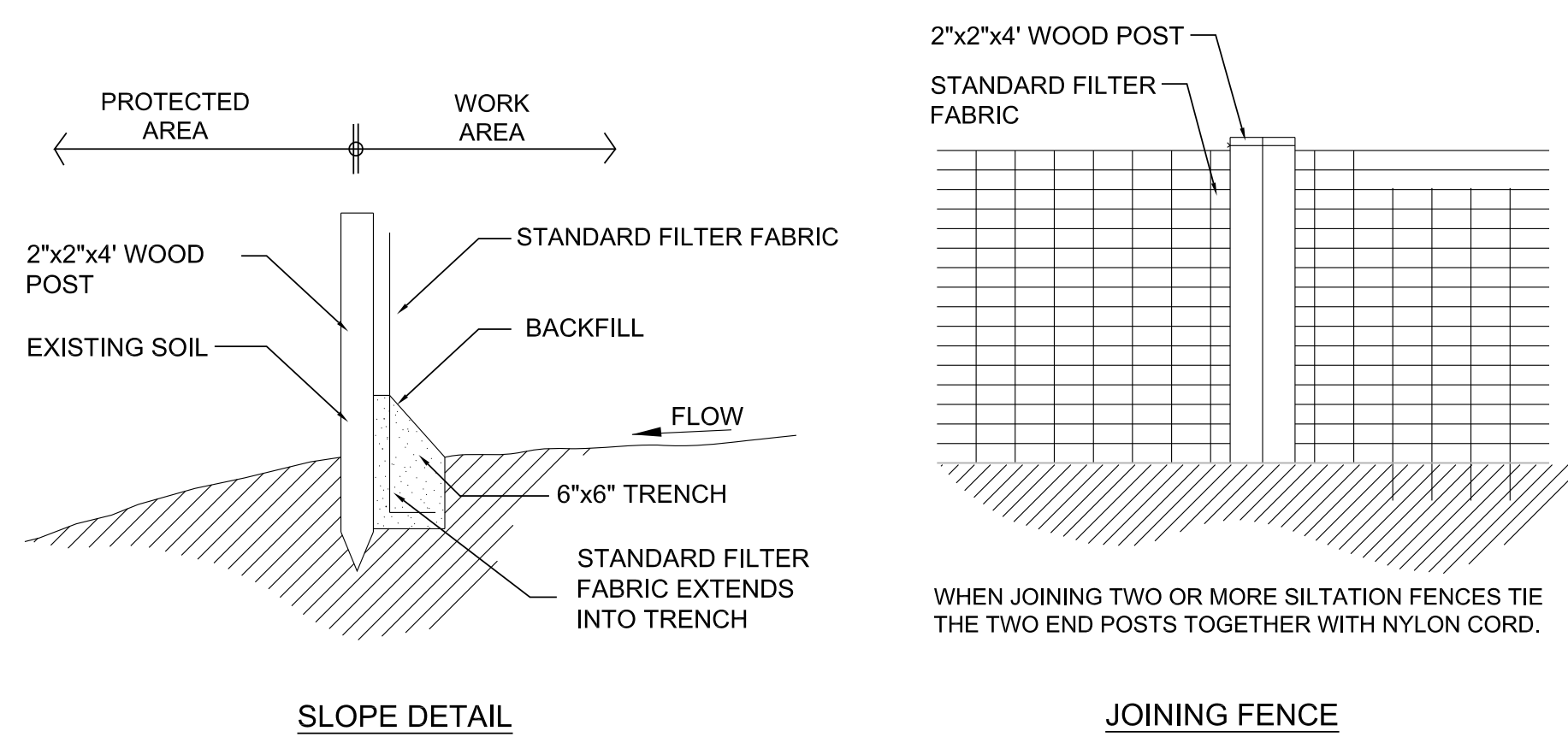
11-22-2011 CONSTRUCTION DOCUMENTS



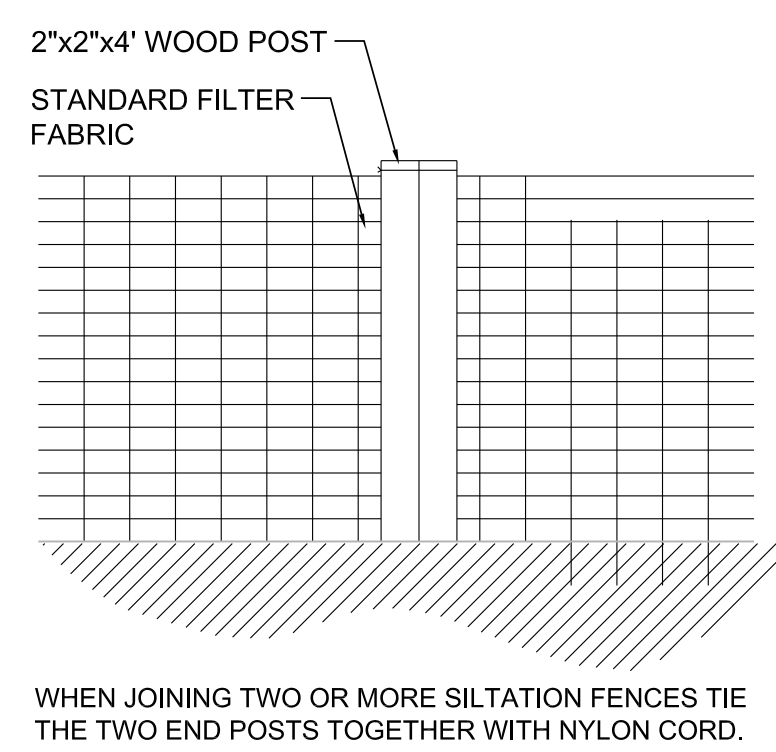
STRAW WATTLE LAYOUT ON SLOPE



STRAW WATTLE STAKING DETAILS



SLOPE DETAIL



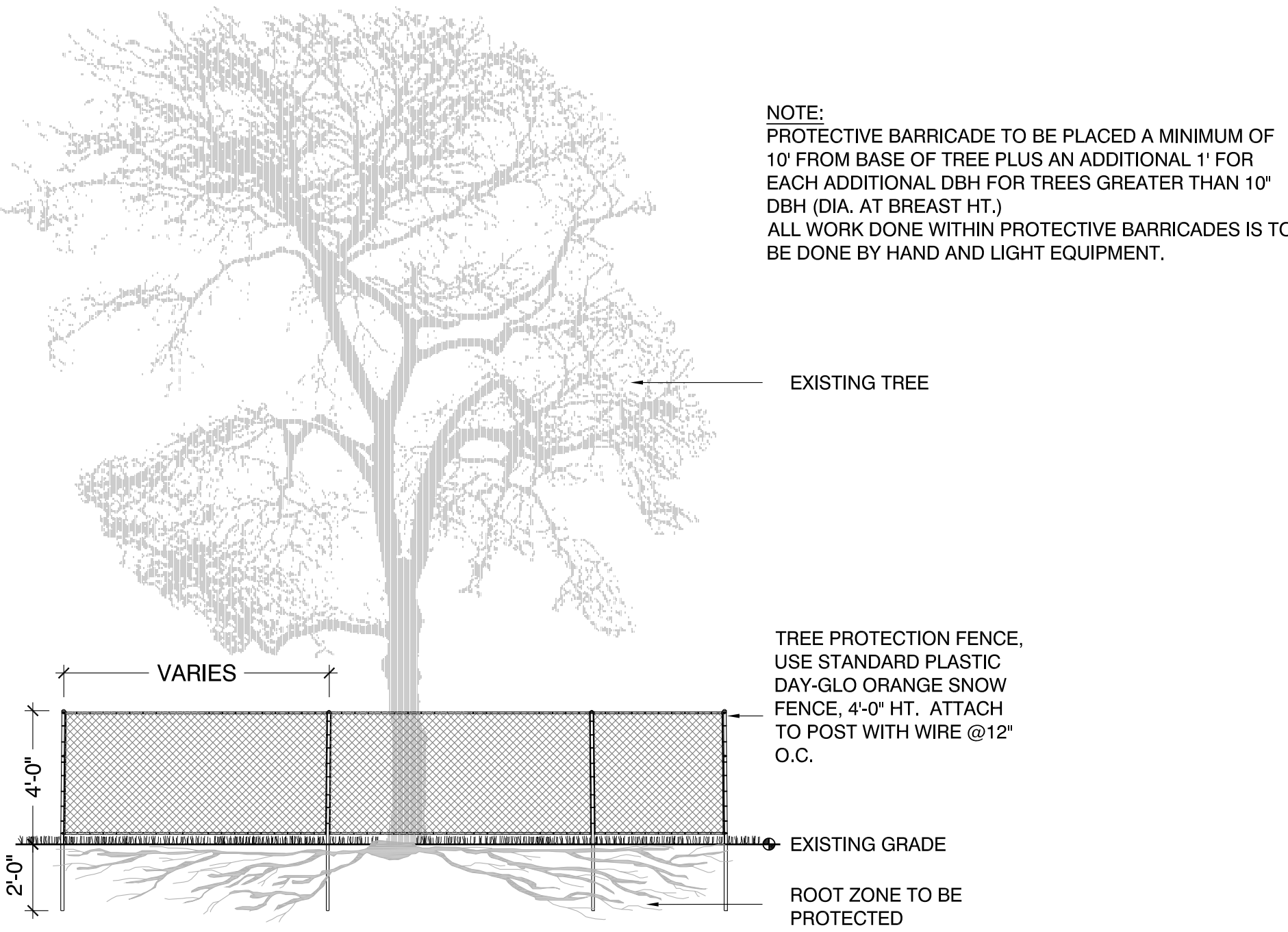
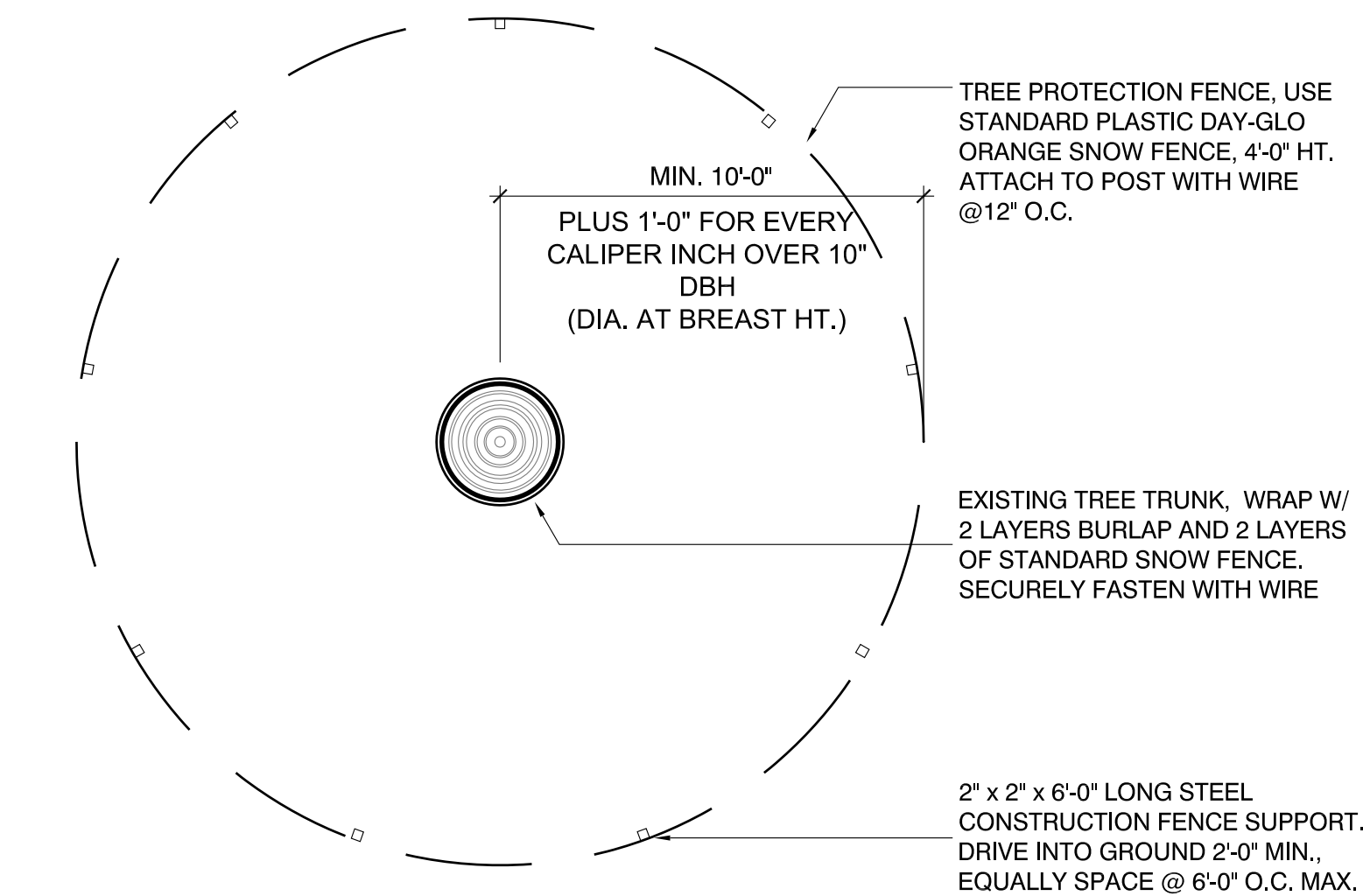
JOINING FENCE

CONSTRUCTION SPECIFICATIONS ON SILTATION & EROSION CONTROL

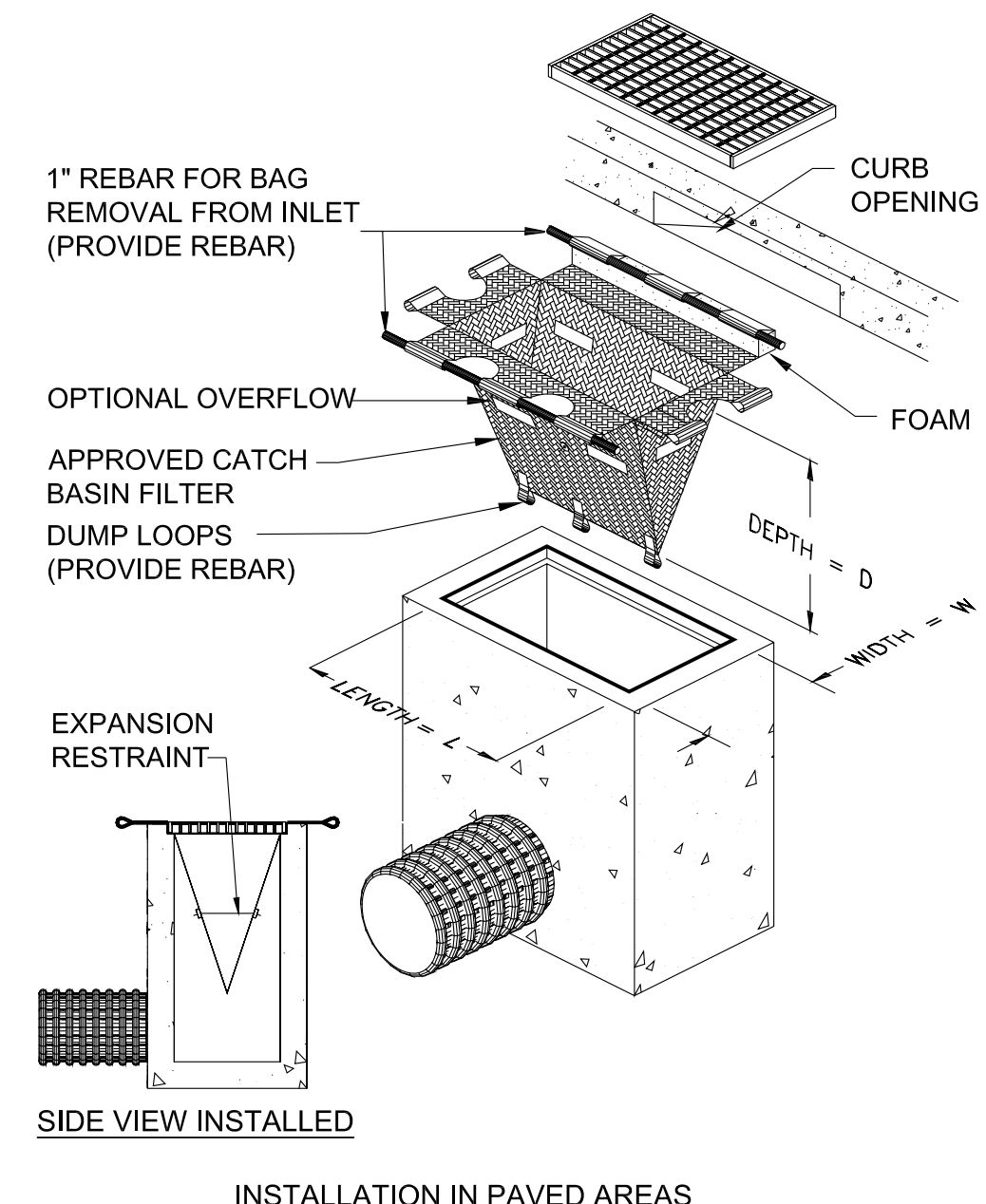
1. EROSION CONTROL MEASURES SHALL BE INCORPORATED IN THE SEQUENCE OF CONSTRUCTION TO PREVENT SEDIMENT LADEN WATER FROM LEAVING THE SITE.
2. AREAS SUBJECT TO EROSION SHALL BE MINIMIZED IN TERMS OF TIME AND AREA.
3. IN GENERAL, WORK REQUIRING EROSION CONTROL INCLUDES EXCAVATIONS, FILLS, DRAINAGE, SWALES AND DITCHES, ROUGH AND FINISH GRADING, AND STOCKPILING OF EARTH.
4. DO NOT DISTURB VEGETATION AND TOPSOIL BEYOND THE PROPOSED LIMIT OF SILT FENCE ACTIVITIES.
5. TEMPORARY SILT FENCE SHALL BE PLACED AS SHOWN ON THE PLAN. PERMANENTLY STABILIZE EACH COMPLETED SEGMENT OF CONSTRUCTION.
6. THE CONTRACTOR SHALL REMOVE TEMPORARY SILT FENCE AND ALL ACCUMULATED SILT AND DEBRIS AFTER COMPLETION OF CONSTRUCTION OPERATIONS.
7. SILT FENCE SHALL BE IN PLACE AT ALL TIMES DURING CONSTRUCTION.
8. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL SILT AND DEBRIS FROM EACH DRAINAGE STRUCTURE UPON COMPLETION OF THE PROJECT.
9. OBJECTS AND/OR AREAS DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED TO THEIR ORIGINAL CONDITION.
10. ALL DISTURBED AREAS SHALL BE RESTORED TO EXISTING GRADE. INSPECTION SHALL BE FREQUENT AND REPAIR OR REPLACEMENT SHALL BE MADE AS NEEDED.
11. SILT FENCE SHALL BE REMOVED UPON THE SATISFACTORY COMPLETION OF ALL WORK SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.

1 SILT FENCE- EROSION CONTROL
SCALE: N.T.S.

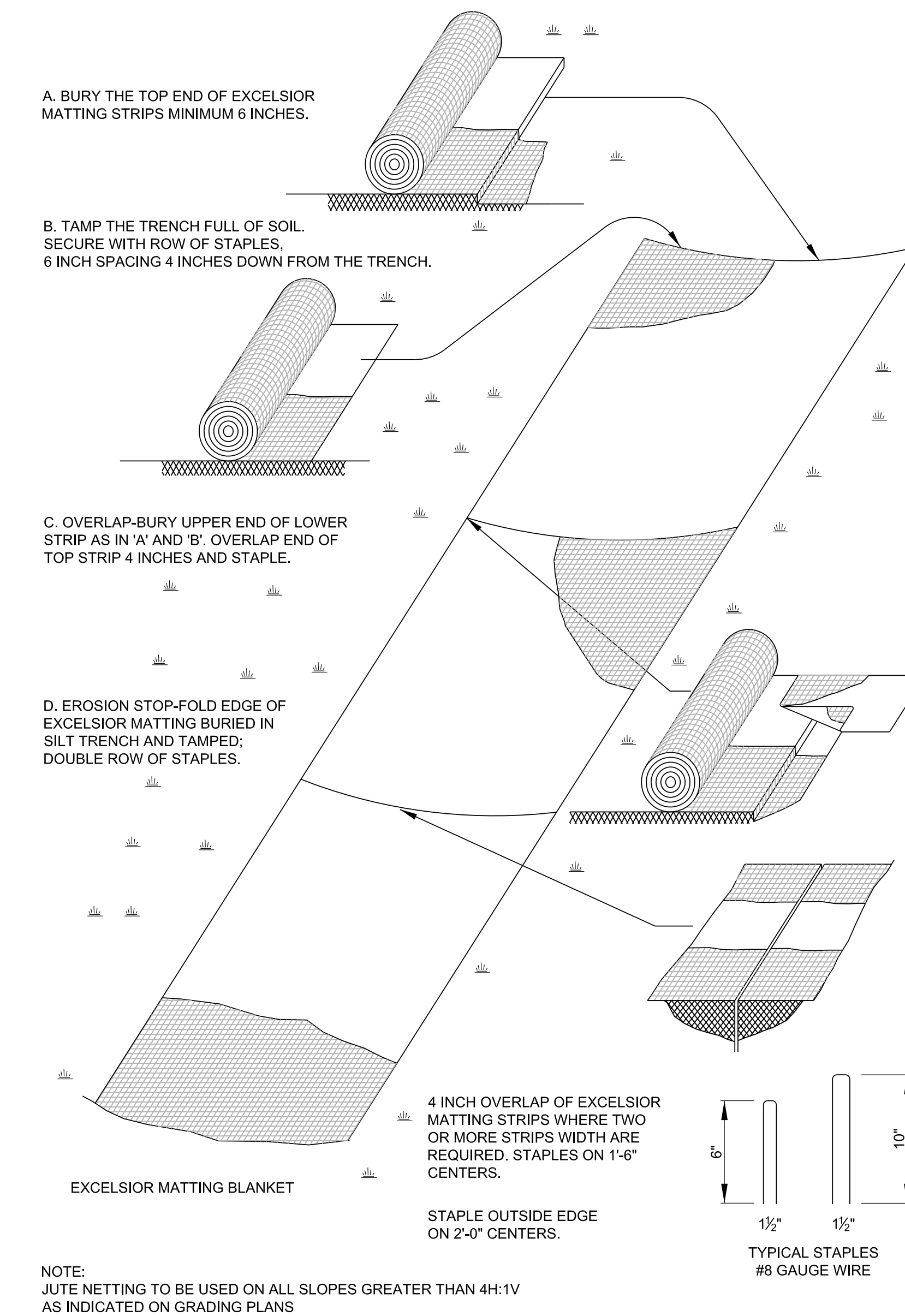
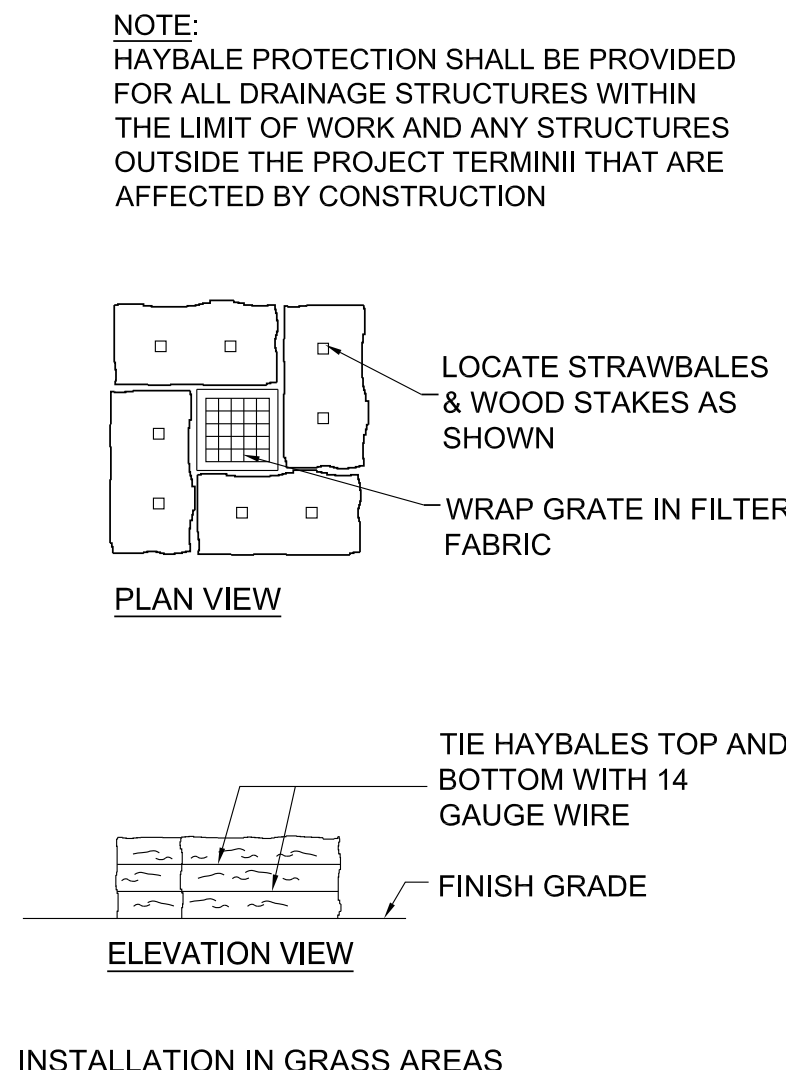
NOTE:
FOR TREES THAT OCCUR IN GROUPS PROVIDE TREE PROTECTION FENCE AROUND ENTIRE AREA. SEE PLAN FOR LOCATIONS.



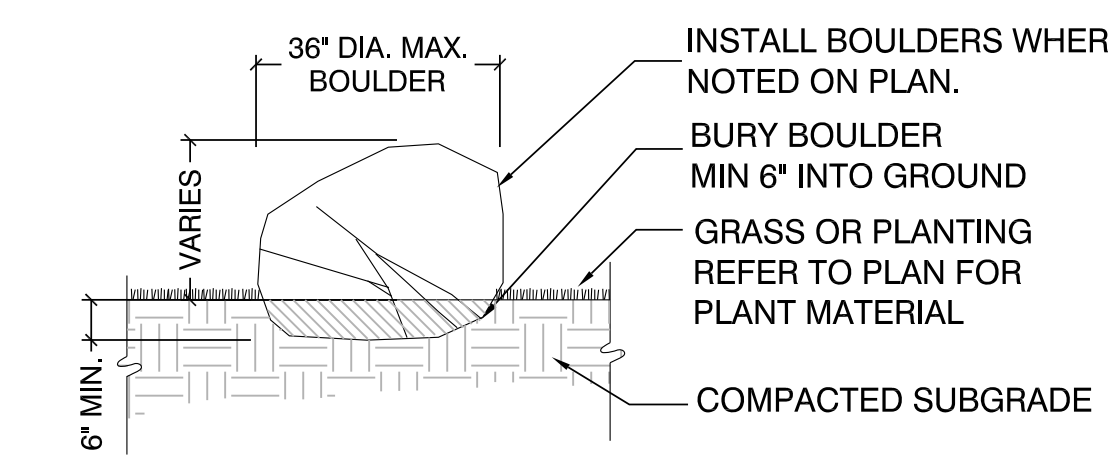
2 TREE PROTECTION DETAIL
SCALE: N.T.S.



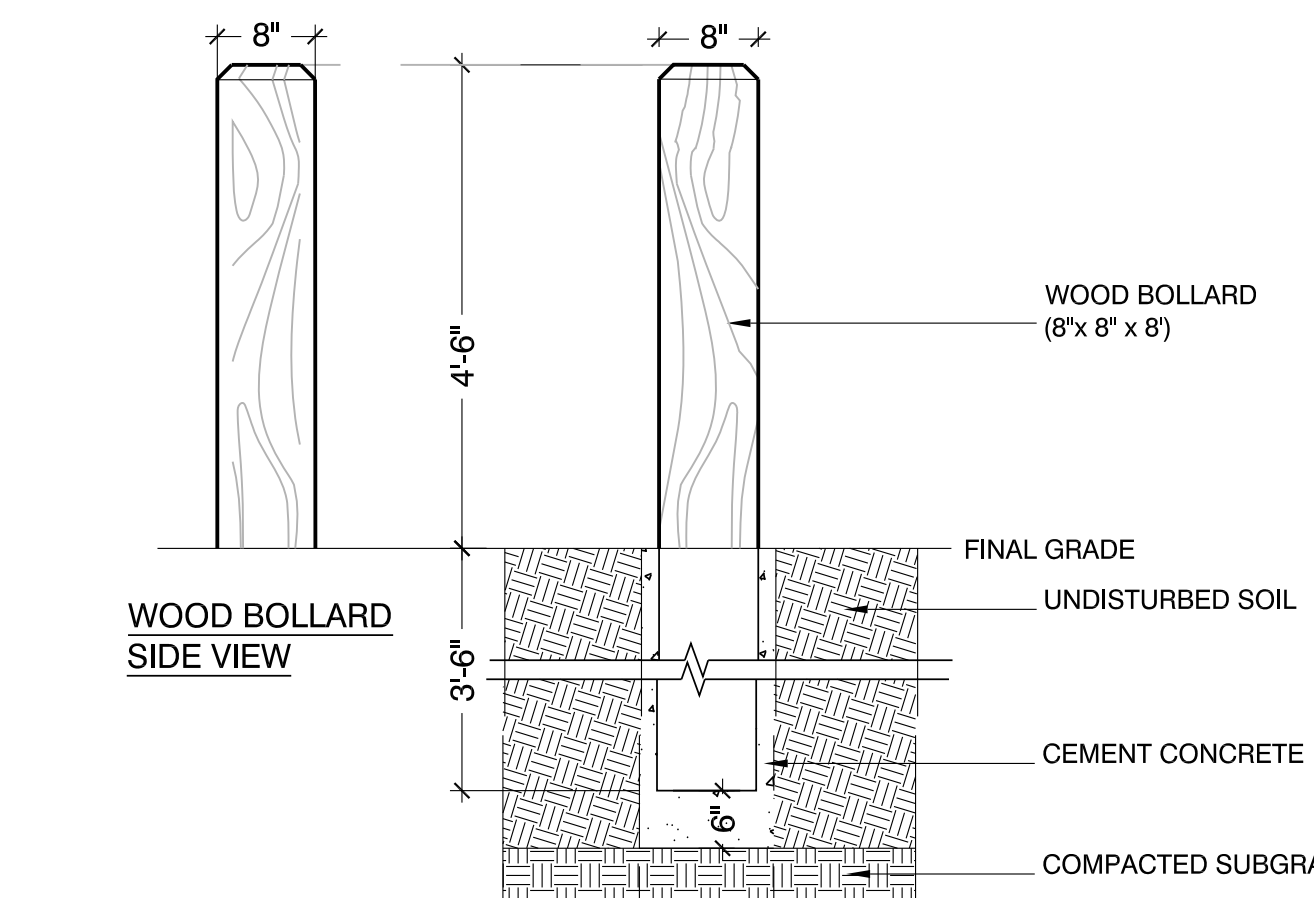
3 INLET SEDIMENT CONTROL
SCALE: N.T.S.



4 EROSION CONTROL BLANKET
SCALE: N.T.S.



5 BOULDER PLACEMENT
SCALE: N.T.S.



6 WOOD BOLLARD
SCALE: N.T.S.

Project:
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Consultants:

Revisions:

Rev	Date	Description

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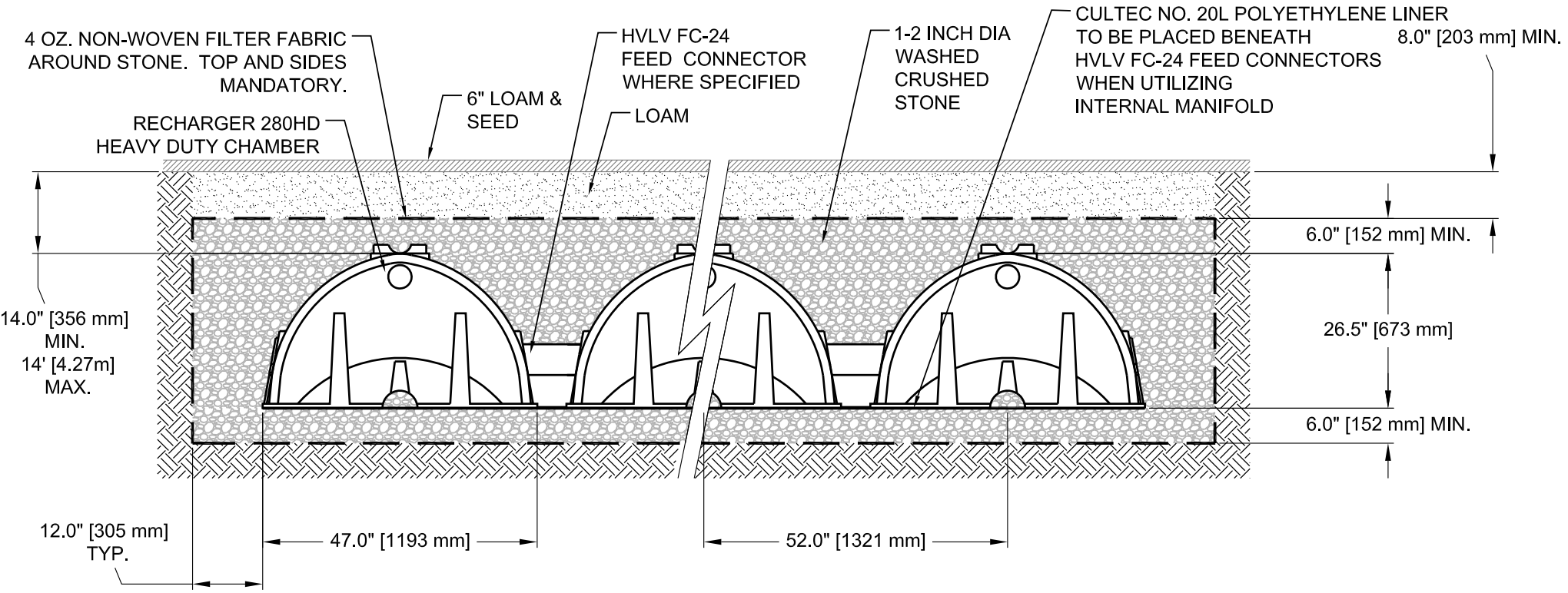
CONSTRUCTION DOCUMENTS

Date: 11.22.2011
Scale: AS SHOWN
Drawn By: MMM
Reviewed By: MSM
Checked By: LFK
Approved By: ERB

Drawing Title:
SITE CONSTRUCTION DETAILS

Sheet Number:
DT.01

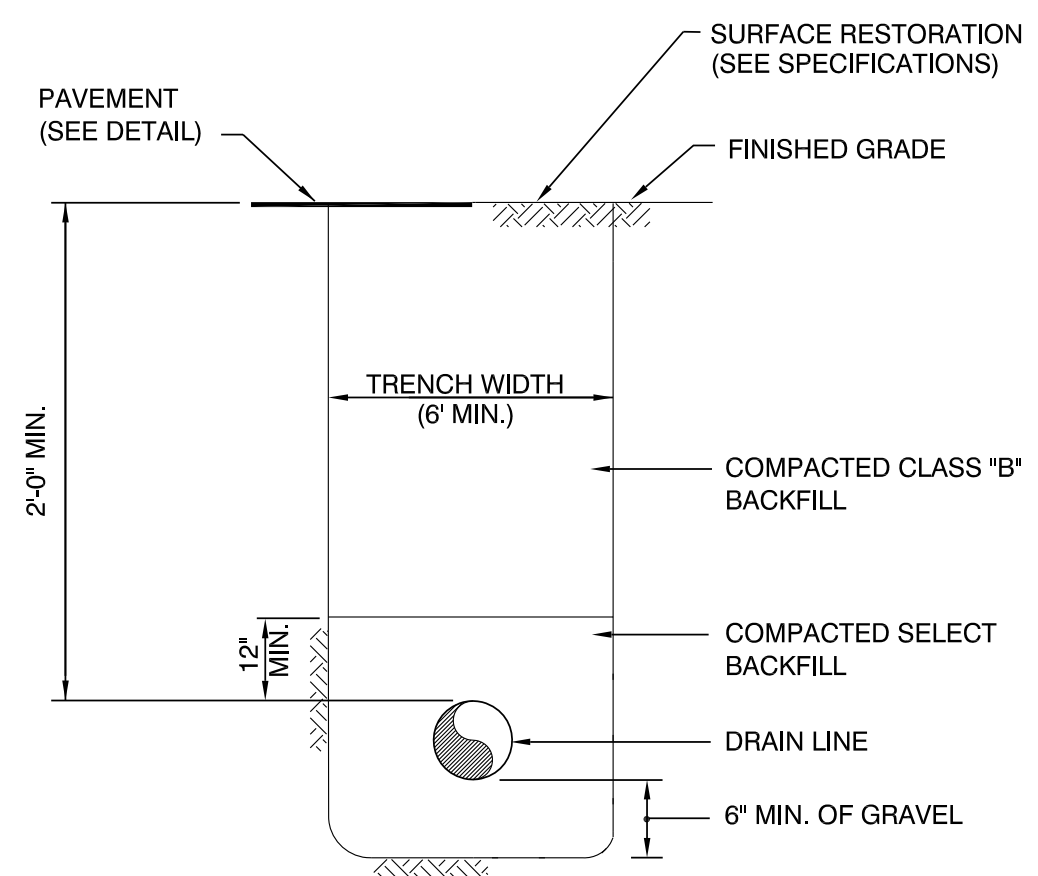
11-22-2011 CONSTRUCTION DOCUMENTS



GENERAL NOTES
 STORAGE PROVIDED = 9.2 CF/FT PER DESIGN UNIT.
 REFER TO MANUFACTURERS' CURRENT RECOMMENDED
 INSTALLATION GUIDELINES.
 USE RECHARGER 280HD HEAVY DUTY FOR TRAFFIC
 AND/OR H-25 APPLICATIONS.

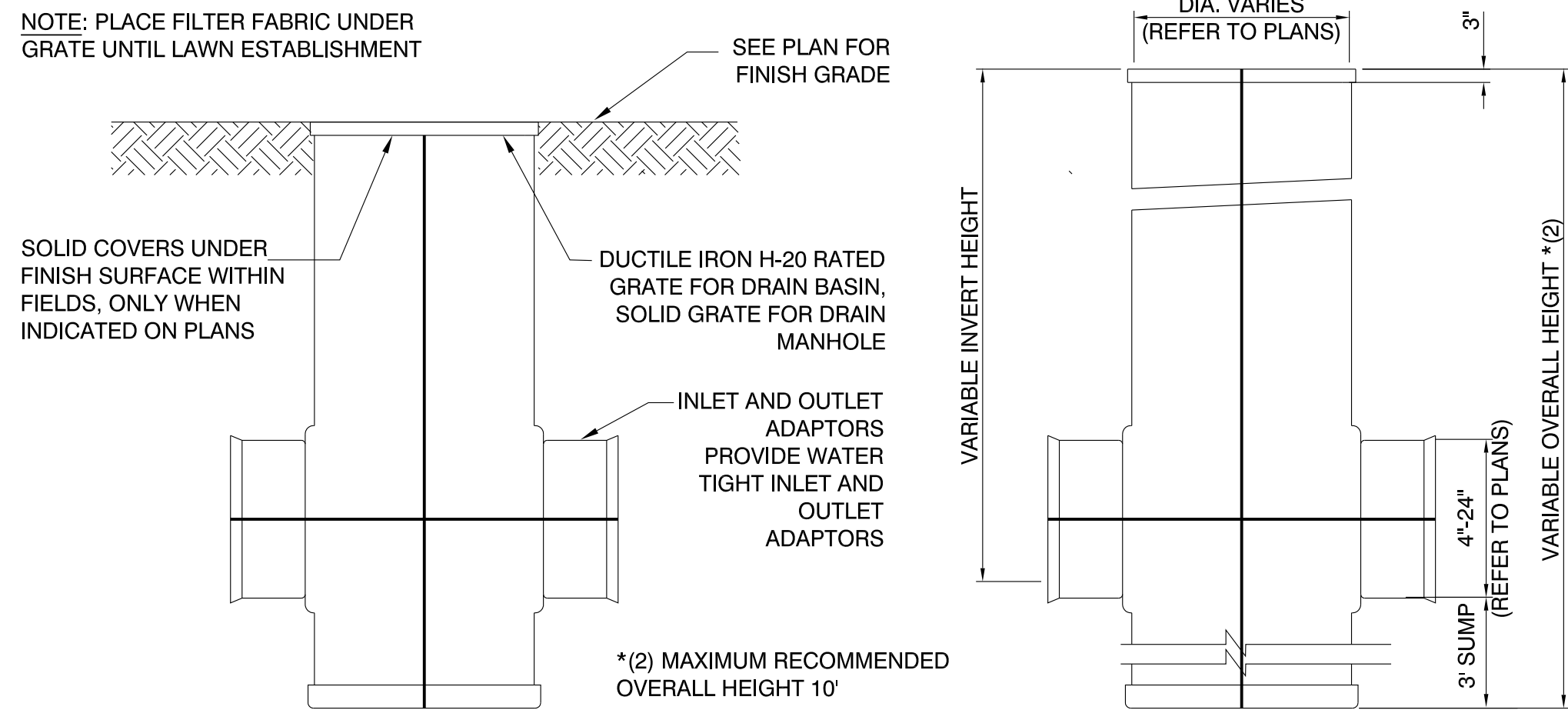
ALL CHAMBERS MUST BE INSTALLED IN ACCORDANCE
 WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL
 REGULATIONS.

1 HEAVY DUTY STORMWATER STORAGE CHAMBERS
 SCALE: N.T.S.

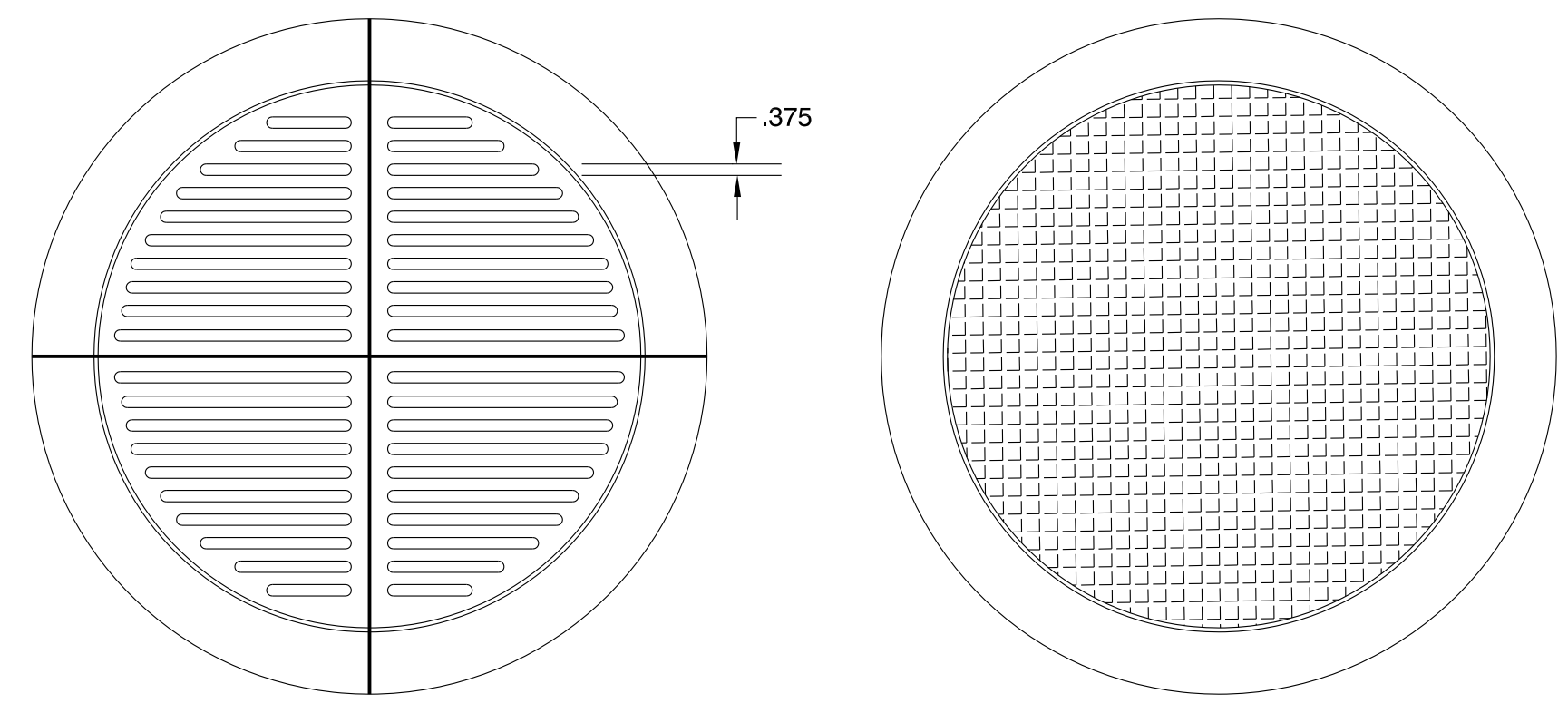


2 DRAIN LINE TRENCH DETAIL
 SCALE: N.T.S.

- NOTES:**
1. INLET DRAINS, BASINS, COVERS AND INCIDENTALS SHALL BE MANUFACTURED BY NYLOPLAST OR APPROVED EQUAL.
 2. BACKFILL MATERIAL SHALL BE COMPACTED TO A DENSITY OF 90% AS PER AASH TO T-99.
 3. PIPE INSTALLATION INCLUDES ALL BASINS, ADAPTERS, COUPLINGS AND FITTINGS SHALL BE INSTALLED ACCORDING TO ASTM D2321.

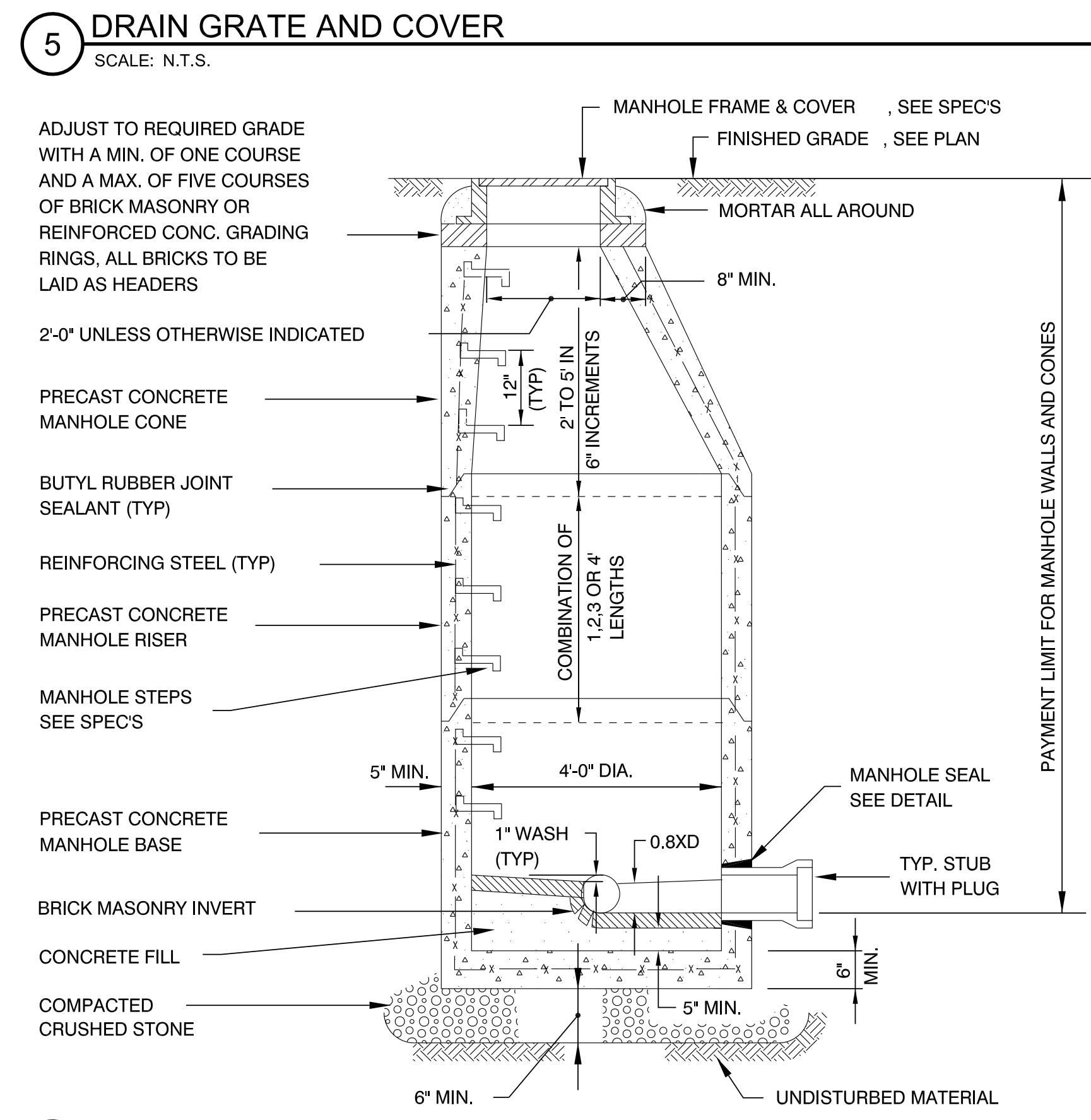


4 DRAIN INLET/DMH
 SCALE: N.T.S.

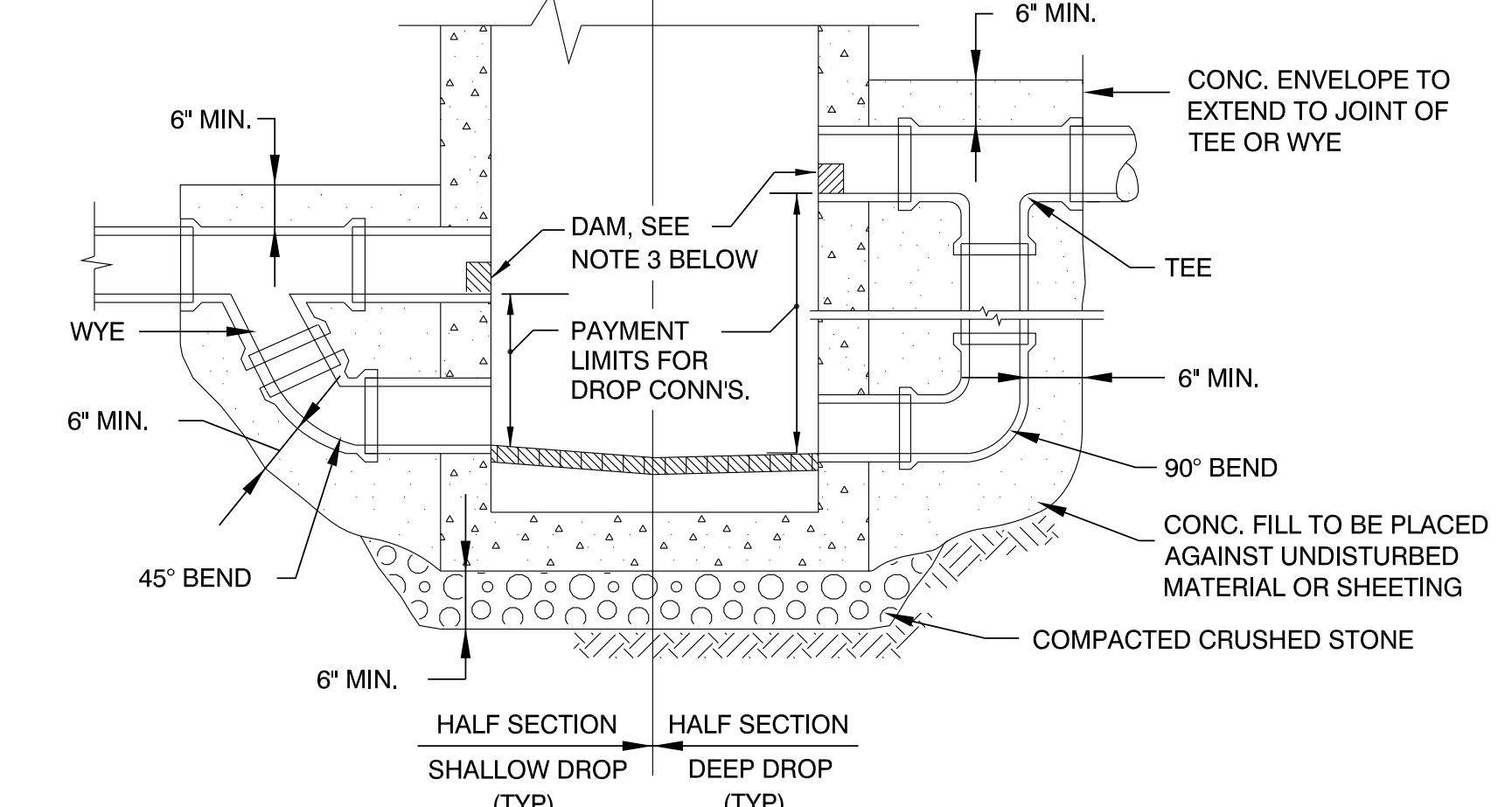


5 DRAIN GRATE AND COVER
 SCALE: N.T.S.

MATERIAL: DUCTILE IRON
 QUALITY: MATERIAL SHALL CONFORM TO ASTM A48 - CLASS 30B
 PAINT: CASTINGS ARE FURNISHED WITH A BLACK PAINT DIA. VARIES- REFER TO PLANS

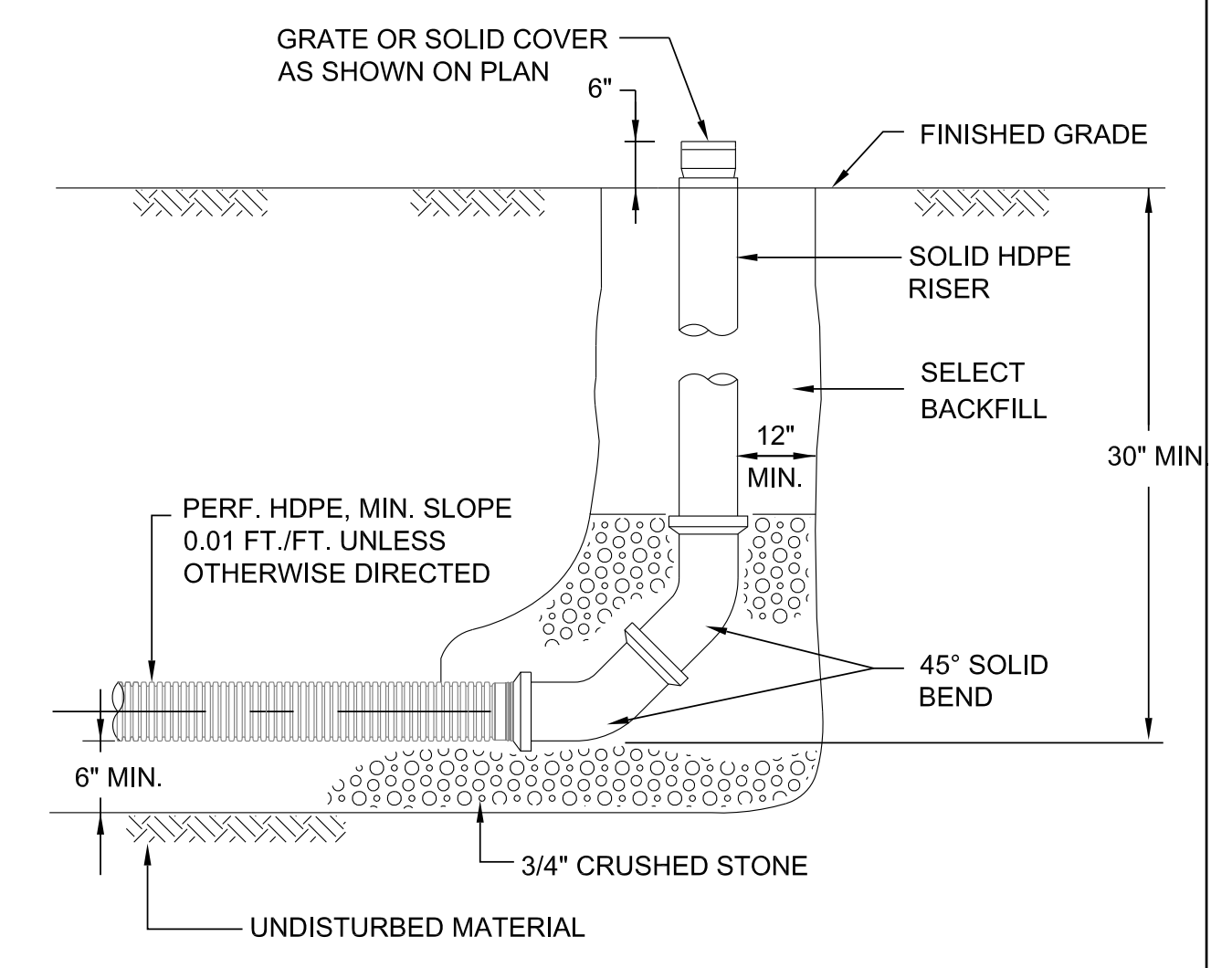


6 DRAINAGE MANHOLE
 SCALE: N.T.S.

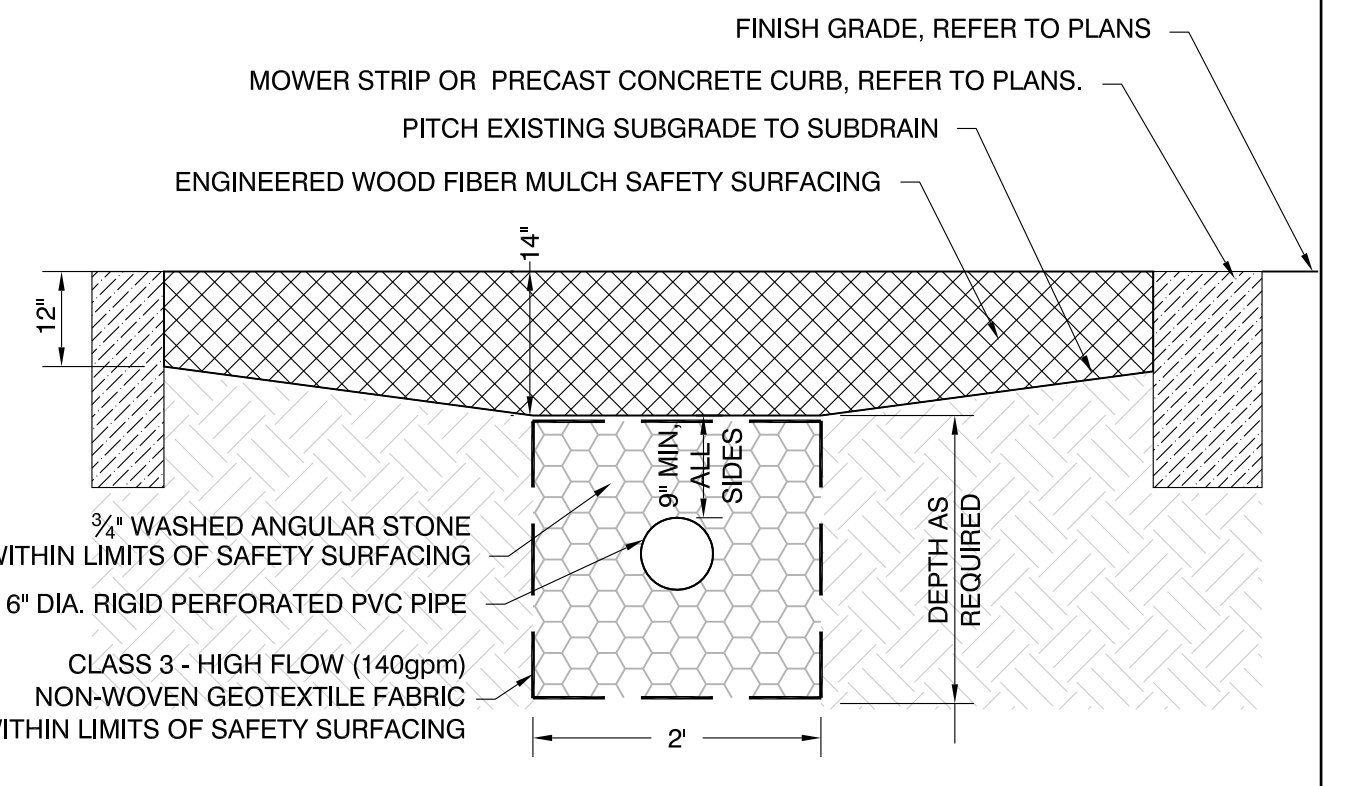


- NOTES:**
1. DROP PIPE TO BE SAME DIAMETER AS SEWER DISCHARGE INTO MANHOLE UNLESS OTHERWISE SHOWN ON DRAWINGS.
 2. DIMENSIONS & CONSTRUCTION OF DROP MANHOLE TO BE SIMILAR TO TYPICAL MANHOLE EXCEPT AS SHOWN. FOR PVC PIPE, EPOXY HALF PLUG TO PIPE.
 3. FOR DI, VC AND RC PIPE, MORTAR AND BRICK IN PIPE.

7 EXTERNAL SEWER DROP CONNECTION
 SCALE: N.T.S.



8 CLEANOUT DETAIL
 SCALE: N.T.S.



9 PLAYGROUND SUBDRAIN
 SCALE: N.T.S.

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Consultants:

Revisions:

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Seal:

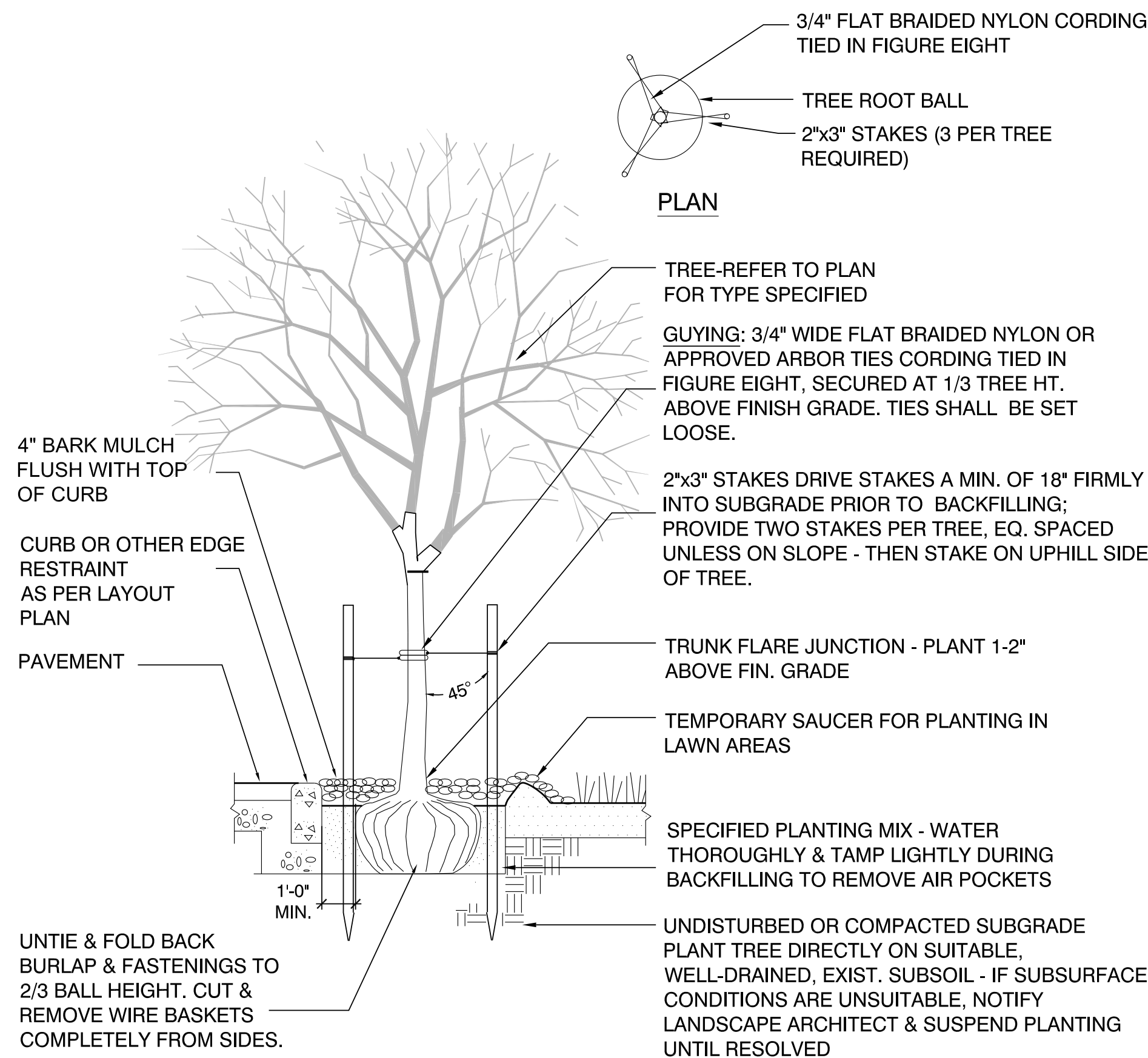
CONSTRUCTION DOCUMENTS

Date: 11.22.2011
 Scale: AS SHOWN
 Drawn By: GTS/MMM
 Reviewed By: MSM
 Checked By: LFK
 Approved By: ERB

Drawing Title:
SITE CONSTRUCTION DETAILS

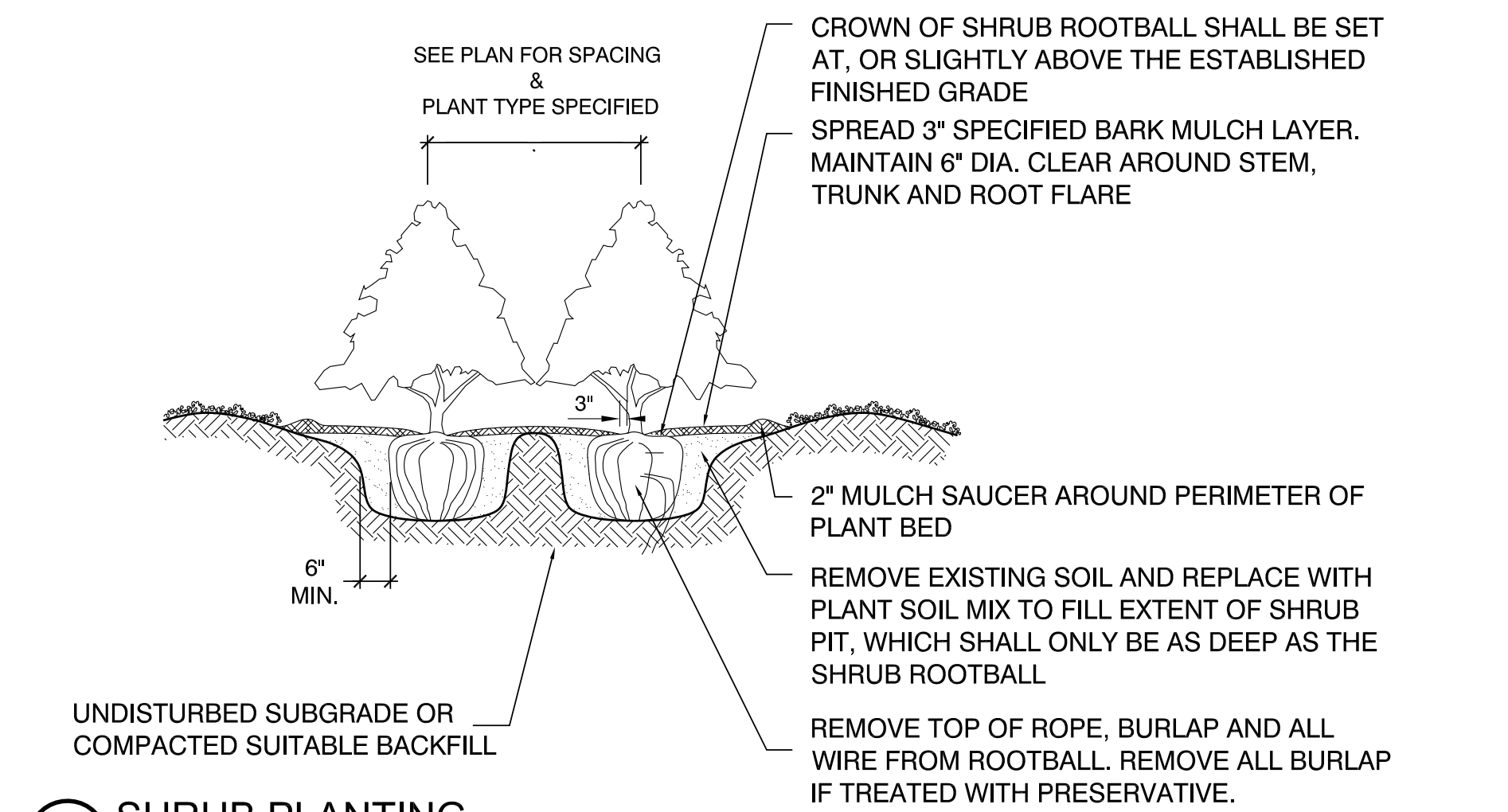
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11-22-2011 CONSTRUCTION DOCUMENTS

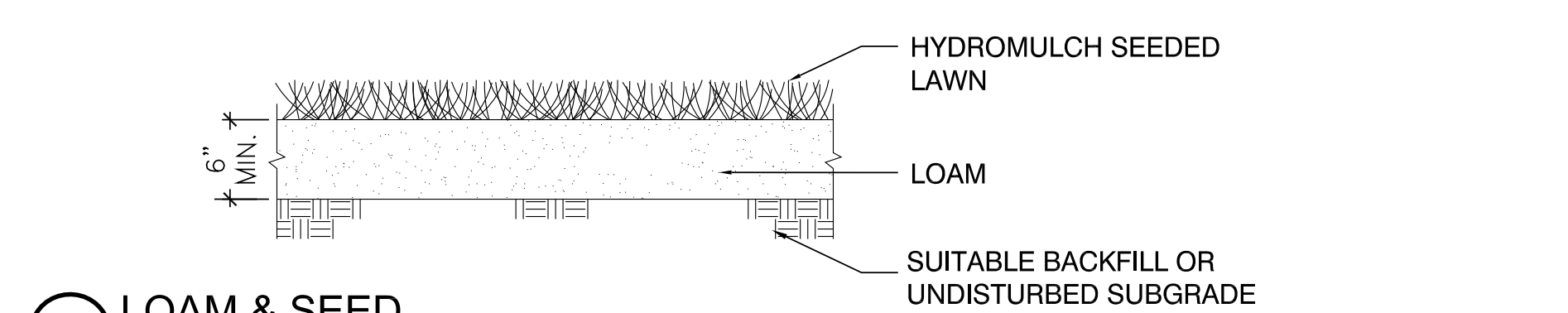


1 TREE STAKING & PLANTING - 2 CONDITIONS
SCALE: N.T.S.

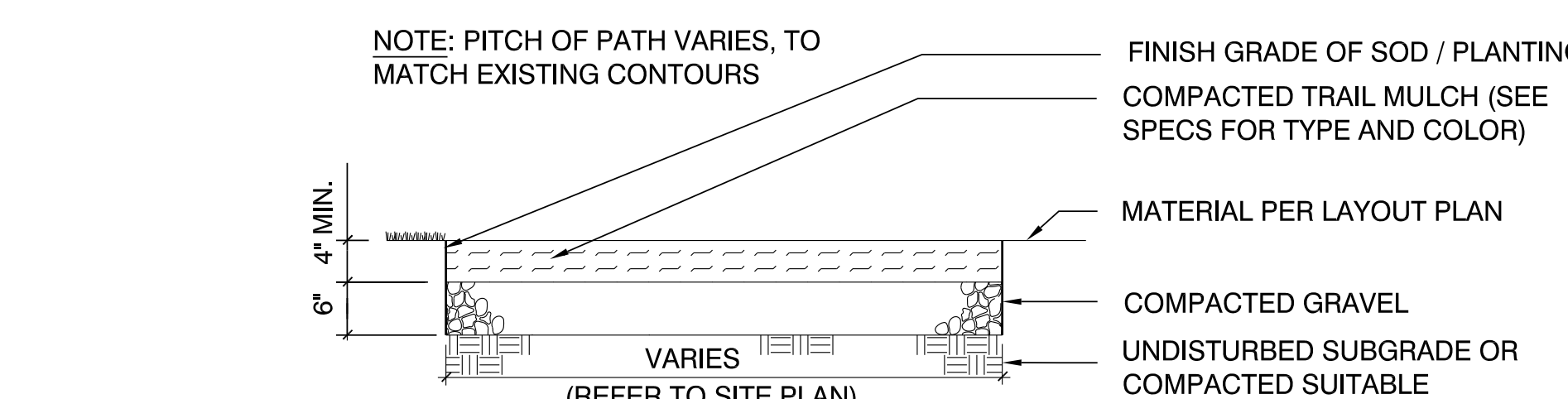
1 TREE STAKING & PLANTING - 2 CONDITIONS
SCALE: N.T.S.



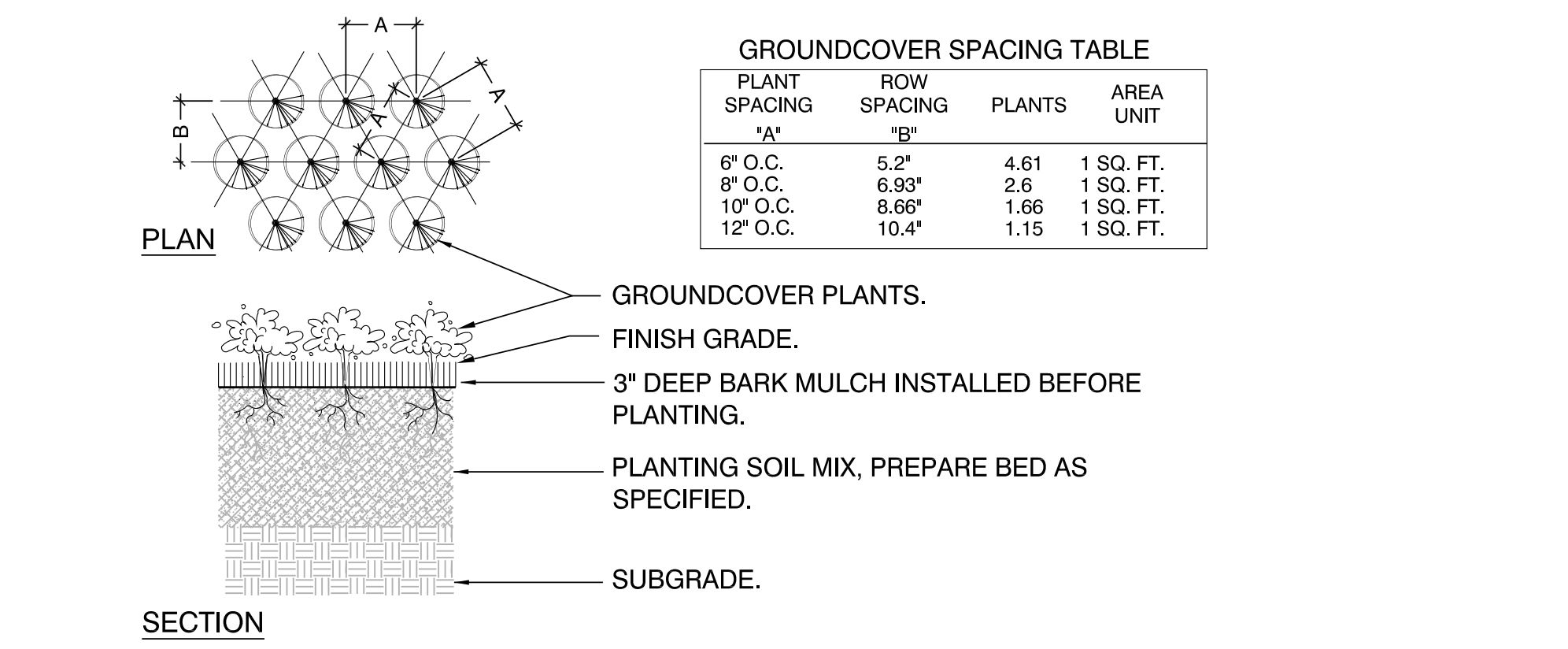
2 SHRUB PLANTING
SCALE: N.T.S.



3 LOAM & SEED
SCALE: N.T.S.

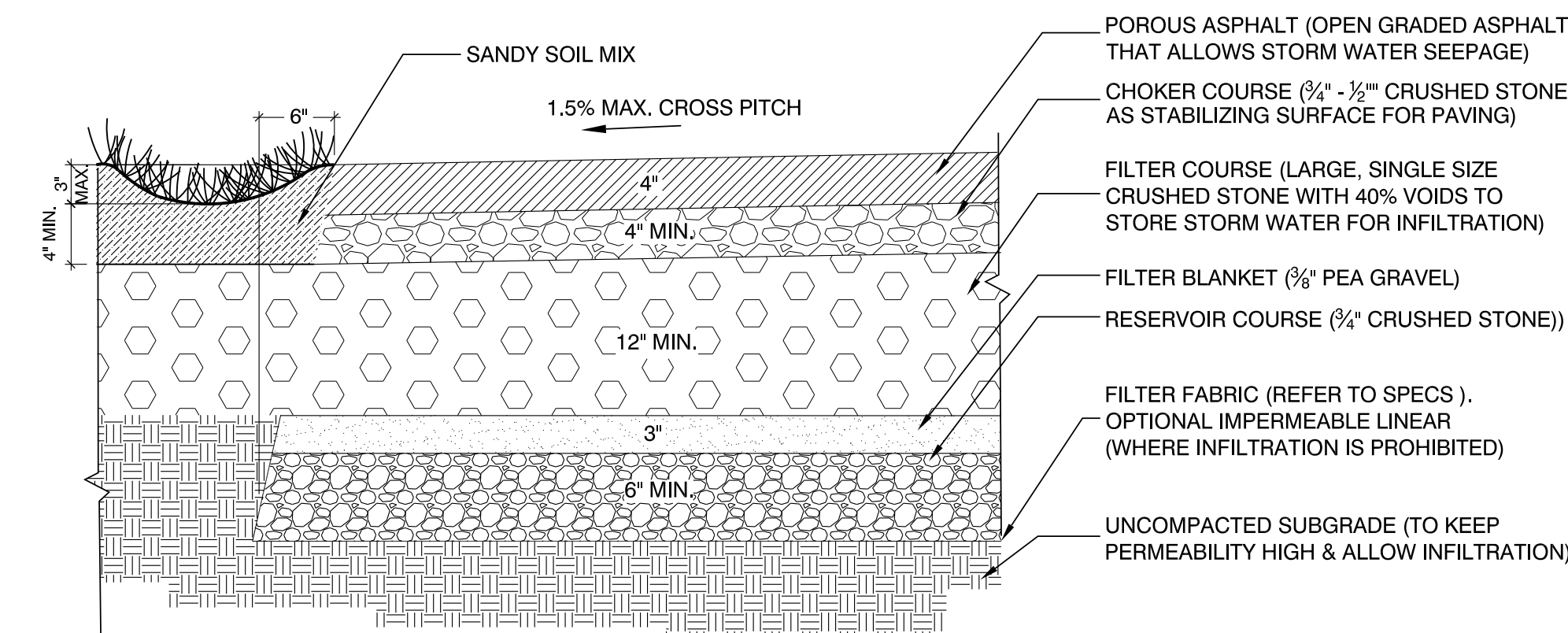


4 WOODLAND TRAILS
SCALE: N.T.S.

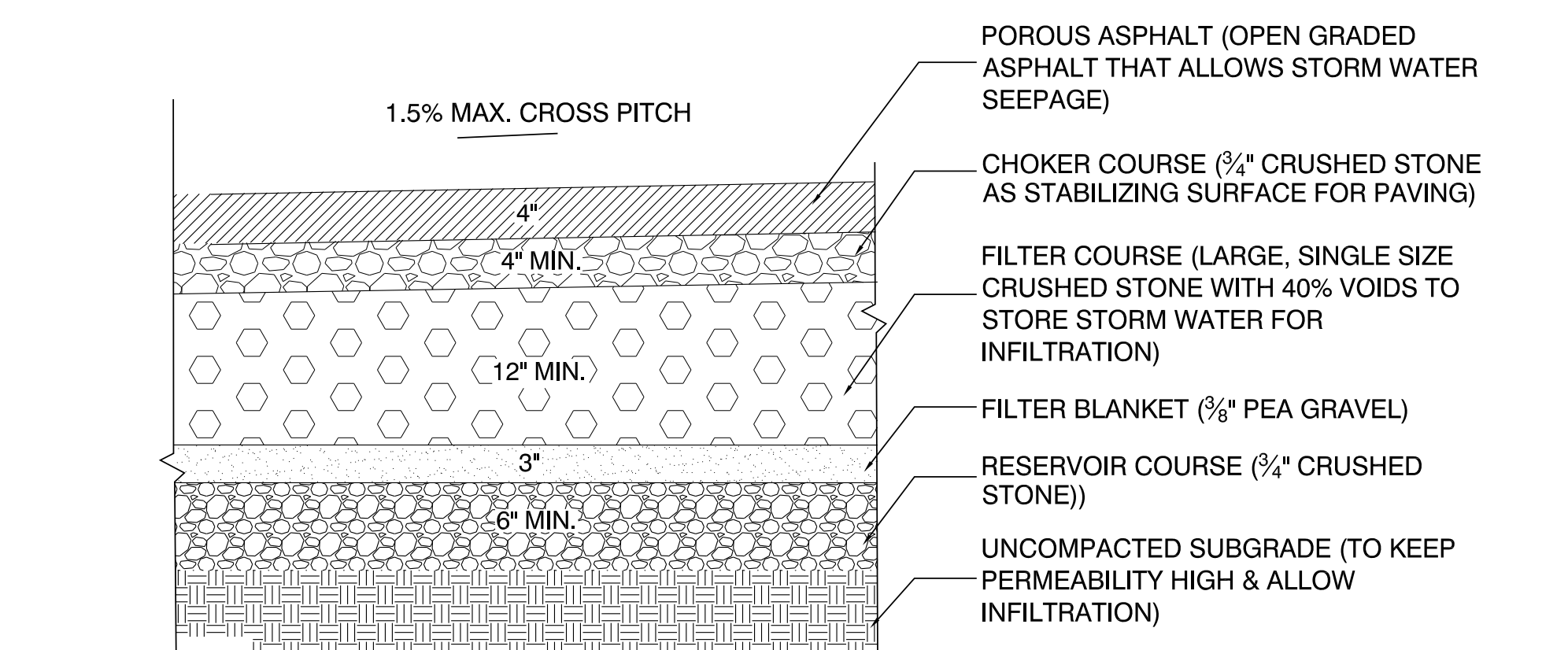


NOTES:
1. ALL GROUNDCOVER TO BE PLANTED IN TRIANGULAR PATTERN. SEE DETAIL PLAN AND GROUNDCOVER SPACING TABLE.
2. JUTE EROSION CONTROL MAT TO BE USED ON ALL SLOPES GREATER THAN 3:1

5 GROUNDCOVER PLANTING
SCALE: N.T.S.

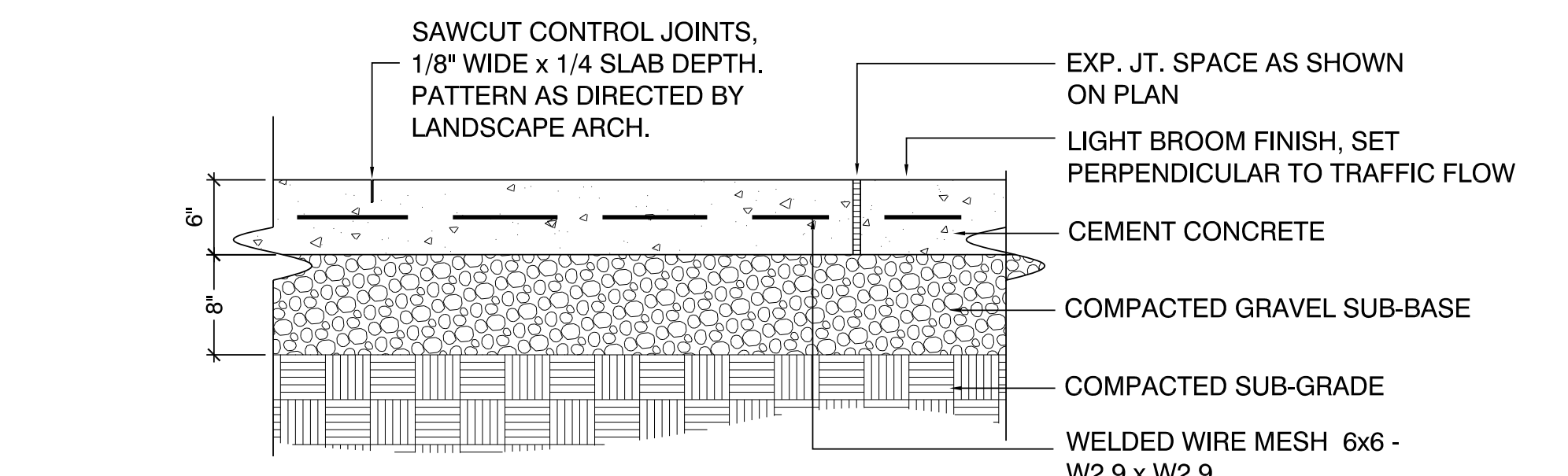


6 PERVIOUS ASPHALT PAVEMENT WITH SWALE
SCALE: N.T.S.

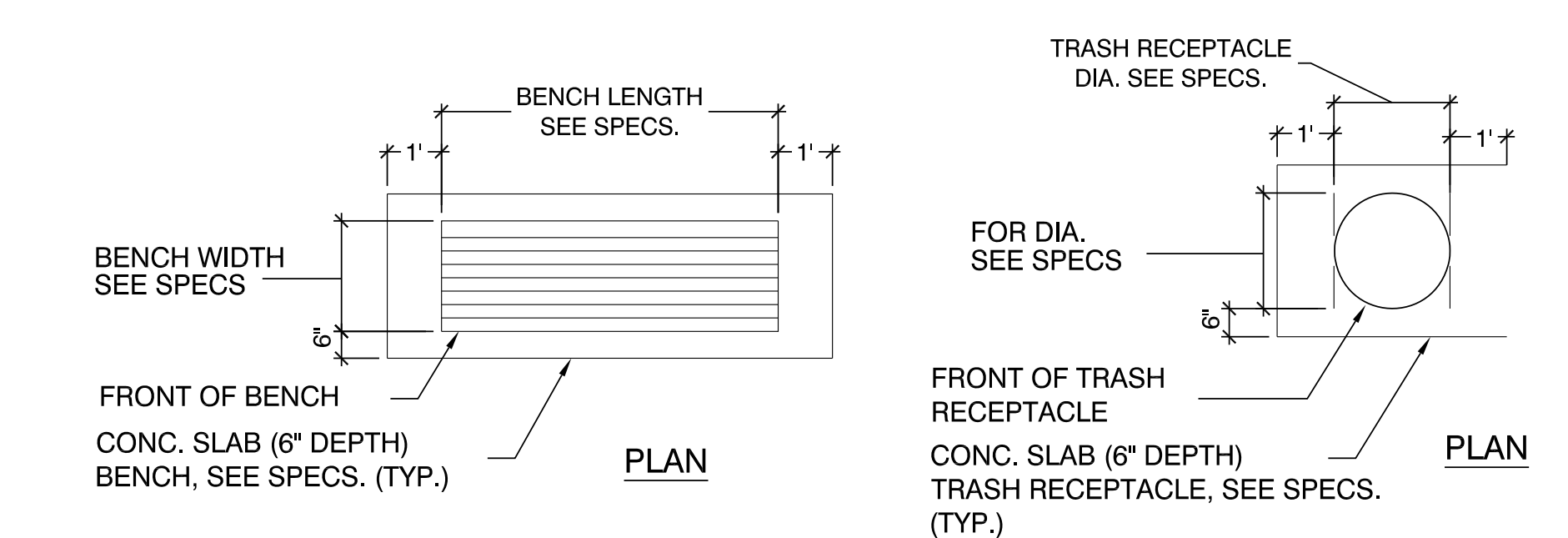
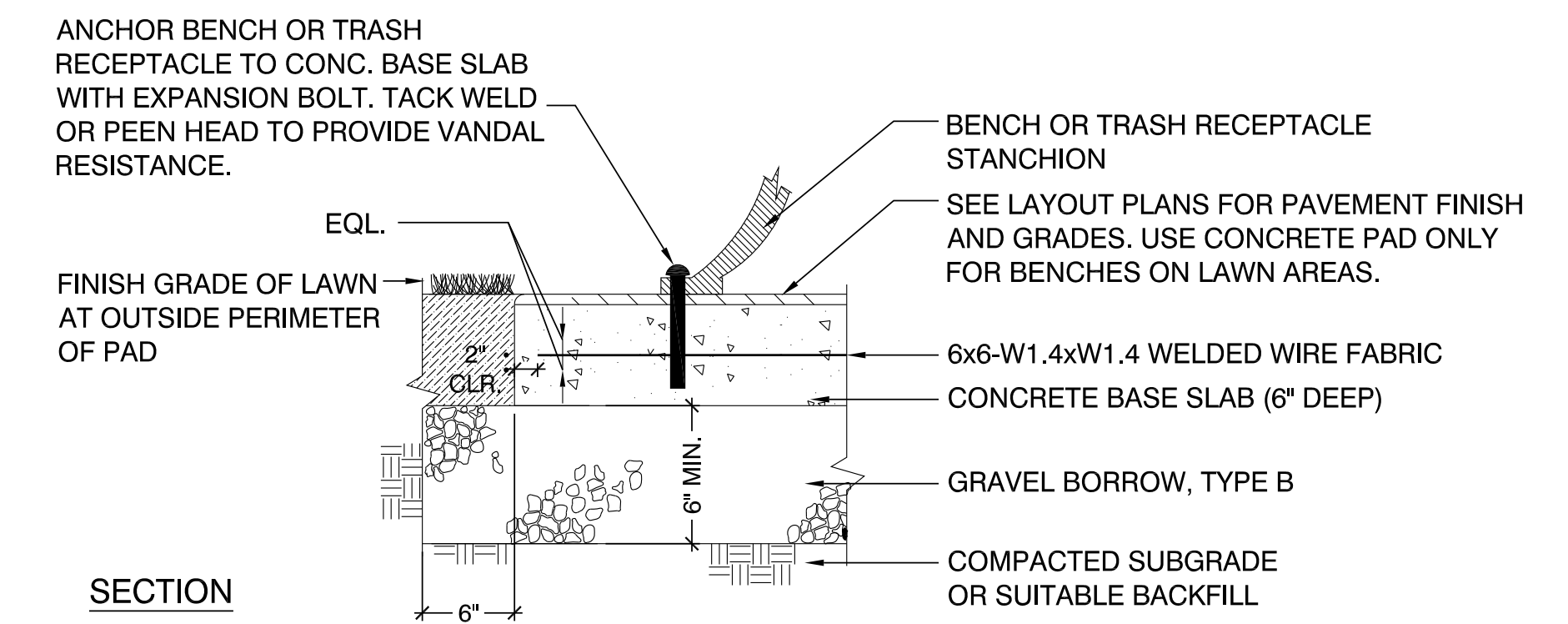


7 PERVIOUS ASPHALT PAVEMENT
SCALE: N.T.S.

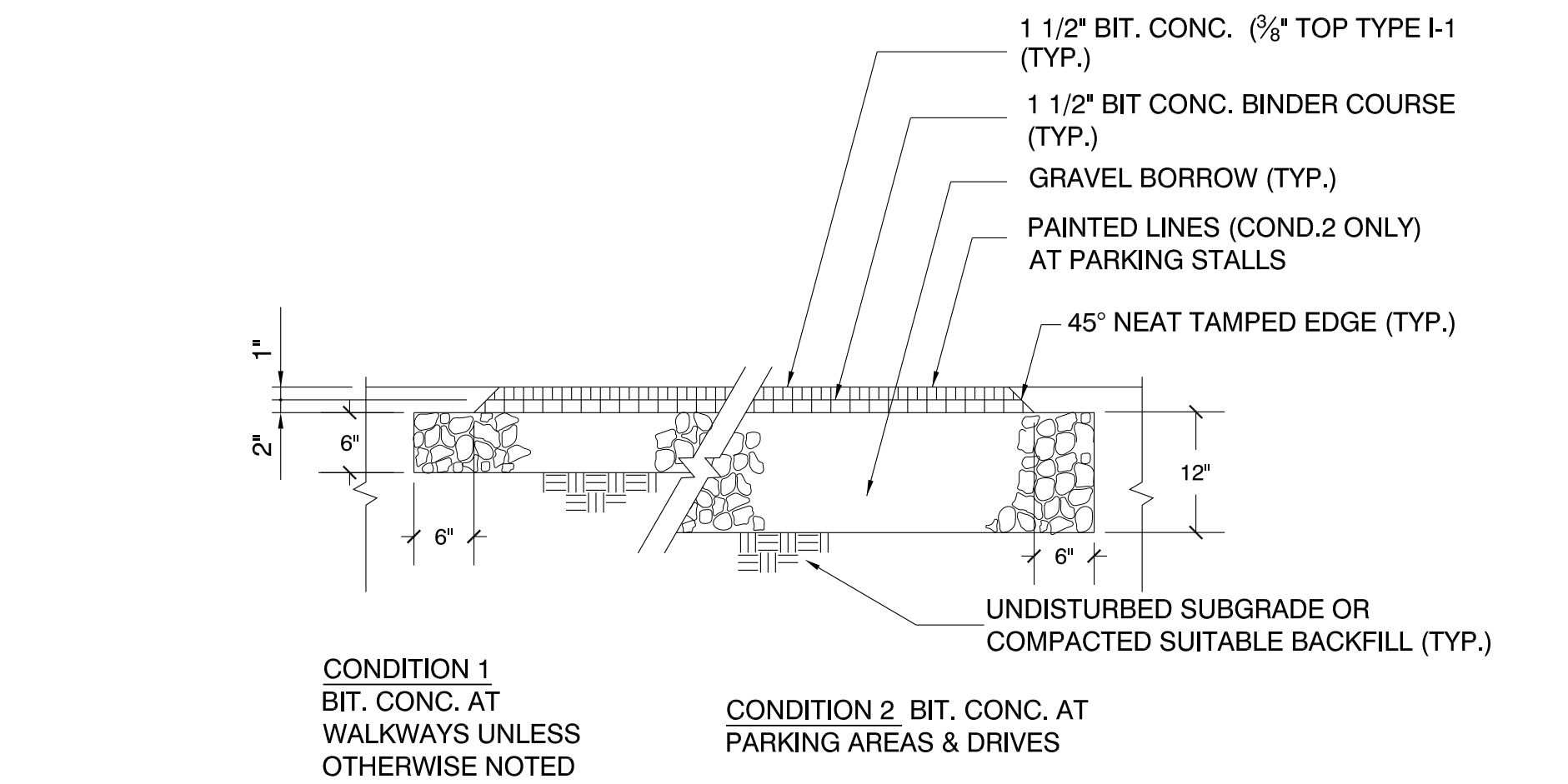
*NOTE:
1. ALL CONCRETE PAVEMENT AREAS USE ±30' O.C. EXPANSION JOINTS AND ±5' O.C. CONTROL JOINTS (SAWCUT CONTROL JOINTS TO A MIN. DEPTH OF 1/2 OF THE CONC. SLAB DEPTH).
2. FOR SIDEWALK PAVEMENT, USE BROOM FINISH PERPENDICULAR TO ROUTE OF TRAVEL.
3. STAMPED AND COLORED FINISH, ON PEDESTRIAN CROSSING AREAS AS INDICATED ON LAYOUT PLAN, (SEE SPECS FOR COLOR AND PATTERN)



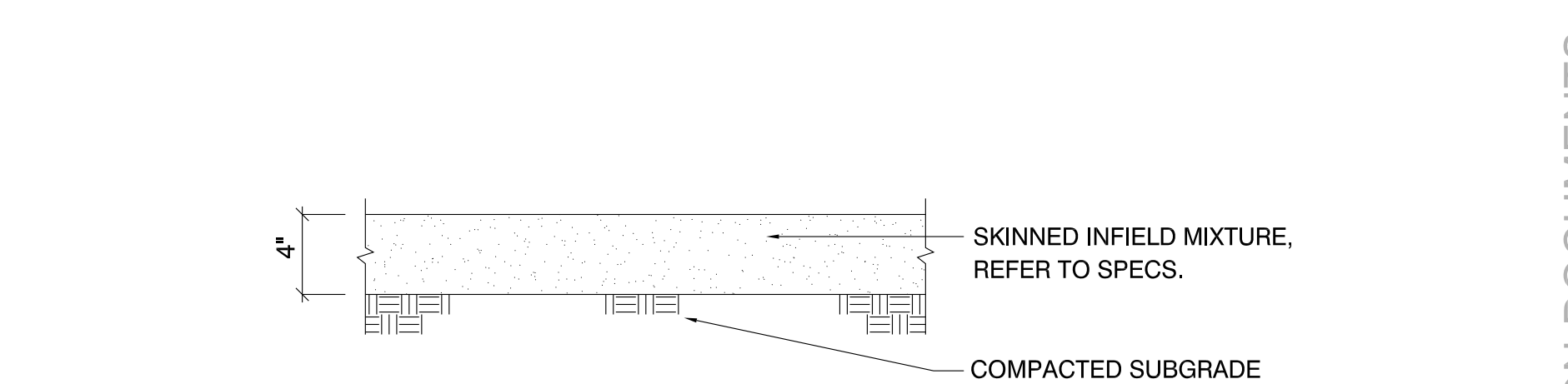
8 CONCRETE PAVEMENT
SCALE: N.T.S.



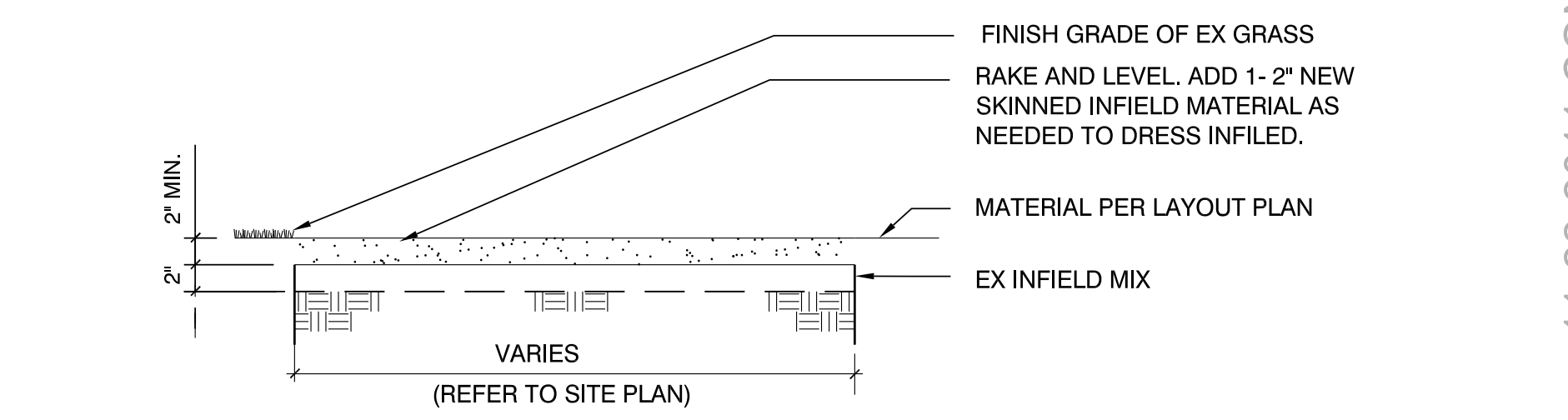
9 CONCRETE PAD FOR BENCH TRASH RECEPTACLES & PICNIC TABLES
SCALE: N.T.S.



10 BITUMINOUS PAVEMENT - 2 CONDITIONS
SCALE: N.T.S.



11 SKINNED INFELD MIX (NEW)
SCALE: N.T.S.



12 SKINNED INFELD MIX (RE-DRESS)
SCALE: N.T.S.

Revisions:

Rev	Date	Description

Seal:

CONSTRUCTION DOCUMENTS

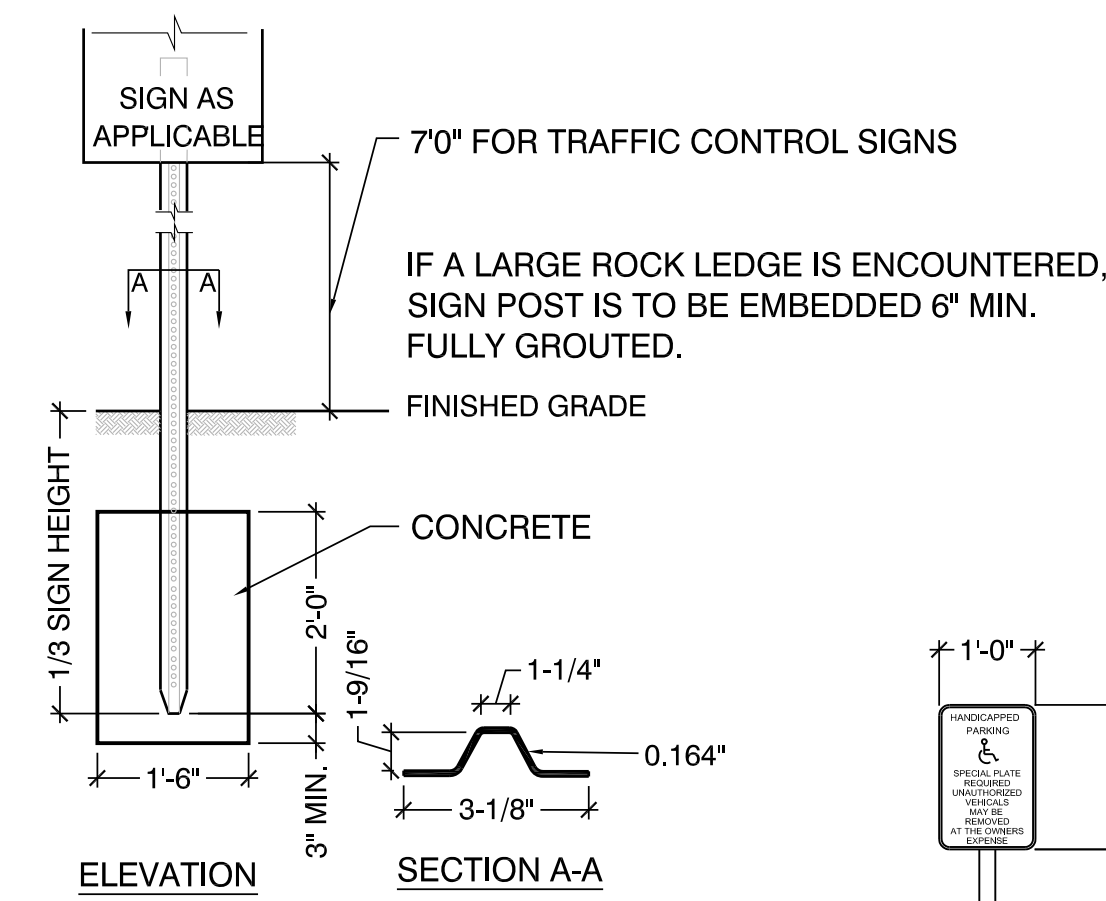
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Drawn By: MMM
Reviewed By: MSM
Checked By: LFK
Approved By: ERB

Drawing Title:
SITE CONSTRUCTION DETAILS

Sheet Number:
DT.03

11-22-2011 CONSTRUCTION DOCUMENTS

- R1-1
- R3-1
- R3-2
- R3-5L
- R3-5R
- R4-7
- R5-1
- R6-1L
- R6-1R
- R7-1

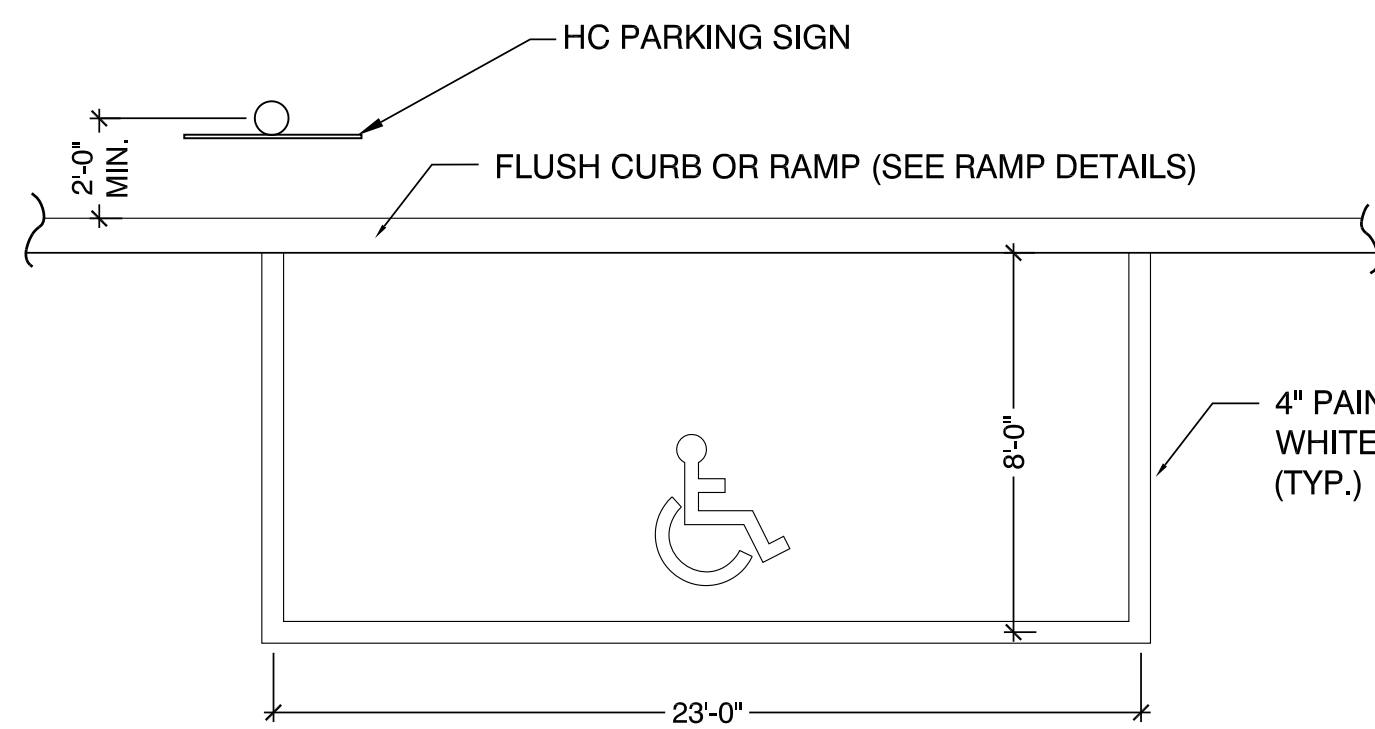


NOTE: ALL SIGNS TO BE INSTALLED AS INDICATED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.

NOTE: ALL DIMENSIONS ARE TO INSIDE EDGE OF LINES EXCEPT AS NOTED.

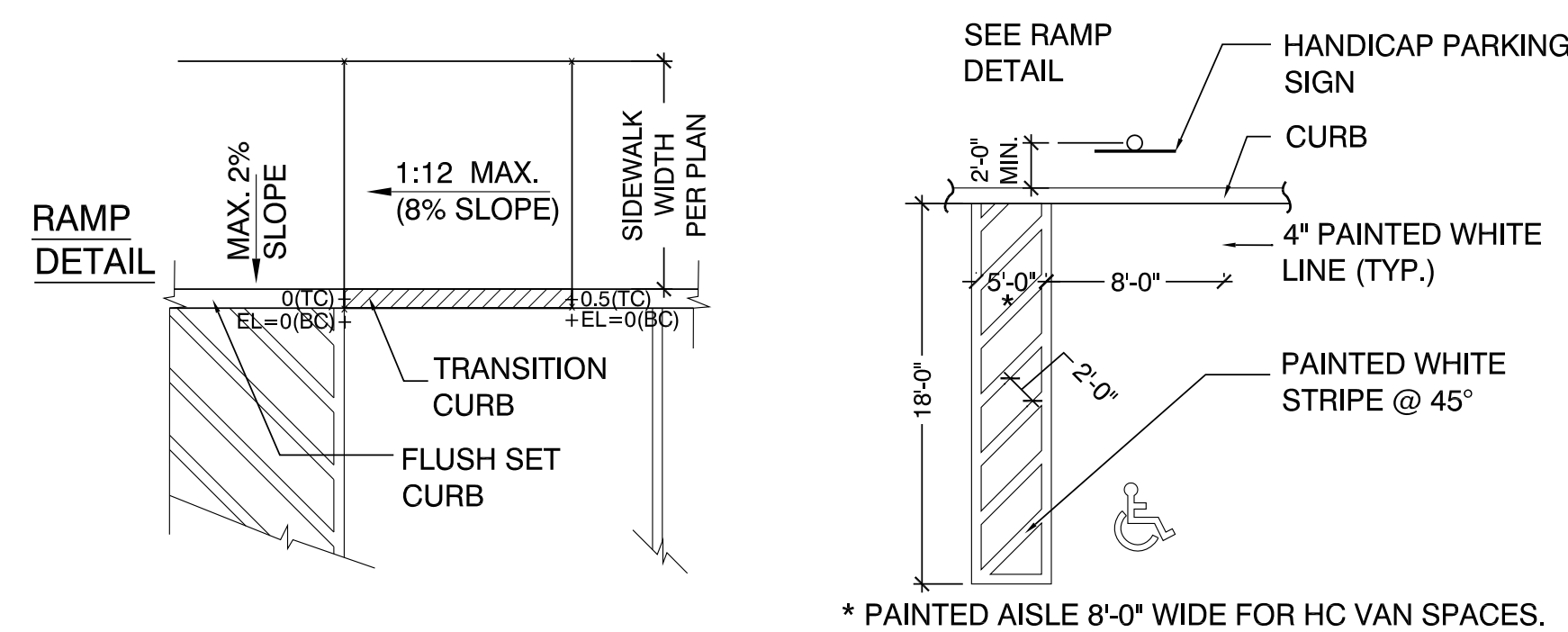


1 SIGNS
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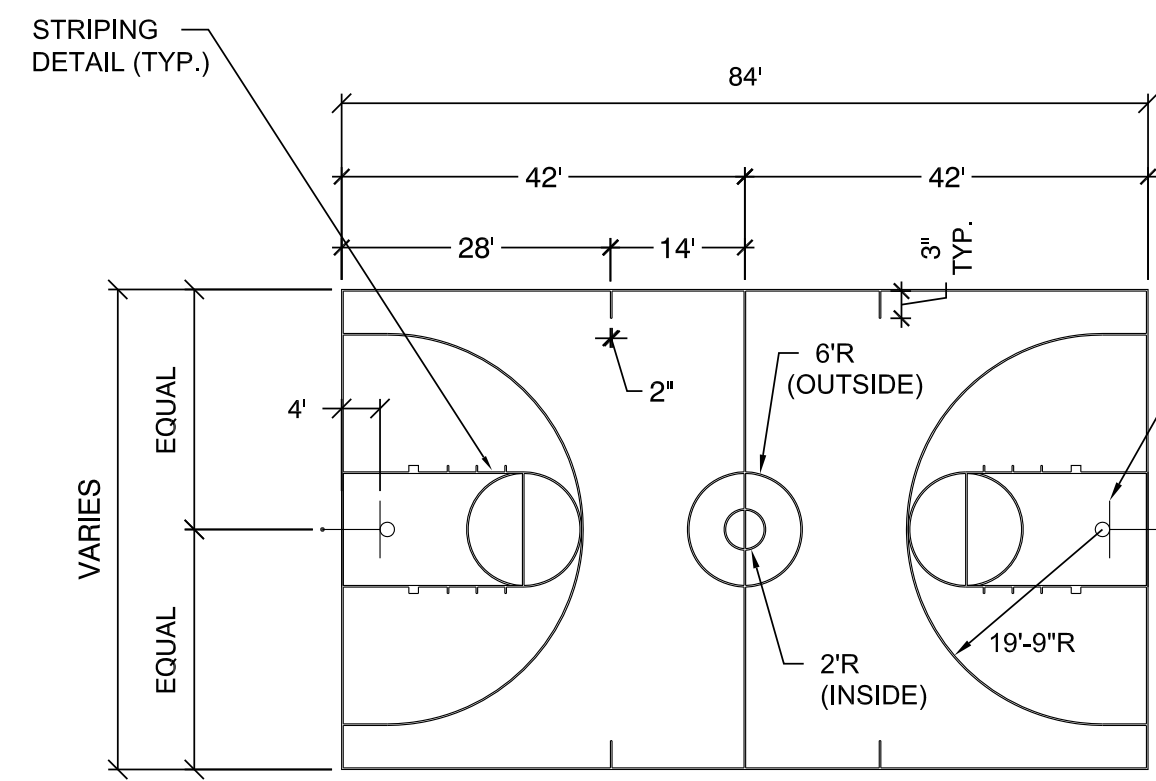


CONSULT PLAN FOR CURB CUT & RAMP LOCATION

2 HC PARALLEL PARKING SPACE
SCALE: N.T.S.

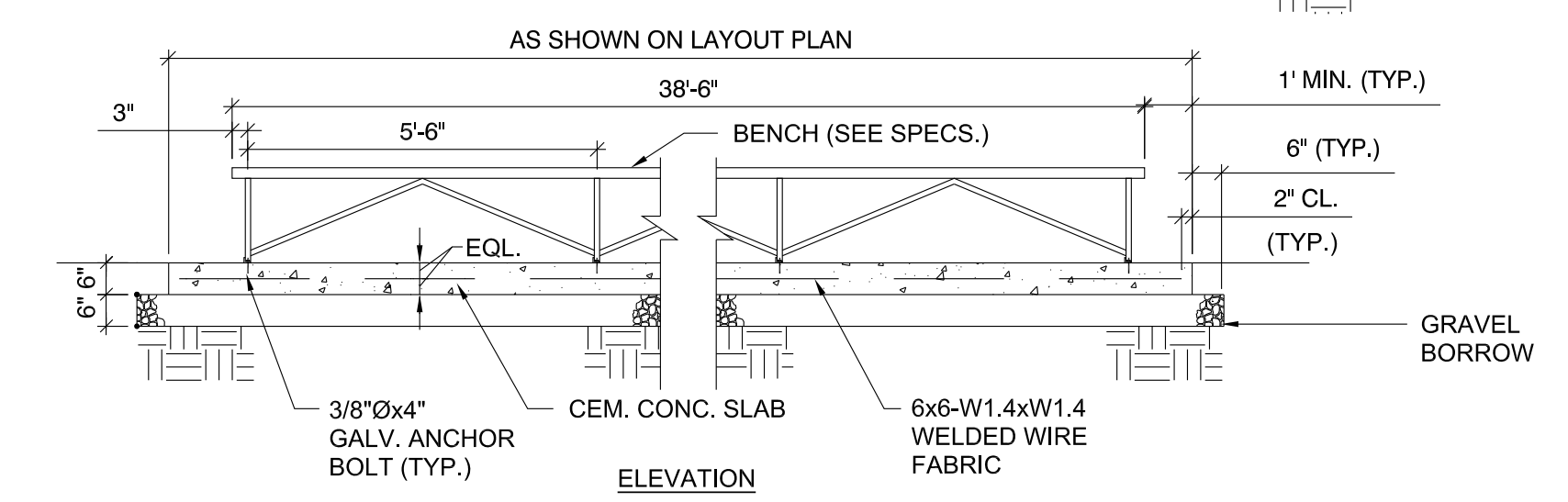
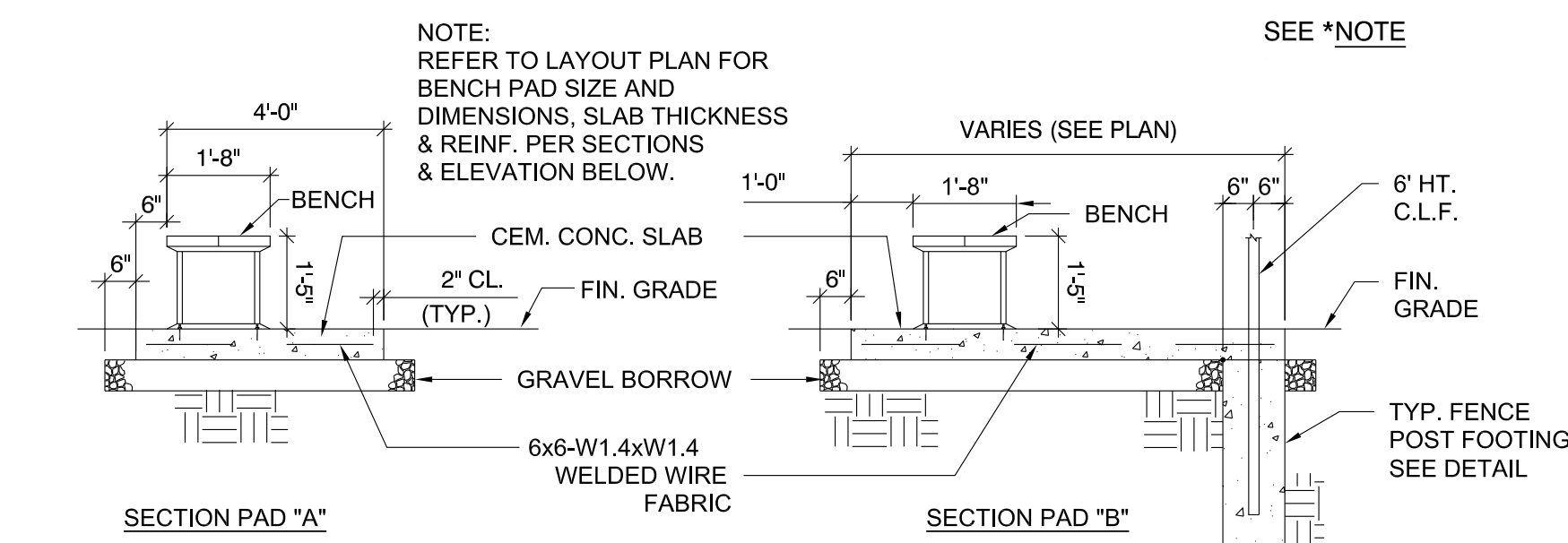


3 HC PARKING SPACE & RAMP
SCALE: N.T.S.

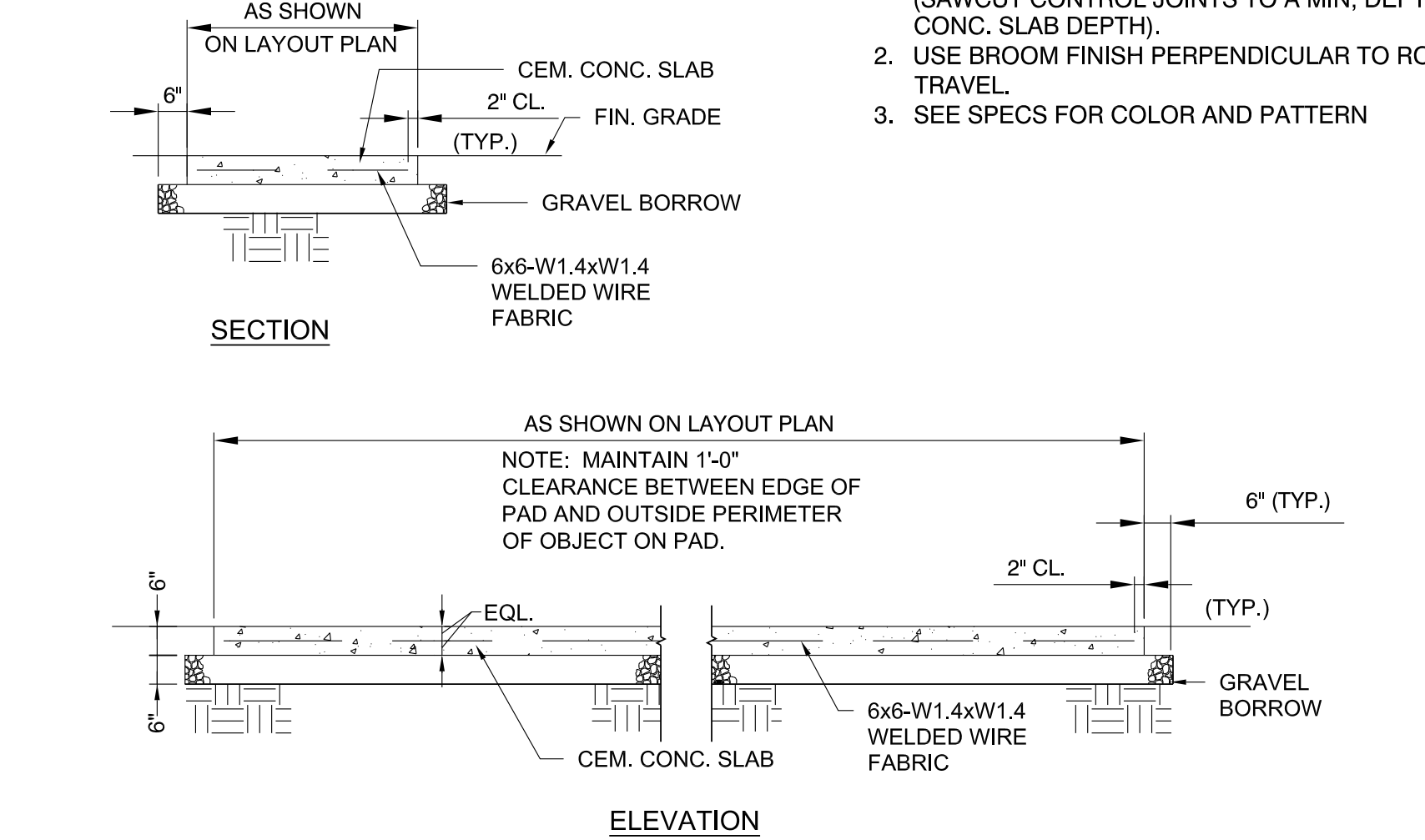


NOTE: ALL DIMENSIONS ARE TO INSIDE EDGE OF LINES EXCEPT AS NOTED.

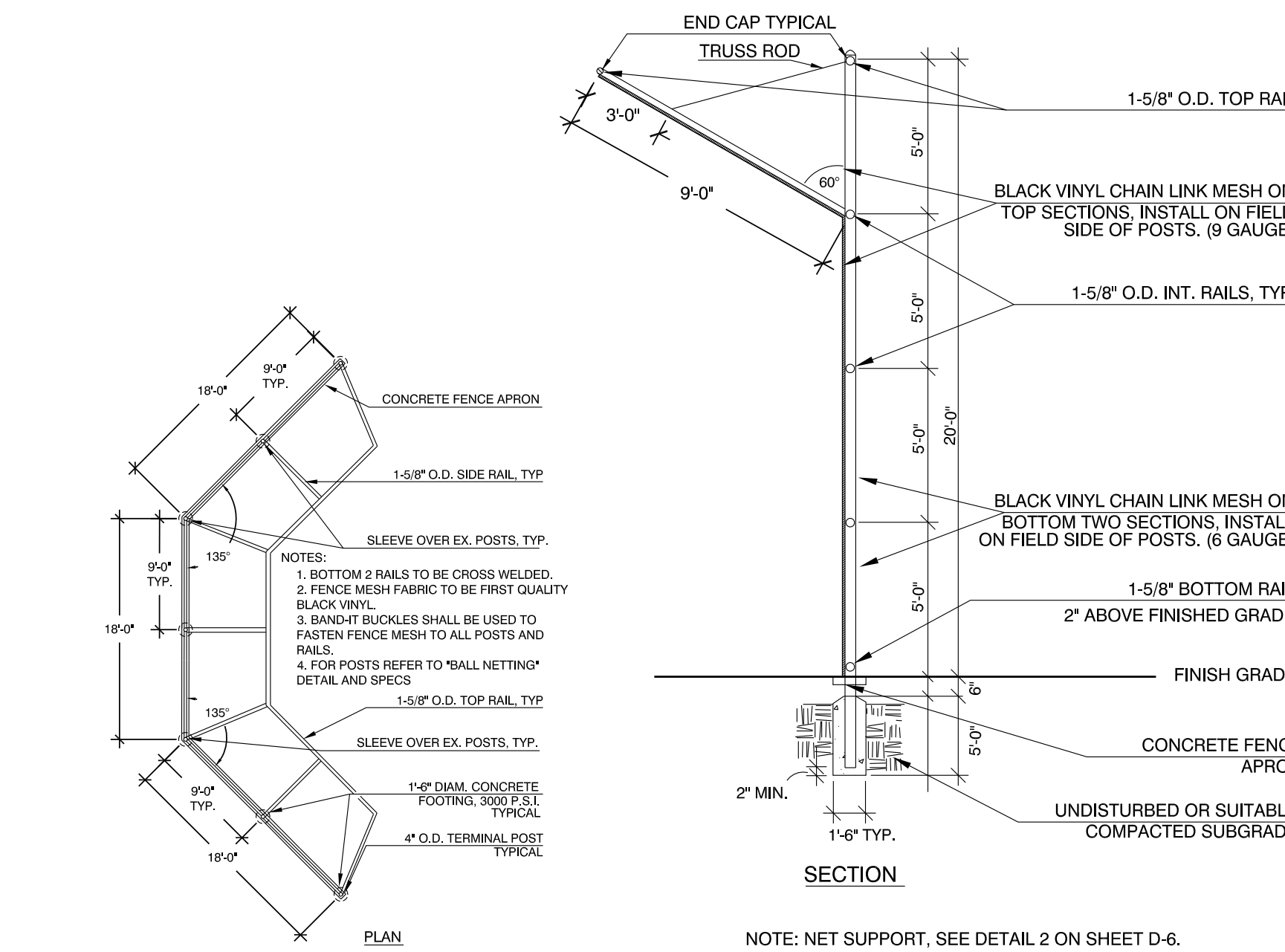
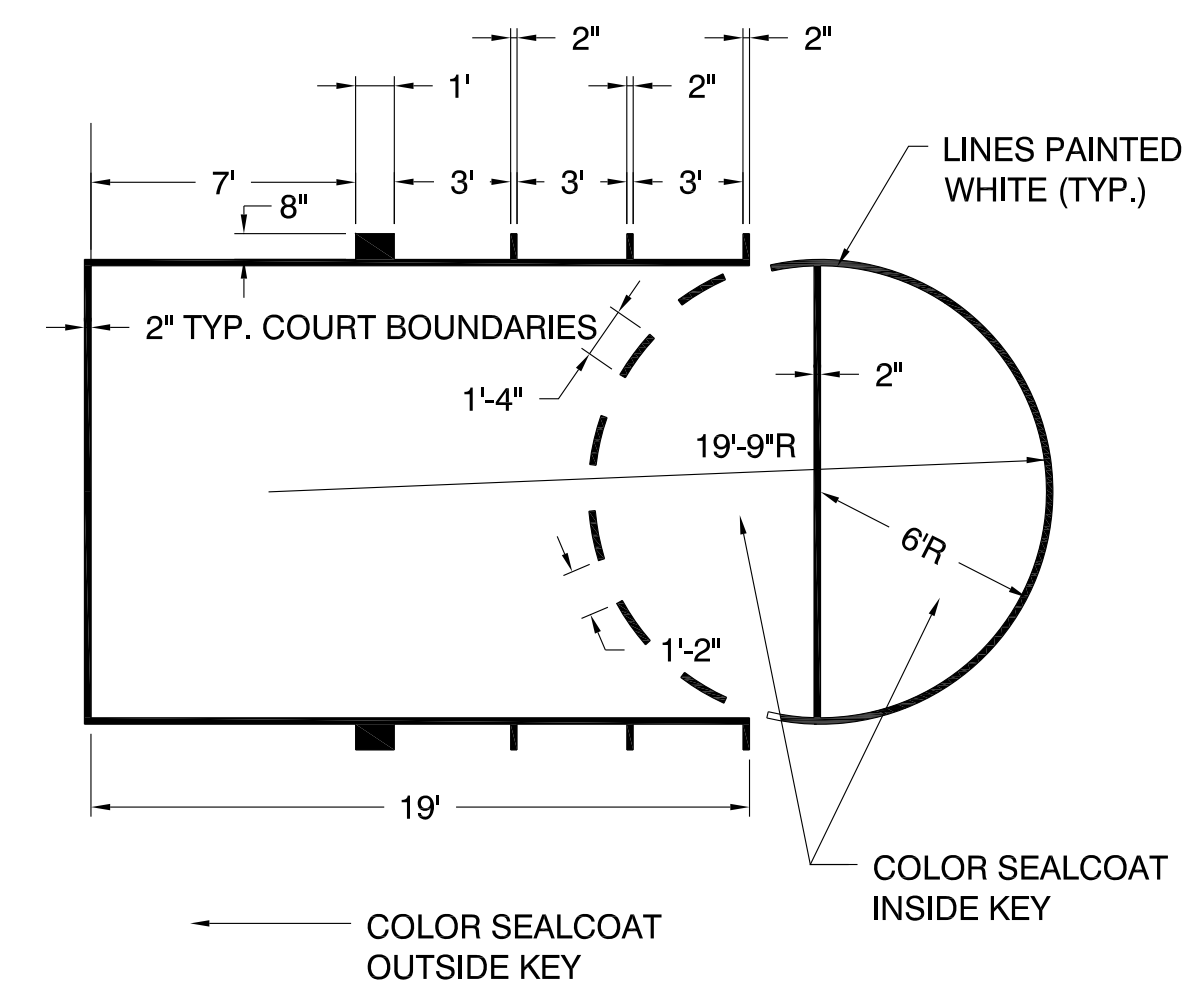
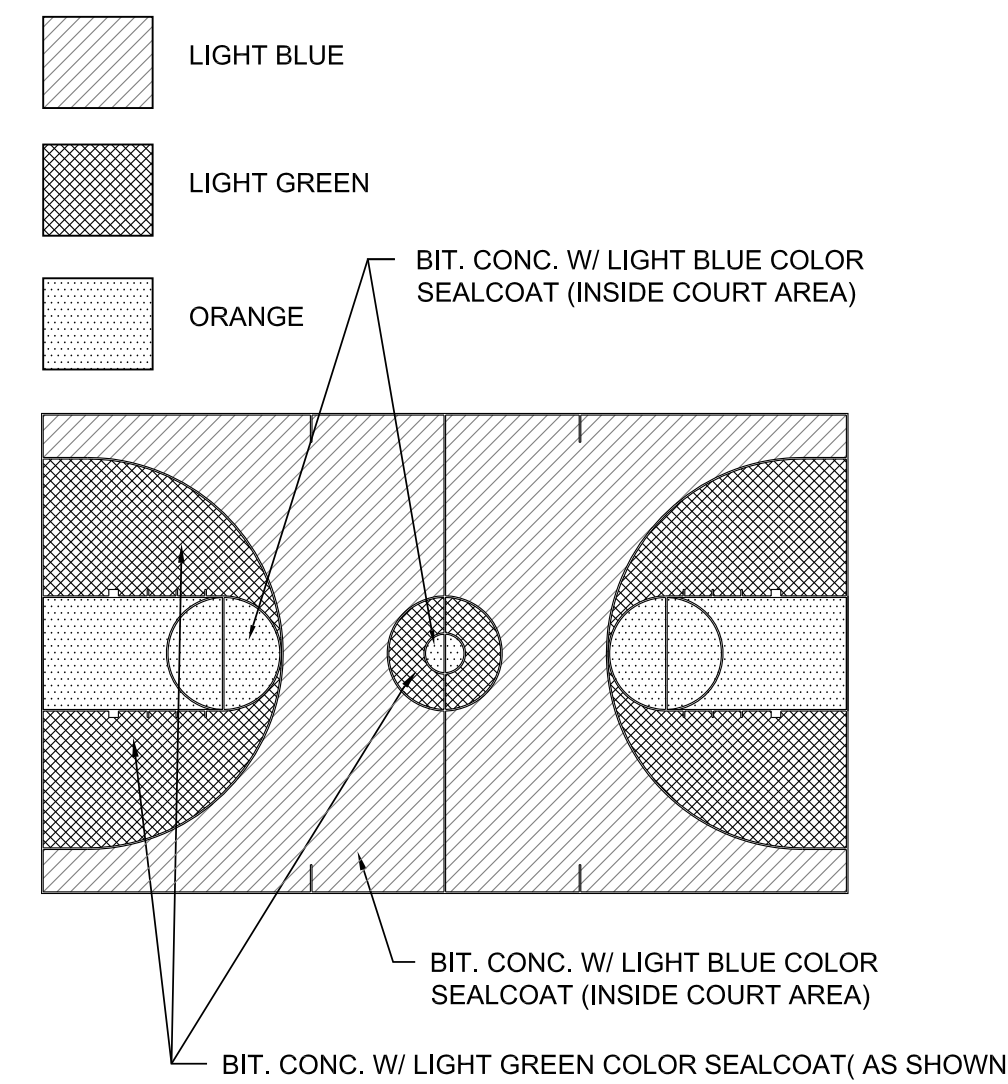
4 BASKETBALL COURT STRIPING & BIT. CONC. COLOR SEALCOAT
SCALE: N.T.S.



5 CONCRETE PAD FOR PLAYERS BENCHES
SCALE: N.T.S.

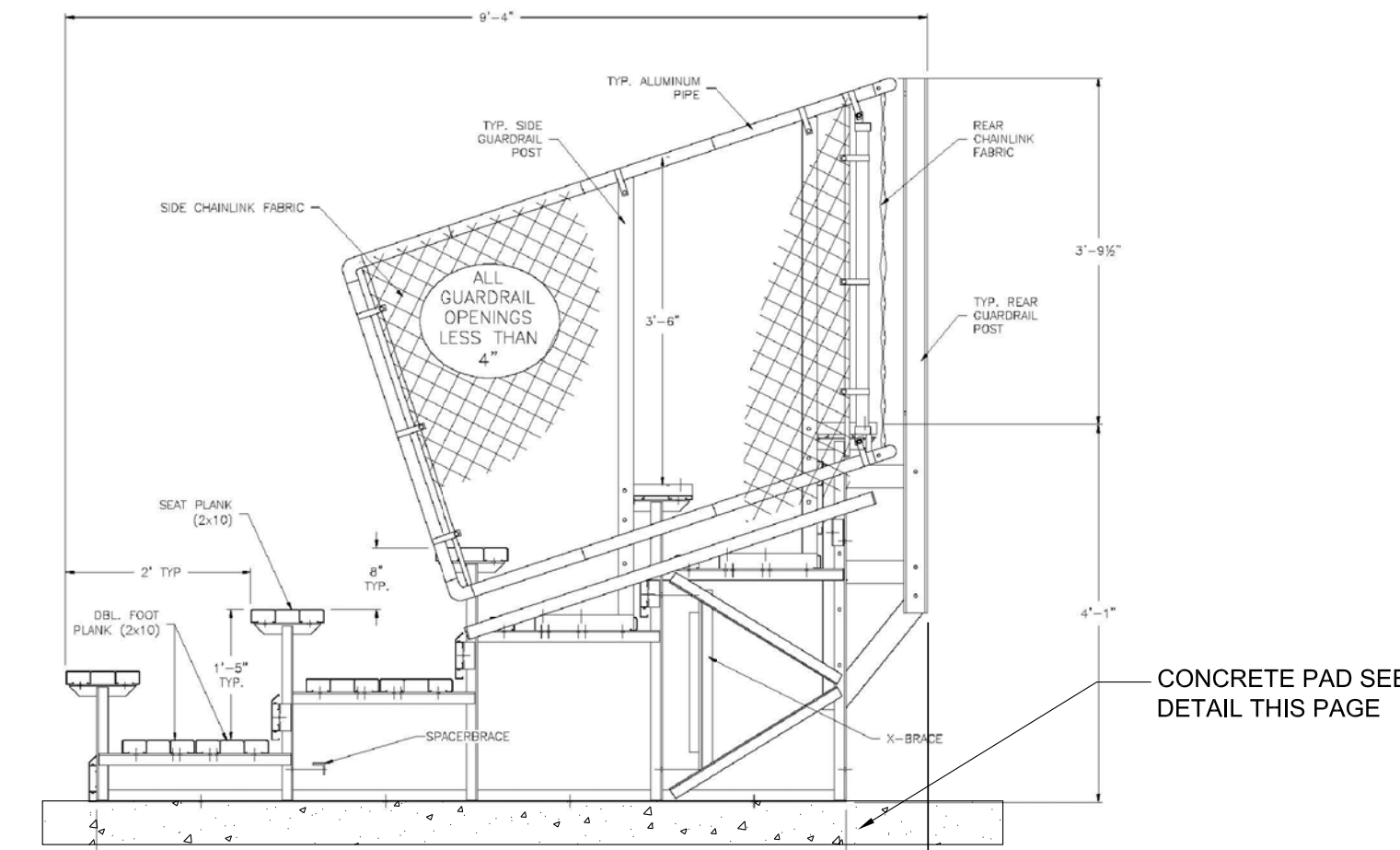


6 CONCRETE PAD FOR BLEACHERS
SCALE: N.T.S.



7 BACKSTOP FOR EXISTING FIELD
SCALE: N.T.S.

*NOTE:
1. ALL CEM. CONCRETE PAVEMENT AREAS USE ±30" O.C. EXPANSION JOINTS AND ±5" O.C. CONTROL JOINTS (SAWCUT CONTROL JOINTS TO A MIN. DEPTH OF 1/4 OF THE CONC. SLAB DEPTH).
2. USE BROOM FINISH PERPENDICULAR TO ROUTE OF TRAVEL.
3. SEE SPECS FOR COLOR AND PATTERN



Project:
CITY OF WALTHAM

Lazzzero Park
7 Shore Road
Waltham, MA
Monsignor McCabe
Playground - Phase 2
Charlotte Road
Waltham, MA

Weston & Sampson
100 Foxborough Blvd., S.250 Foxborough, MA
(508) 698-3034 (800) Sampson
www.westonandsampson.com

Consultants:

Revisions:

Rev	Date	Description

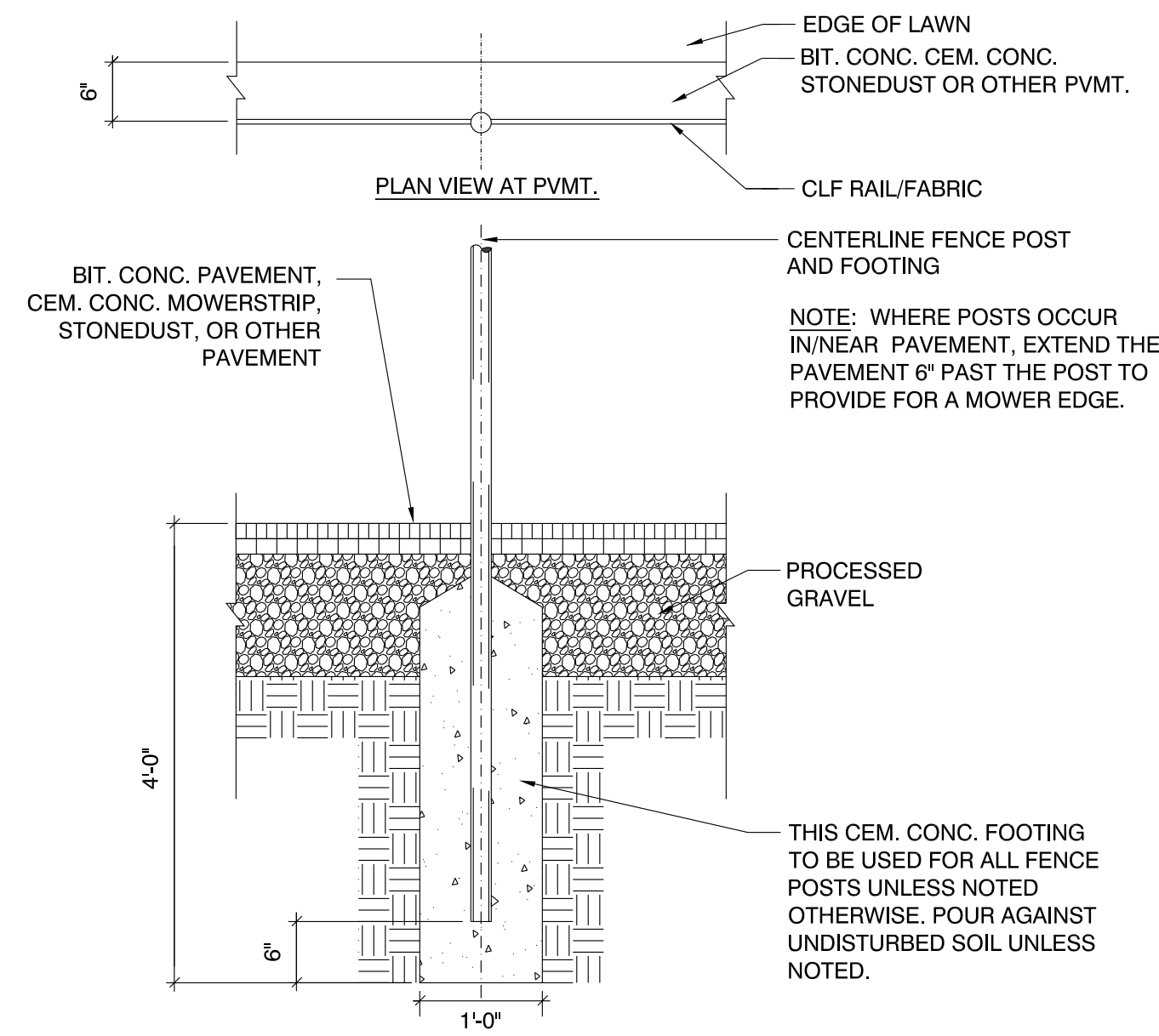
CONSTRUCTION DOCUMENTS

Date: 11.22.2011
Scale: AS SHOWN
Drawn By: MMM
Reviewed By: MSM
Checked By: LFK
Approved By: ERB

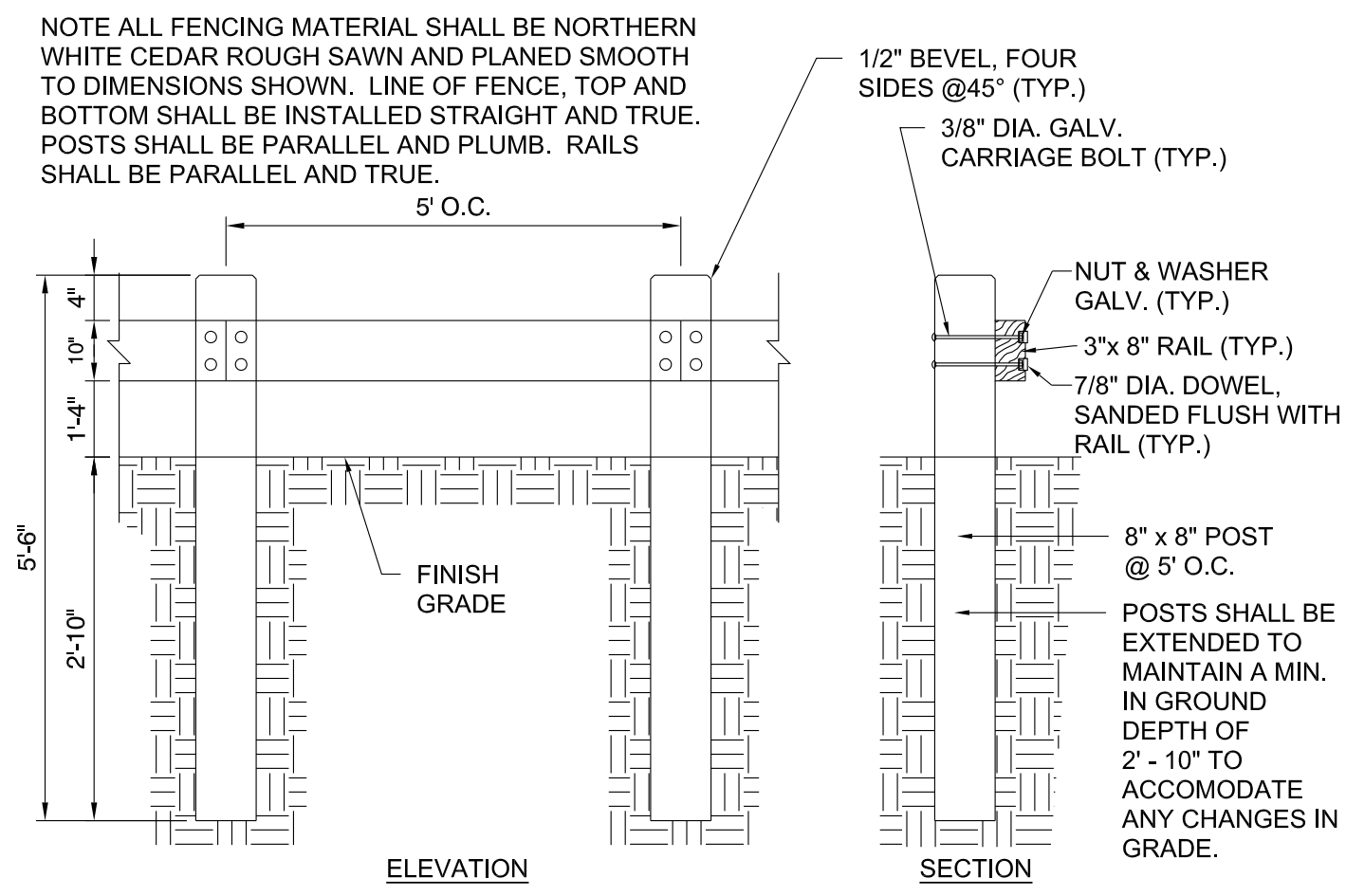
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SITE CONSTRUCTION DETAILS

Sheet Number:
DT.04

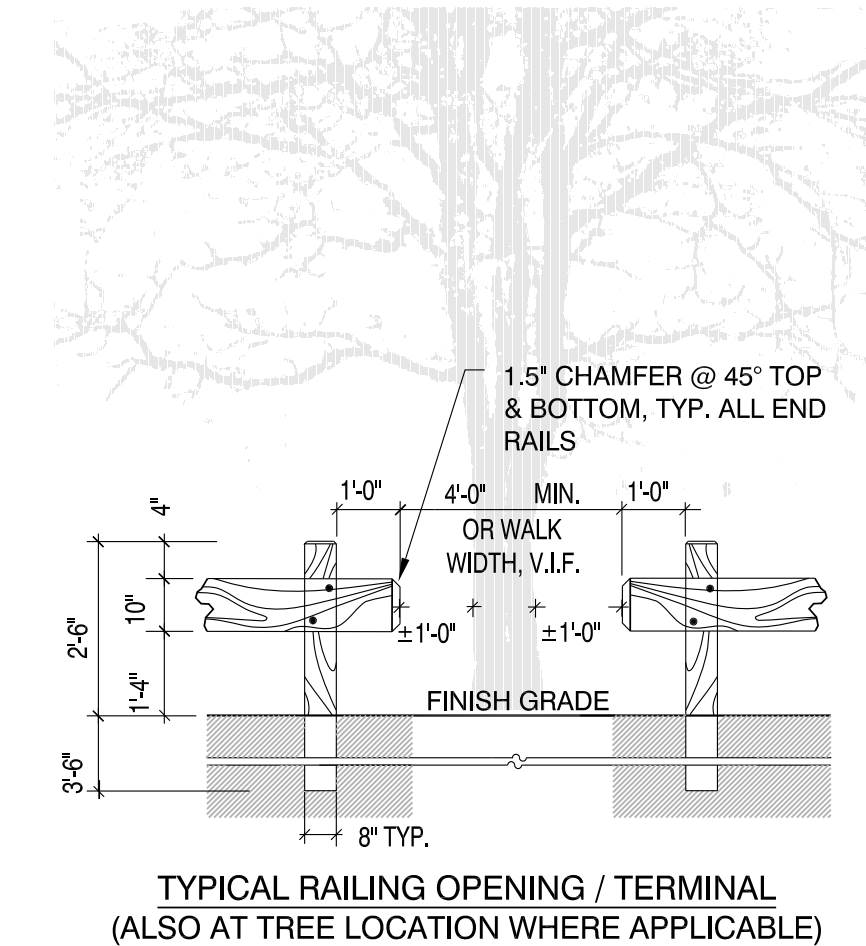
11-22-2011 CONSTRUCTION DOCUMENTS



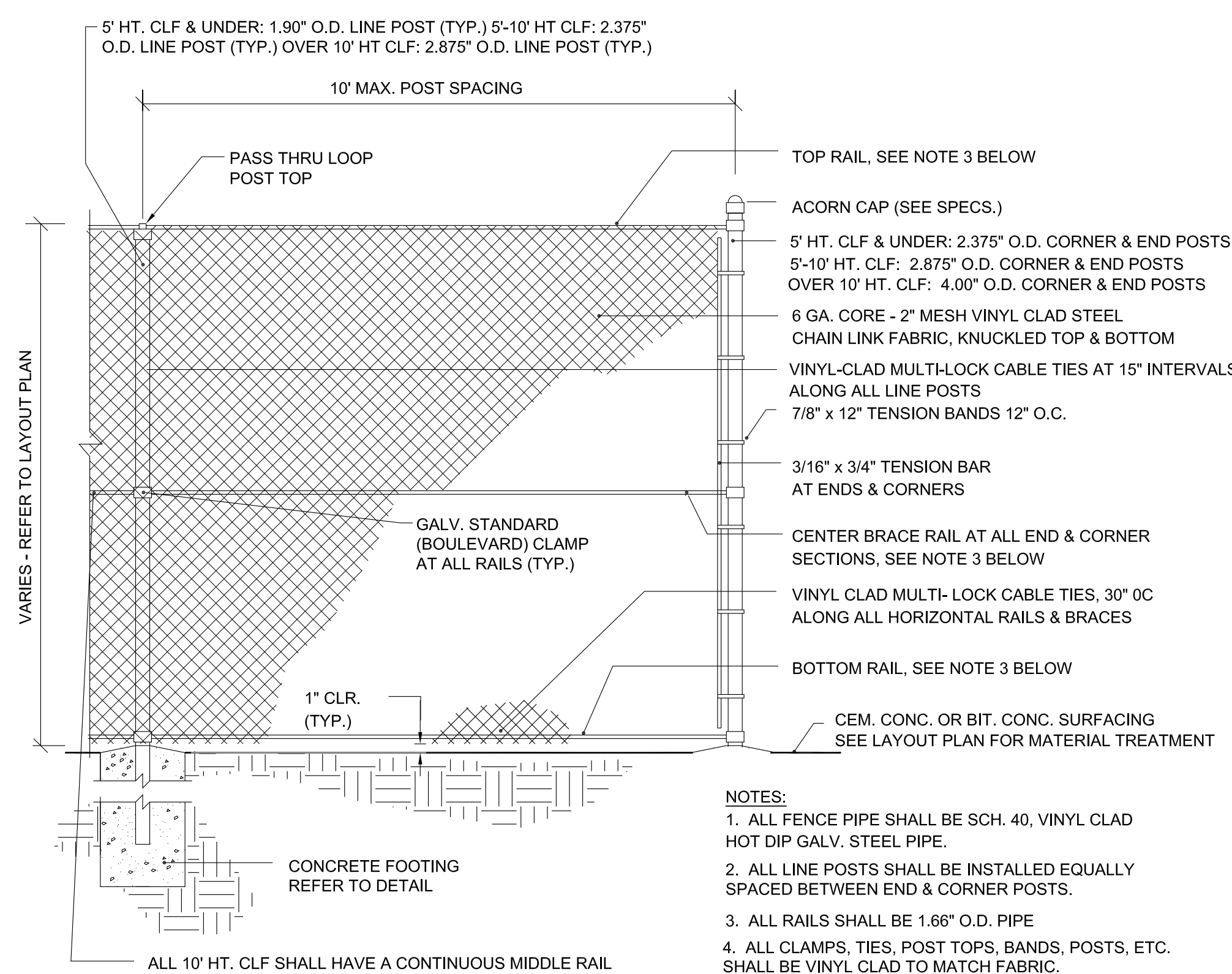
1 TYPICAL FENCE POST FOOTING
SCALE: N.T.S.



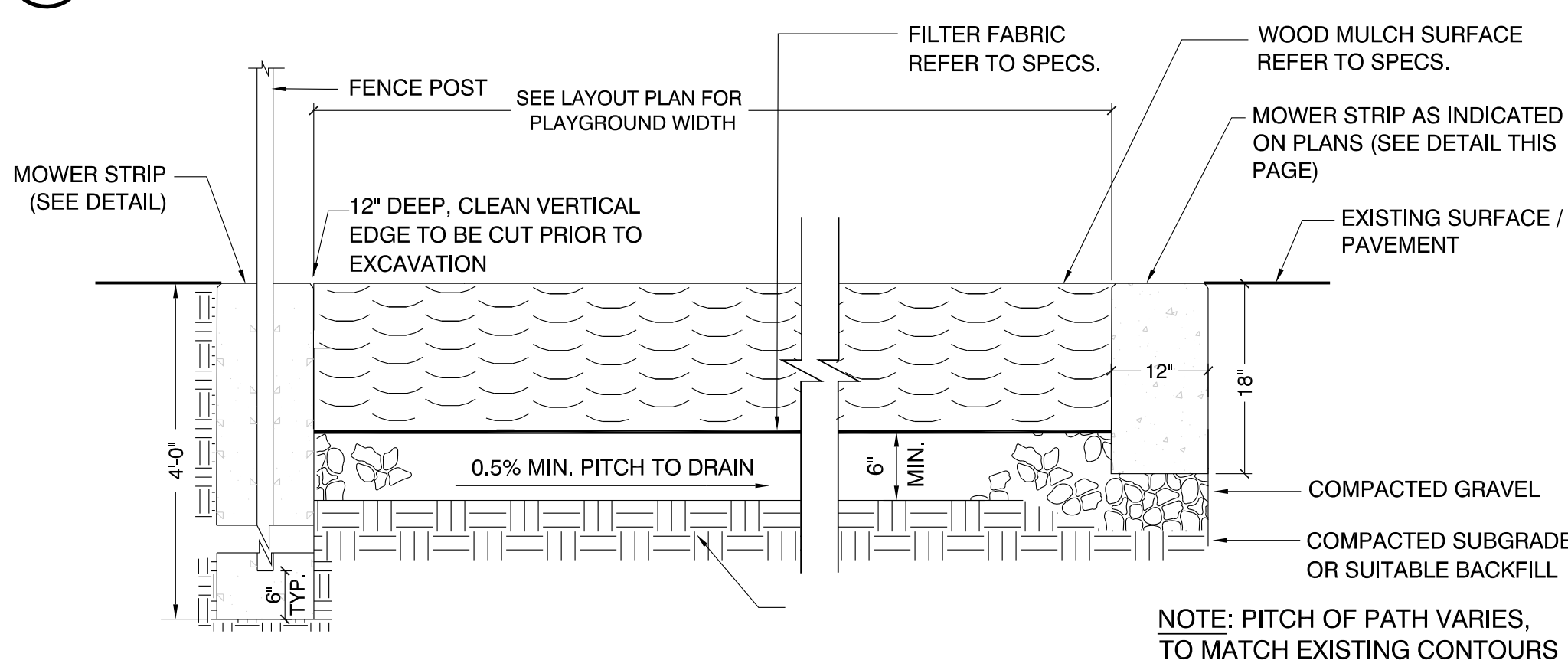
4 WOOD GUARDRAIL
SCALE: N.T.S.



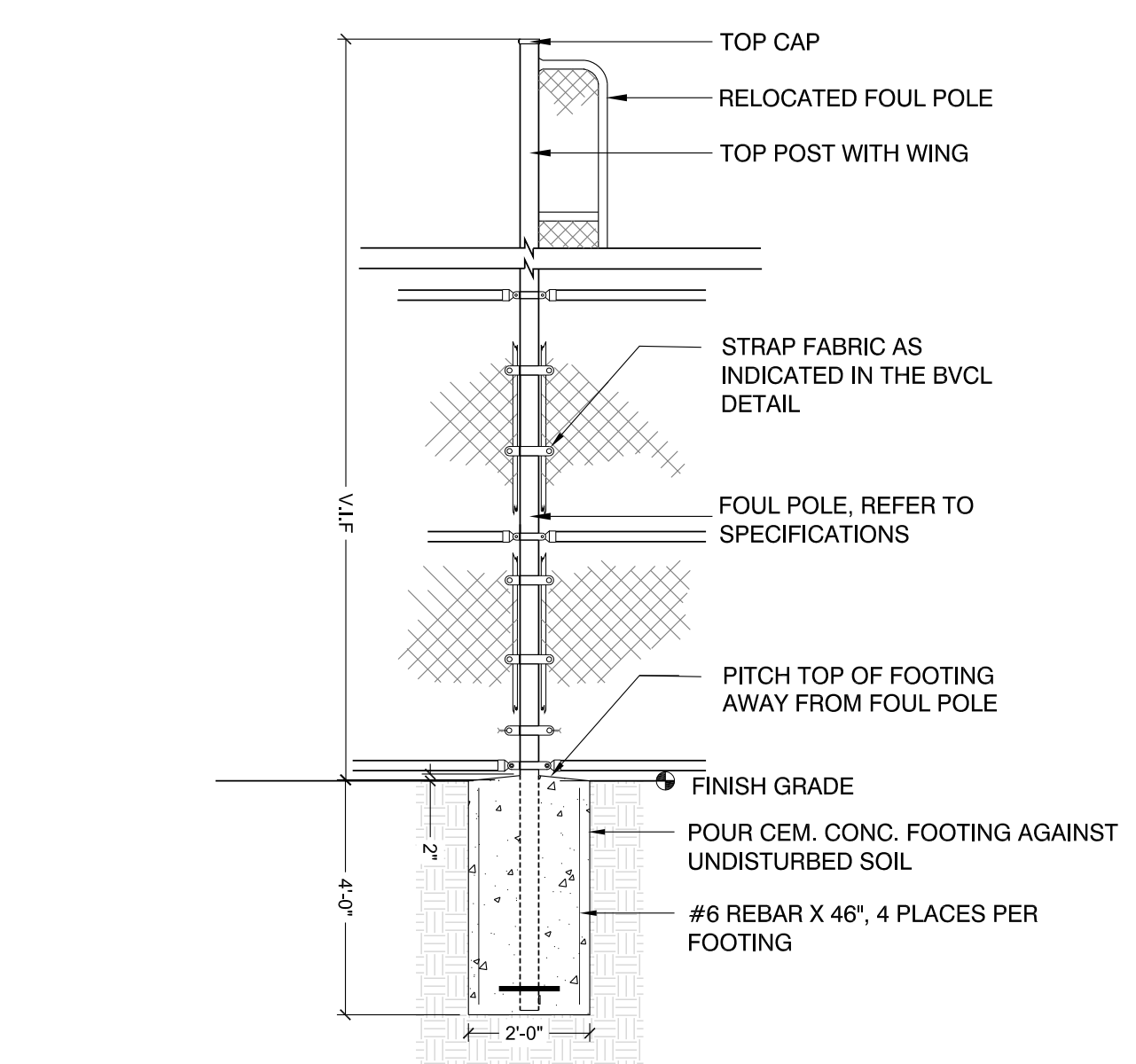
TYPICAL RAILING OPENING / TERMINAL
(ALSO AT TREE LOCATION WHERE APPLICABLE)



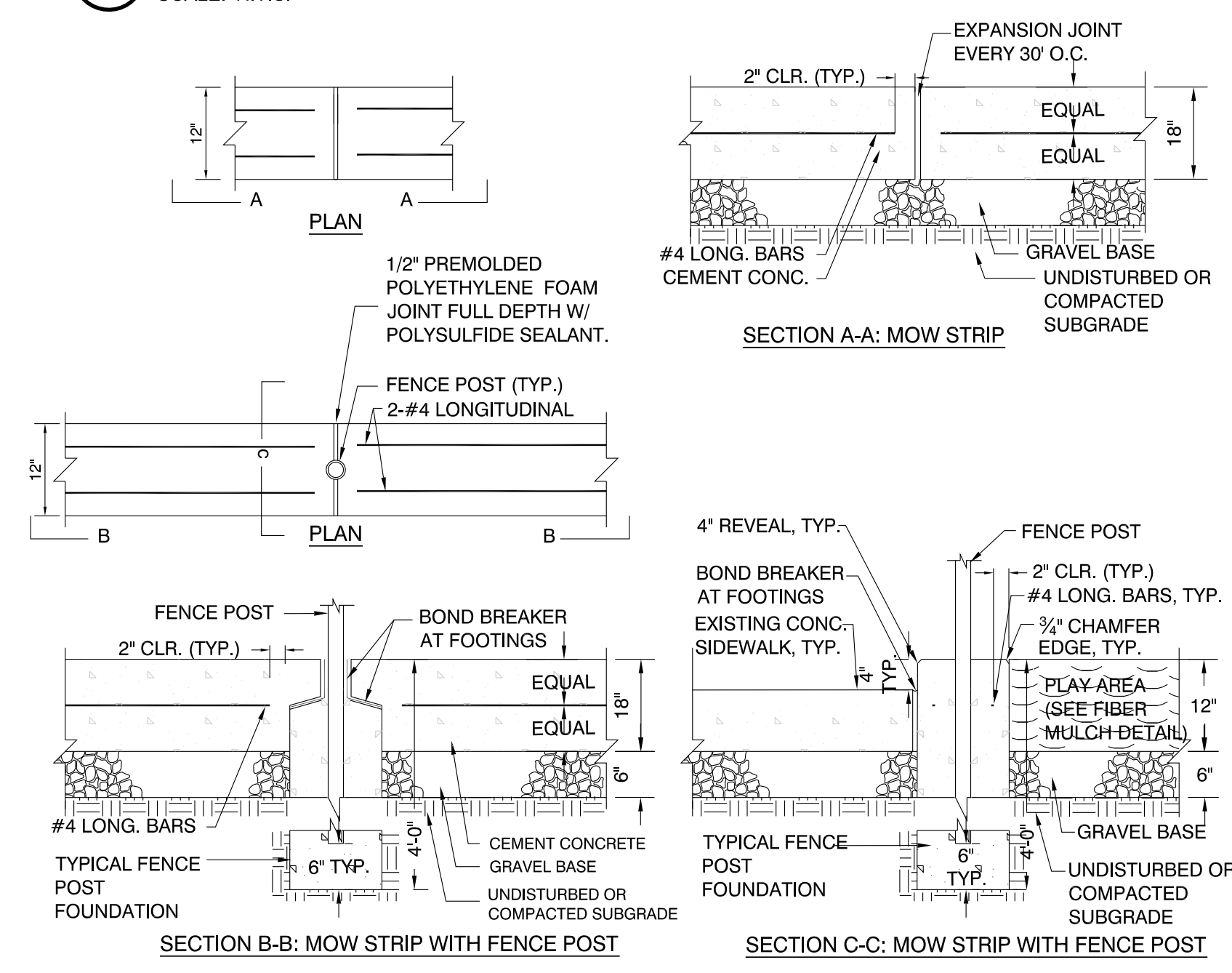
2 BLACK VINYL CLAD CHAIN LINK FENCE - 10' HT. OR LESS
SCALE: N.T.S.



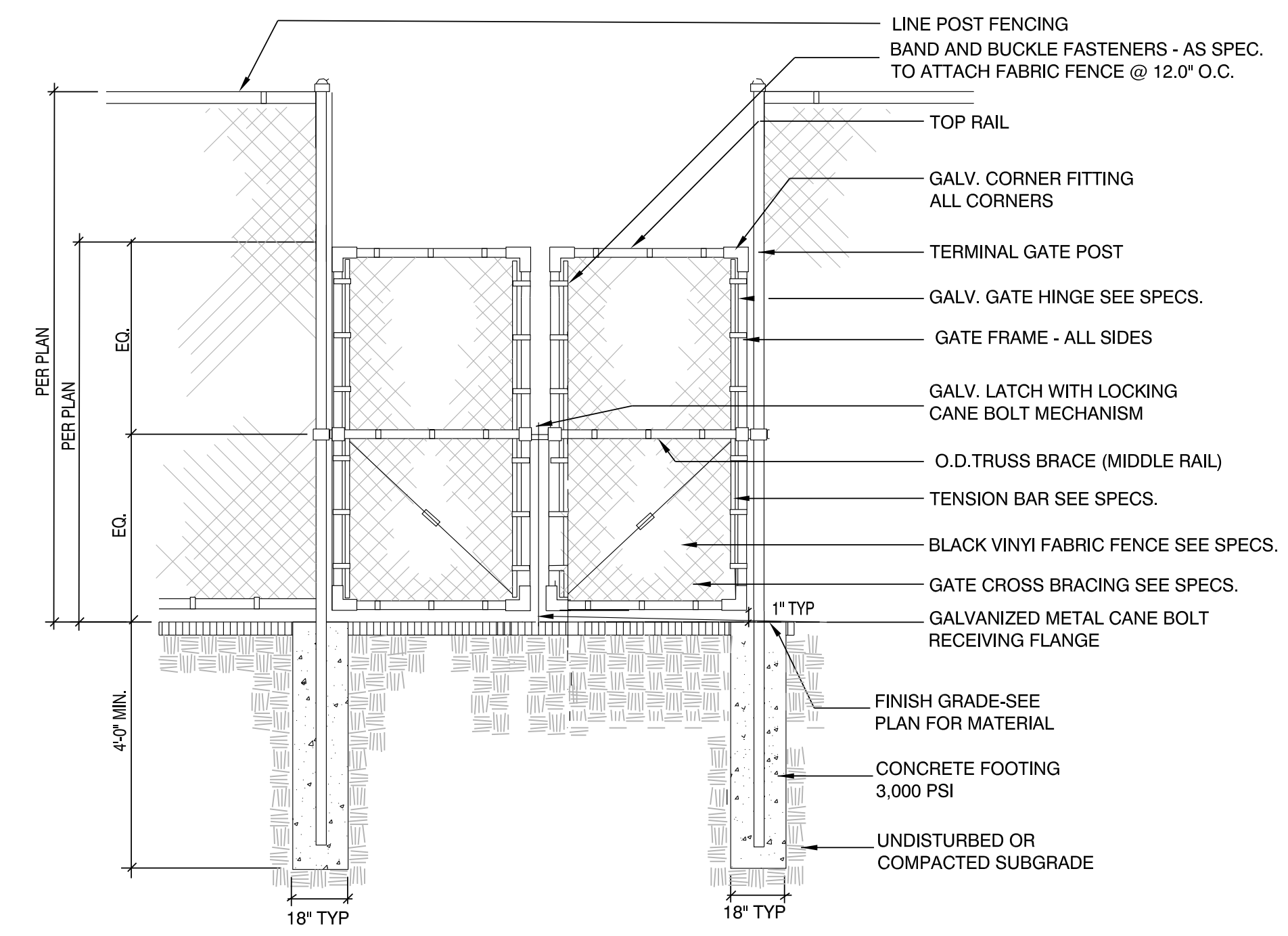
3 ENGINEERED WOOD FIBER MULCH PLAY SURFACE
SCALE: N.T.S.



5 FOUL POLE IN FENCE
SCALE: N.T.S.



6 MOWER STRIP WITH FENCE POST
SCALE: N.T.S.



6 6' HT SINGLE AND DOUBLE SWING GATE
SCALE: N.T.S.

Project:
CITY OF WALTHAM

Lazzero Park
7 Shore Road
Waltham, MA
Monsignor McCabe
Playground - Phase 2
Charlotte Road
Waltham, MA

Weston & Sampson
100 Foxborough Blvd., S.250 Foxborough, MA
(508) 698-3034 (508) Sampson
www.westonandsampson.com

Consultants:

Revisions:

Rev	Date	Description

Seal:

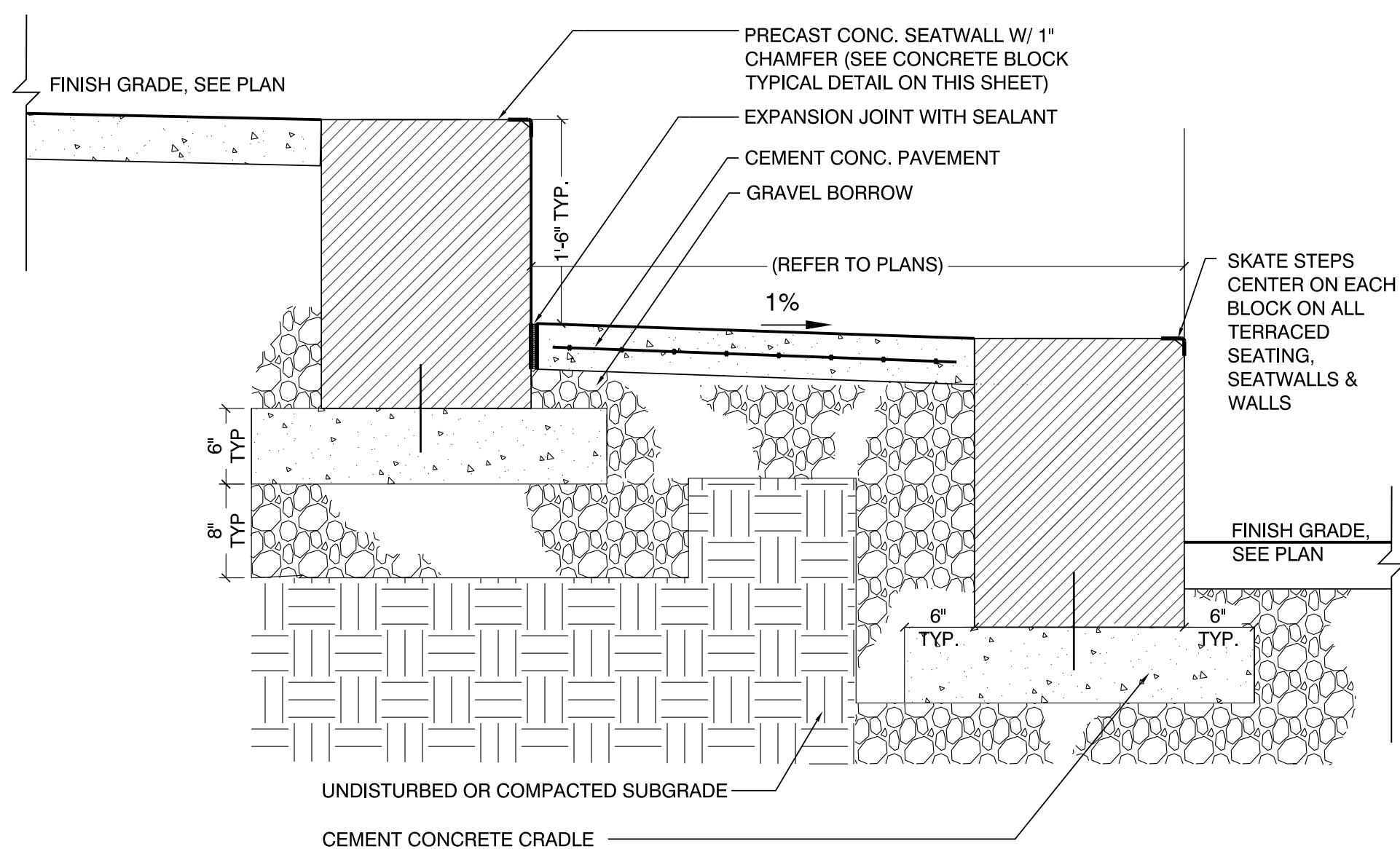
CONSTRUCTION DOCUMENTS

Date: 11.22.2011
Scale: AS SHOWN
Drawn By: MMM
Reviewed By: MSM
Checked By: LFK
Approved By: ERB

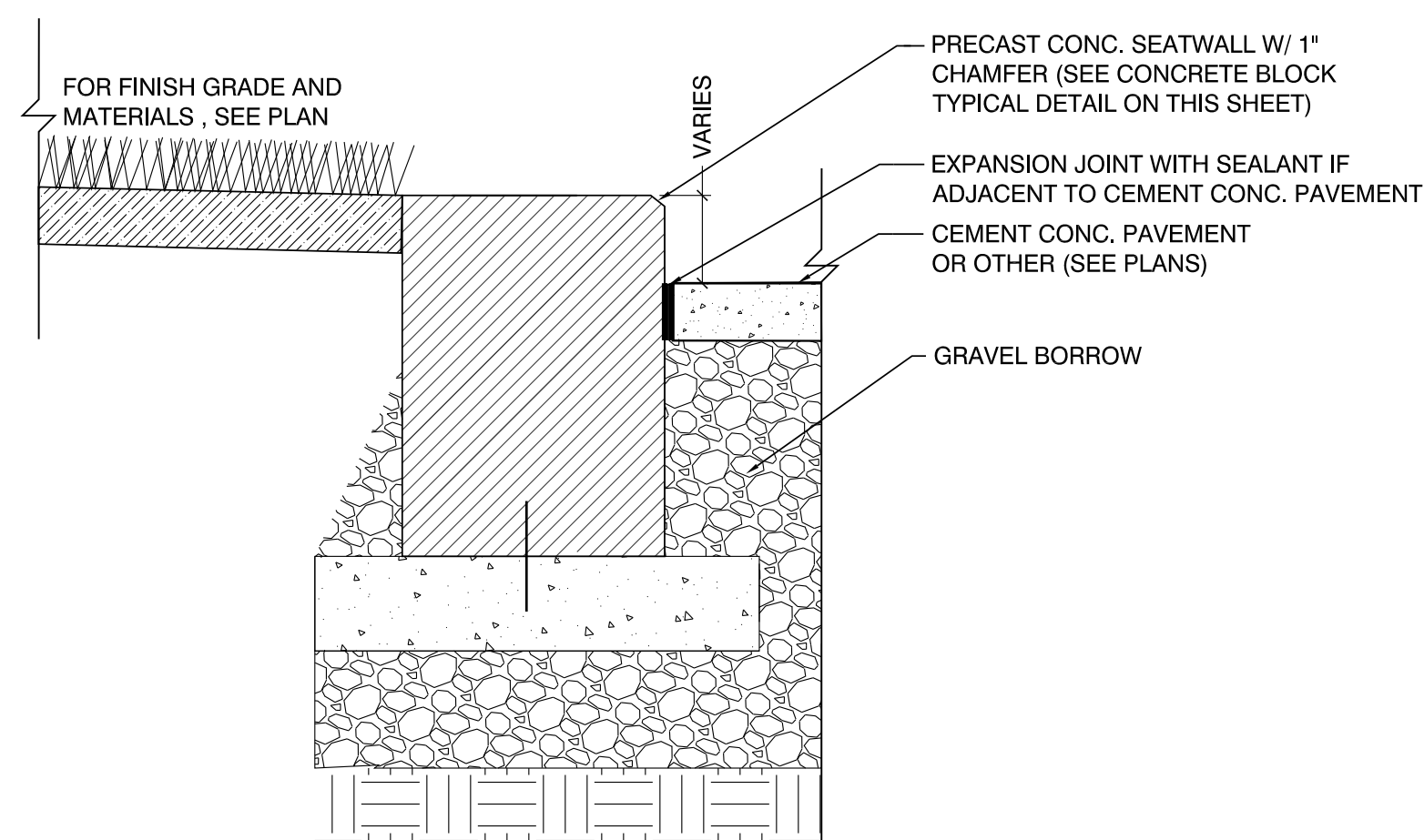
SITE CONSTRUCTION DETAILS

Sheet Number:
DT.05

11-22-2011 CONSTRUCTION DOCUMENTS

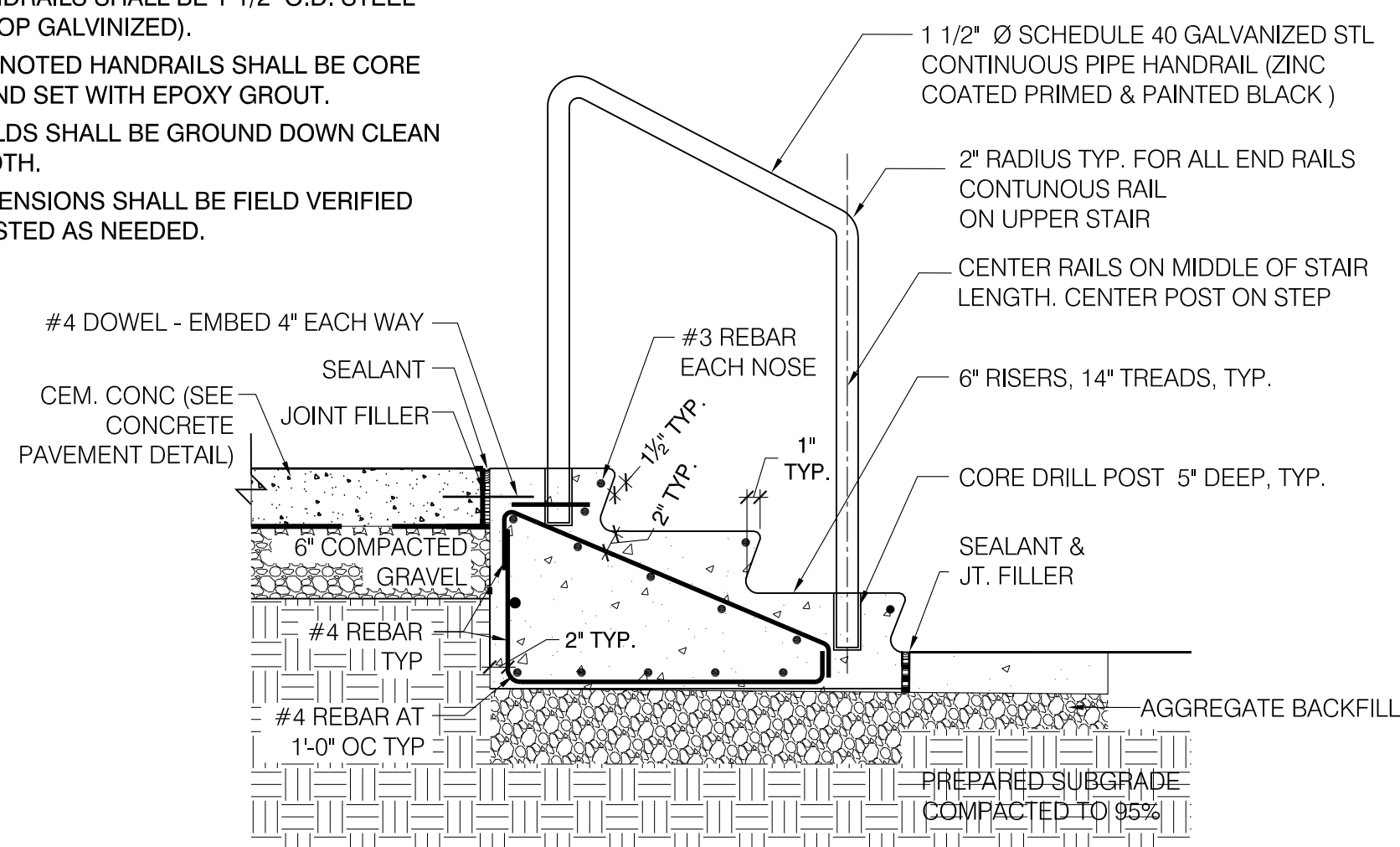


1 TERRACED SEATING
SCALE: N.T.S.

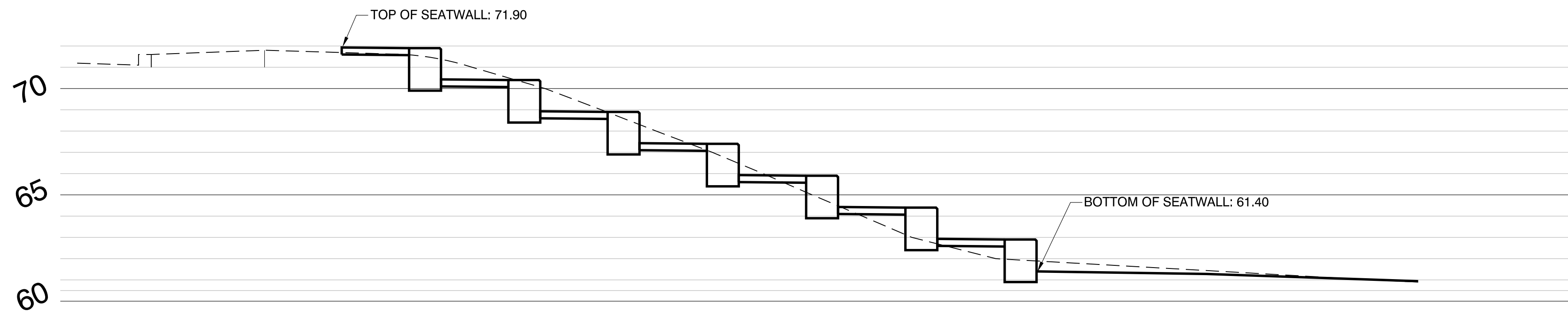


2 CONCRETE BLOCK CHEEK WALL AT TERRACED SEATING
SCALE: N.T.S.

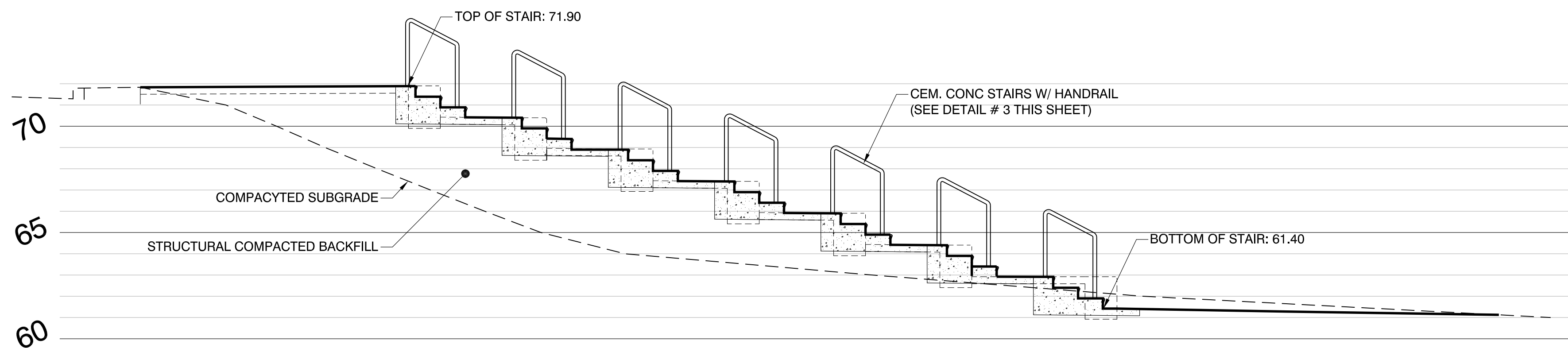
- NOTES:
1. ALL HANDRAILS SHALL BE 1-1/2" O.D. STEEL (FINISH SHOP GALVANIZED).
 2. WHERE NOTED HANDRAILS SHALL BE CORE DRILLED AND SET WITH EPOXY GROUT.
 3. ALL WELDS SHALL BE GROUND DOWN CLEAN AND SMOOTH.
 4. ALL DIMENSIONS SHALL BE FIELD VERIFIED AND ADJUSTED AS NEEDED.



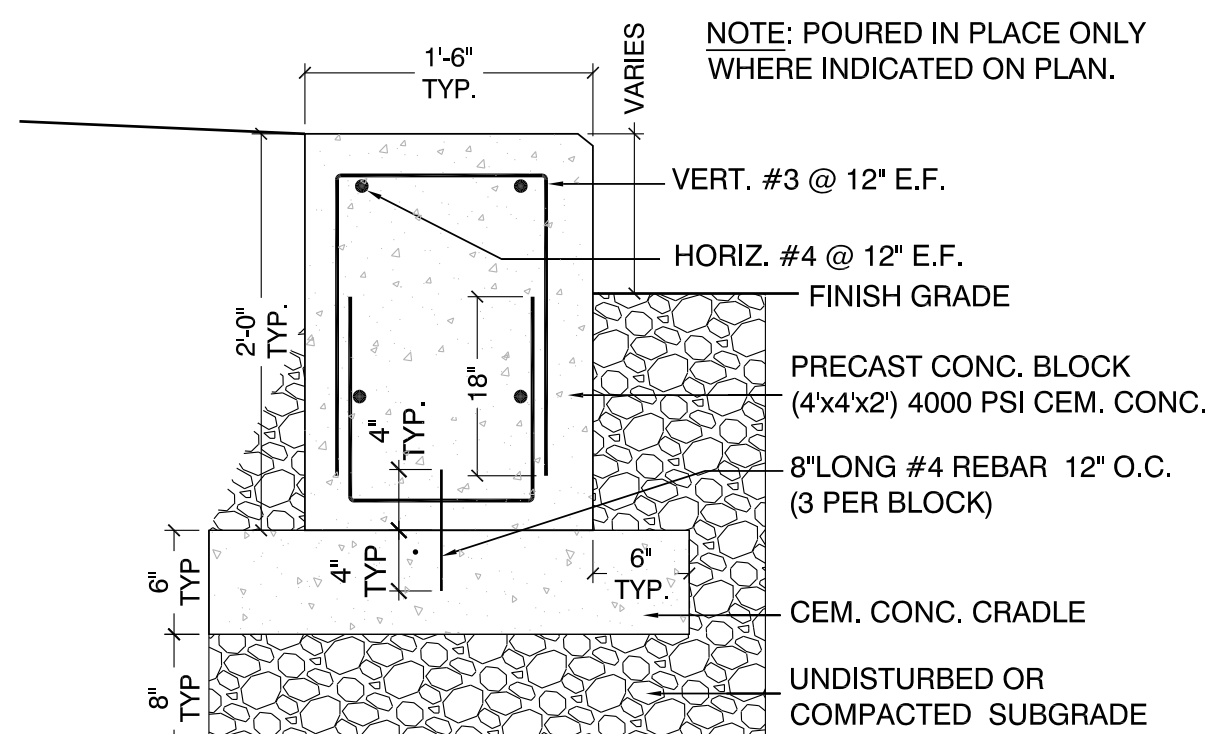
3 CEMENT CONCRETE STAIRS AT TERRACED SEATING
SCALE: N.T.S.



4 PRECAST CONCRETE SEATING WALL
SCALE: N.T.S.

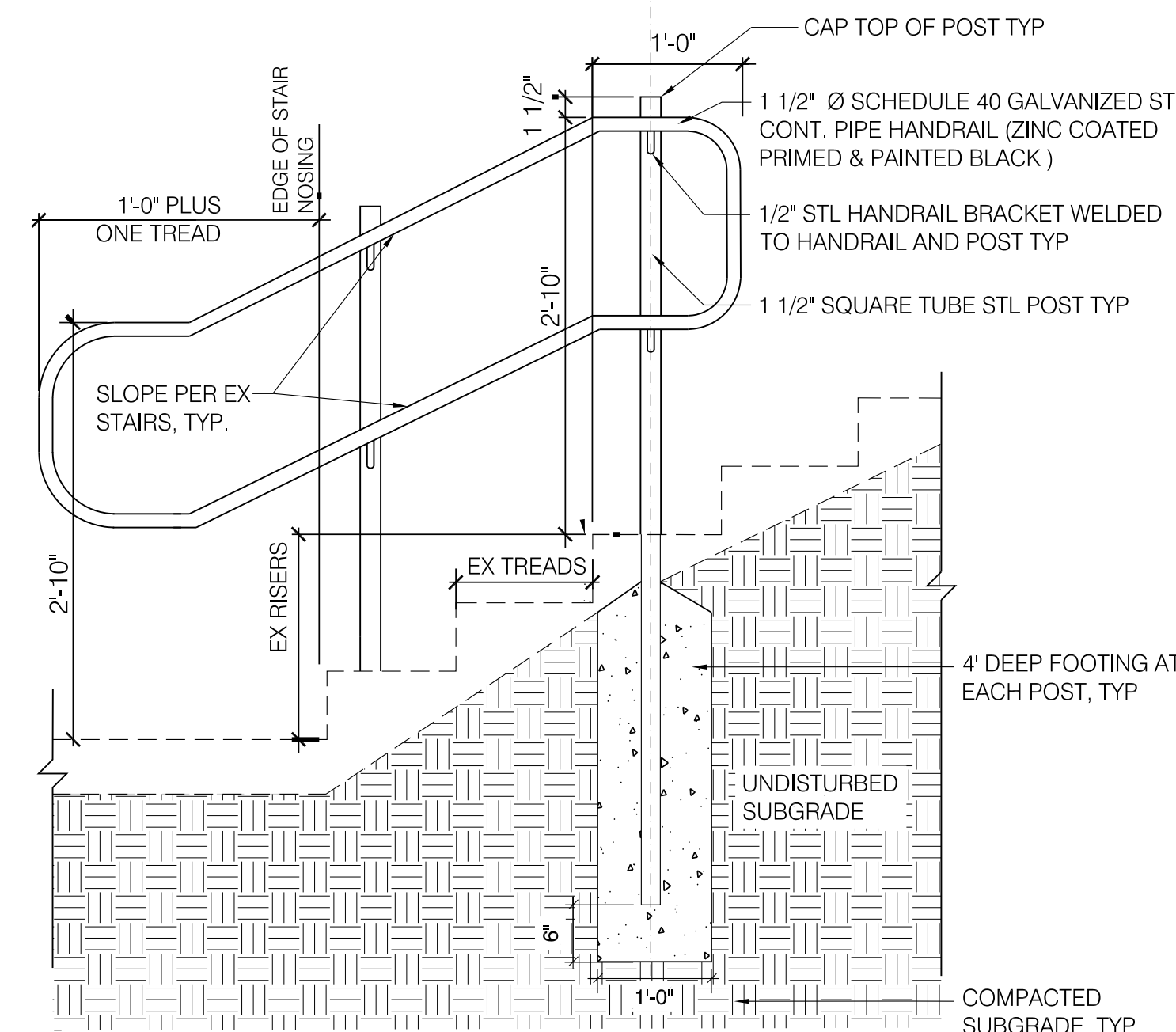
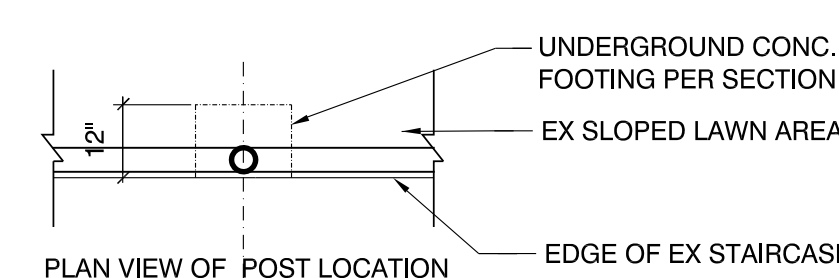


5 PRECAST CONCRETE STAIRS AT CORNER
SCALE: N.T.S.

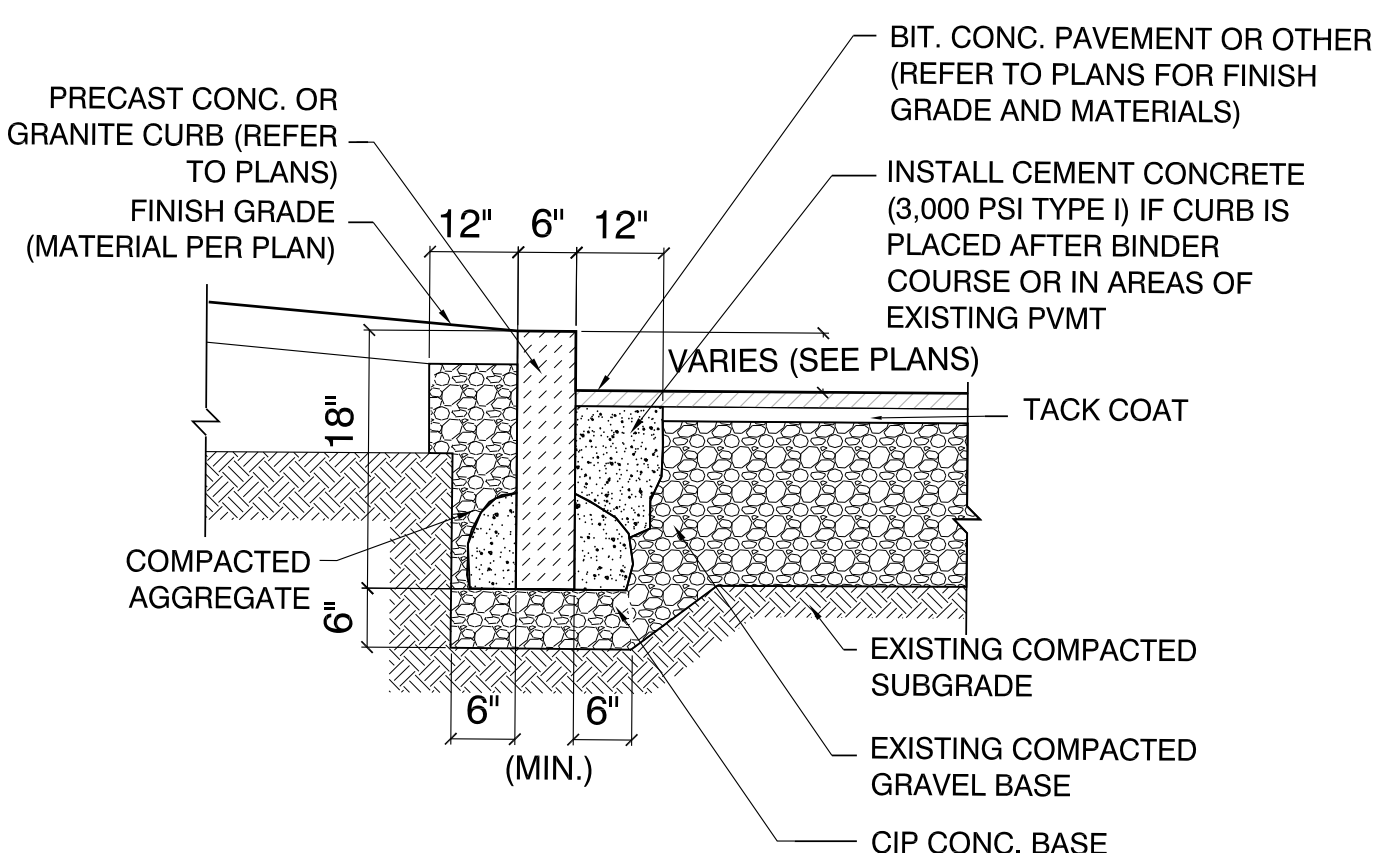


6 CONCRETE BLOCK TYPICAL DETAIL
SCALE: N.T.S.

- NOTES:
1. ALL HANDRAILS SHALL BE 1-1/2" O.D. STEEL (FINISH SHOP GALVANIZED).
 2. ALL WELDS SHALL BE GROUND DOWN CLEAN AND SMOOTH.
 3. ALL DIMENSIONS SHALL BE FIELD VERIFIED AND ADJUSTED AS NEEDED.



8 HANDRAIL ON EXISTING STAIRS
SCALE: N.T.S.



7 PRECAST CONCR. OR GRANITE CURB
SCALE: N.T.S.

Consultants:

Revisions:

Rev	Date	Description

Seal:

CONSTRUCTION DOCUMENTS

Date: 11.22.2011
Scale: AS SHOWN
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Reviewed By: MSM
Checked By: LFK
Approved By: ERB

Drawing Title:

SITE CONSTRUCTION DETAILS

Sheet Number:

DT.06

11-22-2011 CONSTRUCTION DOCUMENTS

Revisions:

Rev	Date	Description

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CONSTRUCTION DOCUMENTS

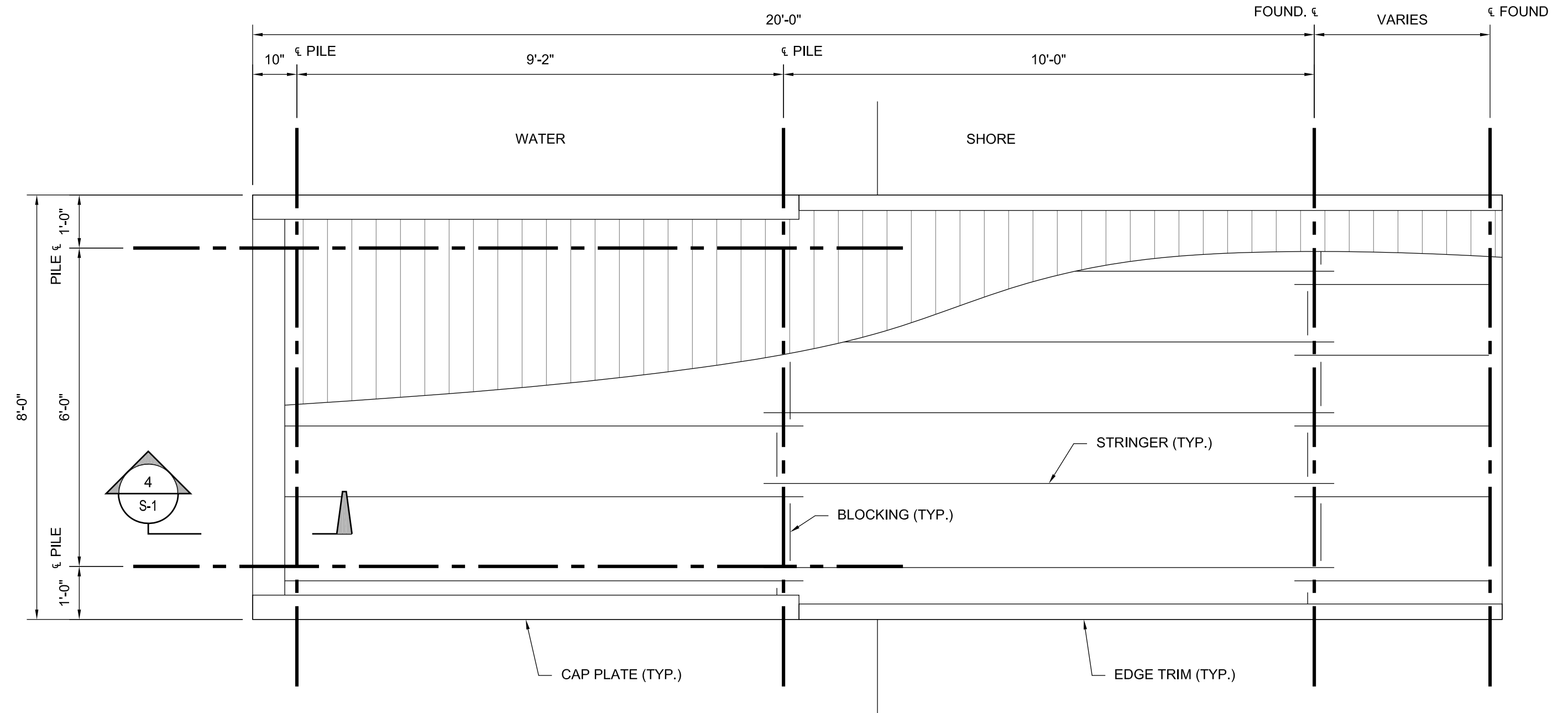
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 Scale: AS SHOWN
 Drawn By: MGM
 Reviewed By: MSM
 Checked By: LFK
 Approved By: ERB

Drawing Title:
STRUCTURAL DETAILS

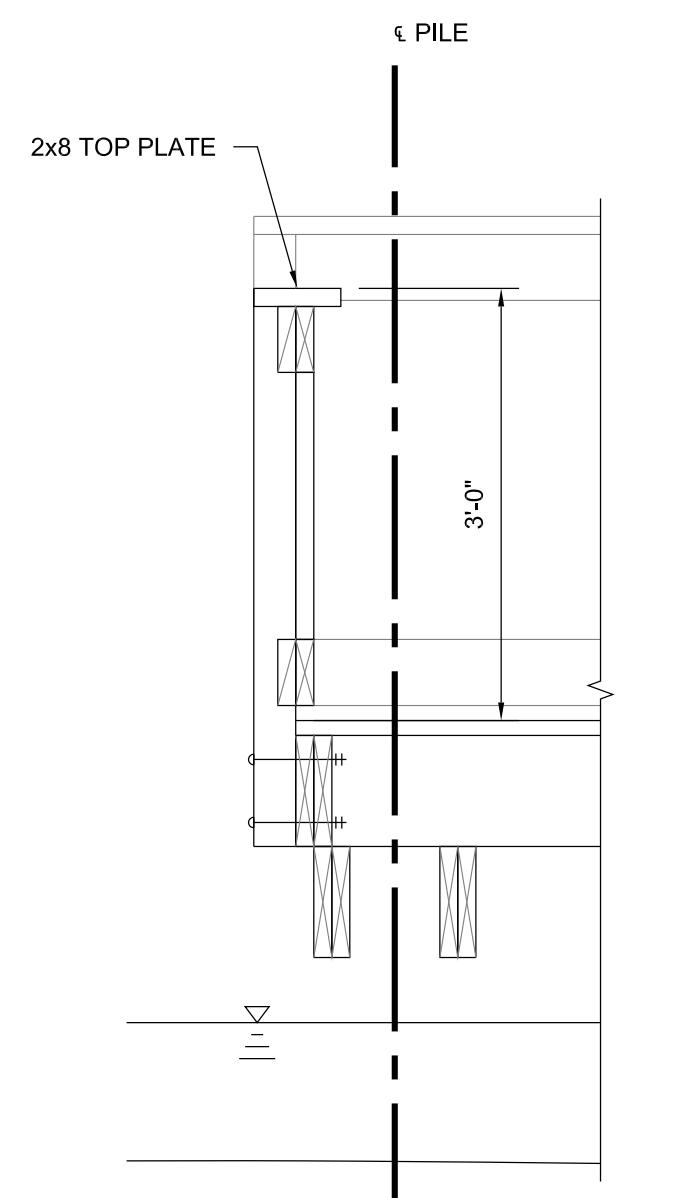
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GENERAL NOTES:

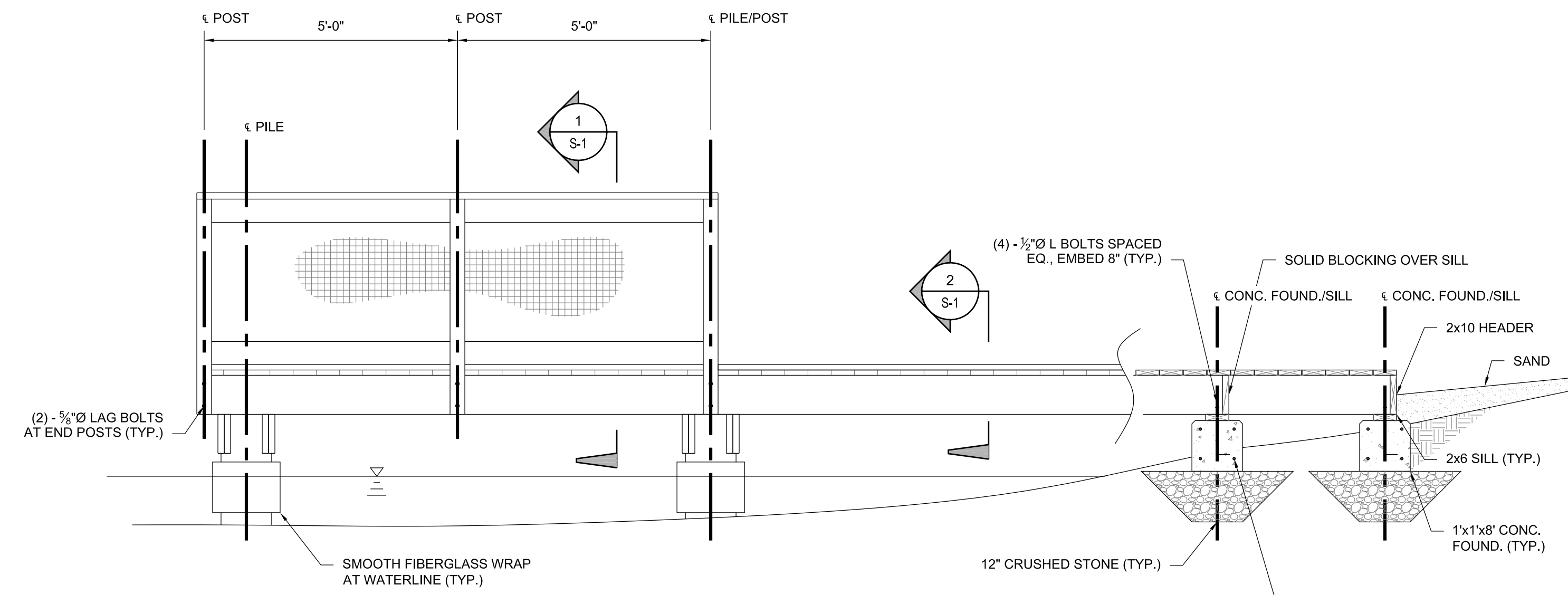
- ALL WORK SHALL CONFORM TO THE 8TH EDITION OF THE MASSACHUSETTS STATE BUILDING CODE AND ITS APPLICABLE REFERENCES.
- ALL WOOD FRAMING SHALL BE PRESSURE TREATED S-P-F SUITABLE FOR USE IN PIER CONSTRUCTION (PARTIALLY SUBMERGED IN FRESH WATER AND EXPOSED TO THE ELEMENTS).
- DECKING SHALL BE 5/4" x 6" x 8'-0" PRESSURE TREATED WITH RADIUS EDGES.
- ALL STEEL COMPONENTS USED SHALL BE GALVANIZED.
- THIS PIER IS DESIGNED FOR APPROPRIATE DEAD LOADS AND A MINIMUM OF 100 PSF LIVE LOADS.
- POSTS SHALL BE DRIVEN TO A 6 KIP VERTICAL AXIAL CAPACITY
- EXPOSED HORIZONTAL CONCRETE EDGES SHALL RECEIVE A 3/4" CHAMFER
- CONCRETE SHALL BE 3/4" AGGREGATE, 4000 PSI, 4" SLUMP, 6% AIR CONTENT MIX.
- REINFORCING STEEL SHALL CONFORM TO ASTM A 615 STEEL, EPOXY COATED.
- ALL REINFORCING SHALL RECEIVE A 3" PROTECTIVE CONCRETE COVER.



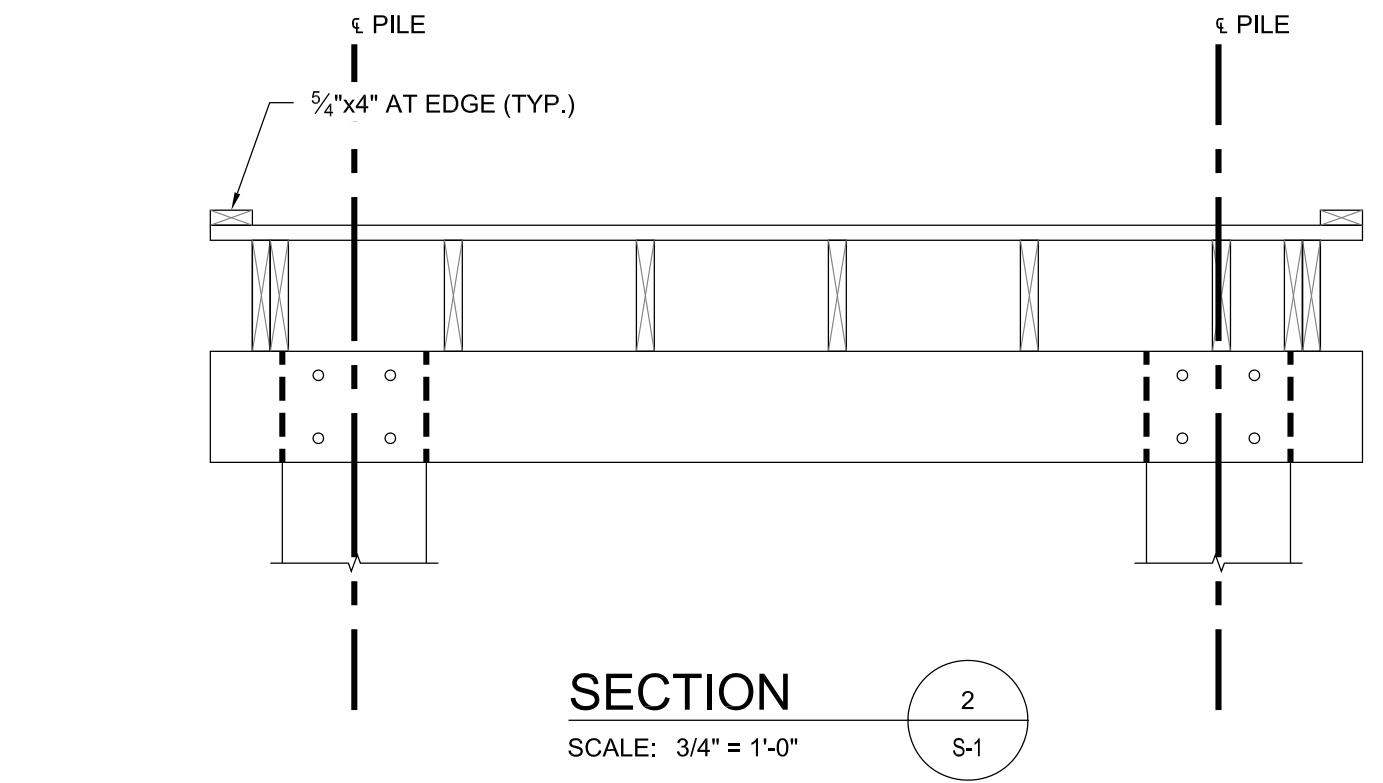
FISHING PIER - PLAN
 SCALE: 1/2" = 1'-0"



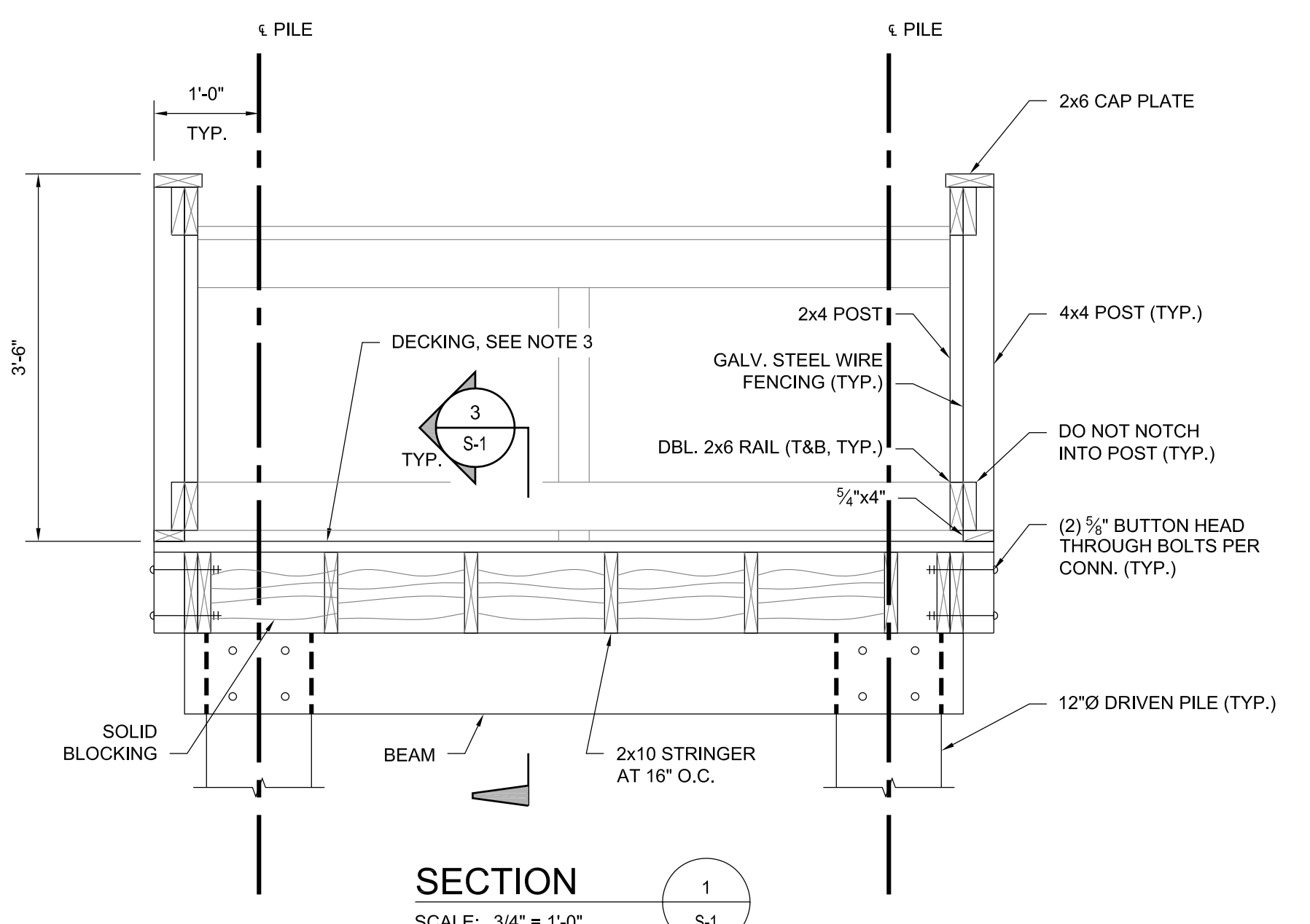
SEE SECTION 1 ON S-1 FOR TYPICAL CONSTRUCTION
SECTION 4
 SCALE: 3/4" = 1'-0"



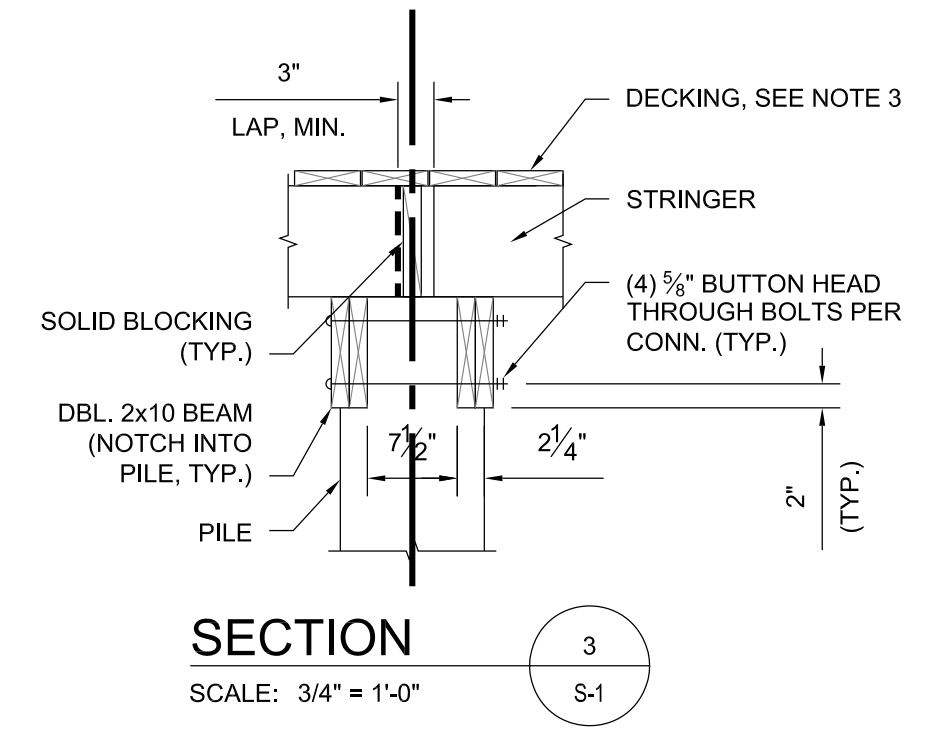
FISHING PIER - ELEVATION
 SCALE: 1/2" = 1'-0"



SECTION 2
 SCALE: 3/4" = 1'-0"



SECTION 1
 SCALE: 3/4" = 1'-0"



SECTION 3
 SCALE: 3/4" = 1'-0"

11-22-2011 CONSTRUCTION DOCUMENTS

Revisions:

Rev	Date	Description

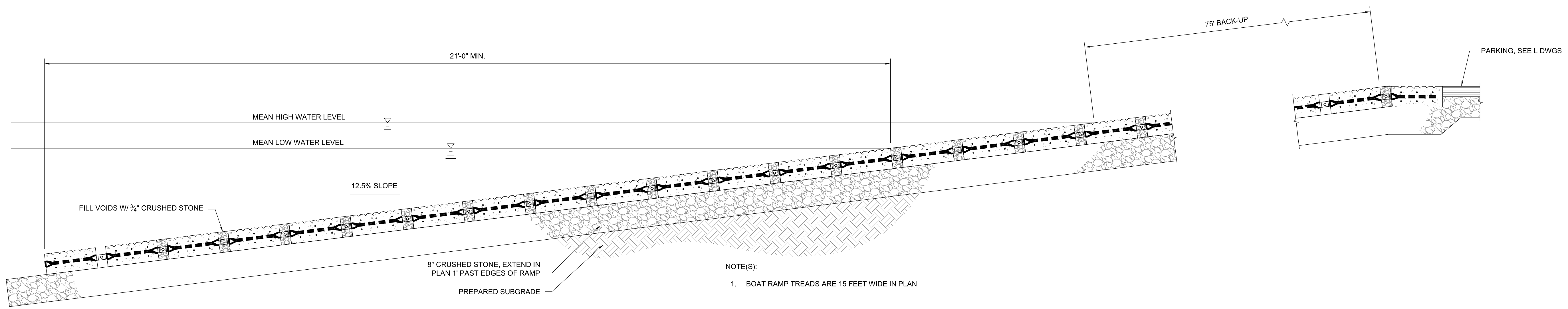
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Scale:	AS SHOWN
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Reviewed By:	MSM
Checked By:	LFK
Approved By:	ERB

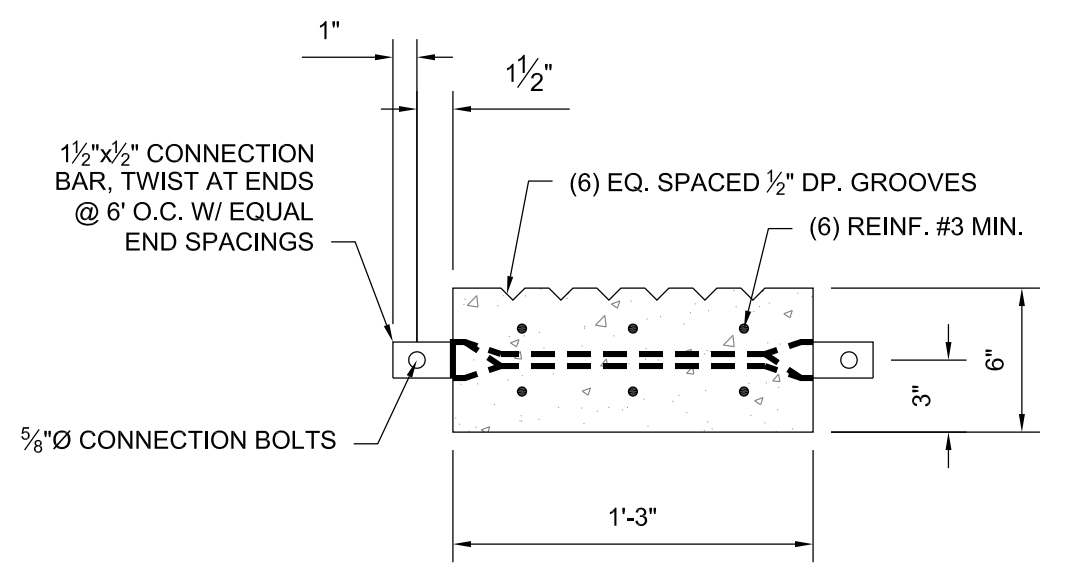
Drawing Title:
STRUCTURAL DETAILS

Sheet Number:
S.02



SECTION THROUGH BOAT RAMP
 SCALE: 3/4" = 1'-0"

NOTE(S):
 1. BOAT RAMP TREADS ARE 15 FEET WIDE IN PLAN



TYPICAL PRECAST CONCRETE TREAD SECTION
 SCALE: 1/2" = 1'-0"

NOTE(S):
 1. REINFORCING SHALL BE EPOXY COATED.
 2. REINFORCING SHALL RECEIVE 2" CONC. COVER
 3. CONNECTION BARS SHALL CONFORM TO ASTM A 36 STEEL AND SHALL BE HOT-DIPPED GALVANIZED.
 4. BOLTS/PINS/FASTENERS SHALL GALVANIZED.

11-22-2011 CONSTRUCTION DOCUMENTS