

**SPECIFICATIONS  
FOR  
SENSORY TRAIL IMPROVEMENTS  
WATCHUNG RESERVATION  
BOROUGH OF MOUNTAIN SIDE  
COUNTY OF UNION, NEW JERSEY**

**BA#43-2016; UNION COUNTY ENGINEERING PROJECT #2016-006**

**NOVEMBER 2016**

**UNION COUNTY OFFICIALS  
BOARD OF CHOSEN FREEHOLDERS**

Bruce H. Bergen, Chairman  
Sergio Granados, Vice Chairman  
Linda Carter, Freeholder  
Angel G. Estrada, Freeholder  
Christopher Hudak, Freeholder  
Mohamed S. Jalloh, Freeholder  
Bette Jane Kowalski, Freeholder  
Alexander Mirabella, Freeholder  
Vernell Wright, Freeholder

**CLERK OF THE BOARD**

James E. Pellettiere, RMC

**COUNTY MANAGER**

Alfred J. Faella

**DEPARTMENT OF ENGINEERING, PUBLIC WORKS AND  
FACILITIES MANAGEMENT**

Joseph A. Graziano, Sr., CPWM  
Director, Department of Engineering, Public Works and  
Facilities Management

**COUNTY ENGINEER  
DIVISION OF ENGINEERING**

Thomas O. Mineo, P.E.  
2325 South Avenue  
Scotch Plains, New Jersey 07076  
Telephone: (908) 789-3675  
Fax: (908) 789-3674

**PREPARED BY:**

**CME ASSOCIATES**

**Consulting & Municipal Engineers**

**1460 Route 9 South**

**Howell, New Jersey 07731**

**T: 732-462-7400**

**F: 732-409-0756**

**COUNTY OF UNION  
NOTICE TO BIDDERS**

Sealed bids will be received by the director of the Division of Purchasing, or his designee, at the County of Union, New Jersey on December 15, 2016 at 10:30 a.m., prevailing time, in the 3<sup>rd</sup> Floor Conference Room, U.C. Administration Building, 10 Elizabethtown Plaza, Elizabeth, New Jersey for:

**SENSORY TRAIL IMPROVEMENTS AT WATCHUNG RESERVATION  
BOROUGH OF MOUNTAIN SIDE, COUNTY OF UNION, NEW JERSEY  
BA#43-2016; UNION COUNTY ENGINEERING PROJECT #2016-006**

Bid Packages may be obtained at no charge by registering and downloading at <http://ucnj.org/bid-specs>. Bid Packages may also be obtained in person from the Division of Engineering at 2325 South Avenue, Scotch Plains, New Jersey 07076 between 8:30 a.m. and 4:00 p.m. weekdays upon payment of a non-refundable money order or bank check in the amount of \$275.00 made payable to the County of Union. No Personal / Company checks will be accepted. Requests for mailing of specifications will not be honored. For further information please call 908-789-3675.

The County reserves the right to reject any and all bids and to waive any and all informalities in the bid.

Bids shall be submitted in a sealed envelope and clearly marked with the subject of the bid, name and address of the bidder, phone & fax number, and date of the bid opening. Each bid must be delivered to reach the Division of Purchasing prior to the stated time of the opening of the bids. The County will not be responsible for late delivery by the U.S. Mail or any other carrier. If hand delivered, please note that parking and security access at the County Complex may cause delays and bidders should take them into consideration in order to submit a timely bid. **No** late bids will be accepted.

Bidders are required to comply with the requirements of N.J.S.A. 10:5-31 et seq. and N.J.S.A.C. 17:27.

**LAURA M. SCUTARI, QPA, MPA, DIRECTOR OF PURCHASING**

**UNION COUNTY BOARD  
OF CHOSEN FREEHOLDERS**  

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*We're Connected to You!*

NB-1

**SENSORY TRAIL IMPROVEMENTS AT WATCHUNG RESERVATION  
BOROUGH OF MOUNTAINSIDE, COUNTY OF UNION, NEW JERSEY  
BA#43-2016; Union County Engineering Project #2016-006**

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**UNION COUNTY BOARD OF CHOSEN FREEHOLDERS  
INSTRUCTIONS TO BIDDERS AND FORMS**

**DEFINITIONS**

Wherever reference is made to the County, Title of Project, Bidder, or Vendor/Contractor they shall be as follows:

**OWNER/COUNTY:**

Union County Board of Chosen Freeholders  
UC Administration Building, 6<sup>th</sup> Floor  
10 Elizabethtown Plaza  
Elizabeth, New Jersey 07207

**ADDRESS BIDS AND SUBMIT TO:**

Union County Division of Purchasing  
UC Administration Building, 3<sup>rd</sup> Floor  
10 Elizabethtown Plaza  
Elizabeth, NJ 07207  
Attn: Laura M. Scutari, QPA, MPA, Director, Division of Purchasing  
Telephone: 908-527-4130  
Facsimile: 908-558-2548

**TITLE OF PROJECT:**                   **Sensory Trail Improvements at Watchung Reservation  
Borough of Mountainside, County of Union, New Jersey**

**BIDDER:** Bidder shall be a single overall contract bidder

**ENGINEER:**   **CME Associates  
1460 Route 9 South  
Howell, New Jersey 07731**

**COUNTY ENGINEER AND/OR CONSTRUCTION MANAGER (as applicable):**

**COUNTY ENGINEER:**

Thomas O. Mineo, P.E.  
Union County  
Division of Engineering  
2325 South Avenue  
Scotch Plains, NJ 07076  
Office:           (908) 789-3675  
Facsimile:       (908) 789-3674  
Email: [tmineo@ucnj.org](mailto:tmineo@ucnj.org)

**CONSTRUCTION MANAGER:**

## GENERAL SPECIFICATIONS

### 1. BID FORM

Bids for this Work will be enclosed in a sealed envelope addressed to the Purchasing Division, County of Union, New Jersey, Union County Administration Building, 10 Elizabethtown Plaza, Elizabeth, New Jersey 07207, with the full name of the Project clearly marked on the outside. Refer to the sheet marked "Notice of Bid (Advertisement)" for the correct name of the Project. Bidders must submit their bids on the attached pricing sheet (Bid Form), in a sealed envelope addressed to the County and bearing on the outside: the name of the Bidder, Bidder's business address, and the title of the Project.

The Division of Purchasing will receive the bids for this Work at the Union County Administration Building, 10 Elizabethtown Plaza, Elizabeth, New Jersey on the date and time noted on the sheet marked "**Notice of Bid (Advertisement)**".

The County will not assume responsibility for bids forwarded by mail. It is the individual's responsibility to see that the bids are presented to the Purchasing Division at the time and at the place designated.

Bids will be accepted only on the Bid Form supplied. Bids on forms other than the original supplied herein will be rejected. The "complete" Bid Documents includes the Bid Bond, Bid Form, Bidder's Checklist, Consent of Surety, Ownership Disclosure Certification, Non-Collusion Affidavit, and any other documents noted in these Instructions to Bidders or Contract Document to be submitted with this Bid.

The bidder will state in the bidding sheet the price per unit of measure for each scheduled Item of Work for which he will agree to carry out the Work, and the Total Bid Price for the construction of the Project.

The prices in the Bid Form shall be typed or written in pen and ink. Erasures or alterations must be initialed by the bidder in ink.

The bidding sheet for this Project may include a fixed amount as a Bid Allowance. If applicable, all bidders are required to add this fixed amount to their base bid and to include this additional amount in their Bid Bond. This sum will be included in the Contract as well as the performance, labor and materials bond. Payment by the County will be made to the Contractor from these funds only upon the completion of extra Work pursuant to a written Change Order(s) signed by the County's Engineer or his designee and the Contractor, prior to the commencement of such Work. Work commenced prior to written approval by the County shall be done at Contractor's risk. Such payment will only be in the amount agreed to by the parties, in writing in the Change Order(s). See Section 37, Change Orders, of these general specifications for further details.

Refer to Bid Document Submission Checklist for all required documents.

In the event there is a discrepancy between the unit price given and the extended total, the unit price will govern. Any discrepancies will be mathematically adjusted.

Insert applicable alternates, if any have been specified, applicable to the Bidder's Work. All alternates MUST be bid upon. Any Bidder's failure to do so will be deemed a material, non-waivable defect and shall render the bid nonresponsive. The Bidder shall clearly designate whether the change in price is an addition or subtraction, by using either a "+" sign or the word "addition", or in the alternative, a "-" sign or the word "minus". If there is no other change in price, the Bidder shall insert "NC" or "No Charge".

When two or more low bids are equal in all respects, awards will be made according to the provisions of N.J.S.A. 40A:11-6.1(d).

Where unit prices have already been established by the Contract Documents, the Bidder agrees that such unit prices shall prevail. All unit prices, whether filled in by the Bidder or established by the Contract Documents, shall become part of the Contract. No bid will be considered or award made, unless applicable unit prices, as required, are filled in.

The County reserves the right to reject any or all bids and also reserves the right to waive any informality in the bids received so long as said waiver is not of a response which is considered to be material and non-waivable pursuant to law.

The County of Union has the right to reject any and all bids from any bidder that is in, or contemplates bankruptcy of any chapter of nature. Said bidder shall notify the County, in writing, of any condition or knowledge of the same.

Conditional bids will not be accepted. Bids may be withdrawn prior to the advertised time for the opening of bids or authorized postponement thereof or in accordance with the provisions of N.J.S.A. 40A:11-23.3 discussed below. Bids received after the advertised time shall not be considered. Bidders shall be solely responsible for premature opening or late delivery of bids not properly marked, addressed, or directed.

## **2. WITHDRAWAL OF BID DUE TO MISTAKE**

N.J.S.A. 40A:11-23.3 authorizes a bidder to request withdrawal of a public works bid due to a mistake on the part of the bidder. A mistake is defined by N.J.S.A. 40A:11-2(42) as a clerical error that is an **unintentional and substantial computational error or an unintentional omission of a substantial quantity of labor, material, or both, from the final bid computation.**

A bidder claiming a mistake under N.J.S.A. 40A:11-23.3 must submit a request for withdrawal, **in writing**, by certified or registered mail to Michael M. Yuska, QPA, Director, Division of Purchasing, County of Union, New Jersey, Union County Administration Building, 10 Elizabethtown Plaza, Elizabeth, New Jersey 07207. The bidder must request withdrawal of a bid due to a mistake, as defined by the law, within five business days after the receipt and opening of the bids. Since the bid withdrawal request shall be effective as of the postmark of the certified or registered mailing, Michael M. Yuska, QPA, Director of the Division of Purchasing or his designee may contact all bidders, after bids are opened, to ascertain if any bidders wish to, or already have exercised a request to withdraw their bid pursuant to N.J.S.A. 40A:11-23.3.

A bidder's request to withdraw the bid **shall** contain evidence, including any pertinent documents, demonstrating that a mistake was made. Such documents and relevant written information shall be reviewed and evaluated by the County's designated staff pursuant to the statutory criteria of N.J.S.A. 40A:11-23.3.

The County will not consider any written request for a bid withdrawal for a mistake, as defined by N.J.S.A. 40A:11-2(42), by a bidder in the preparation of a bid proposal unless the postmark of the certified or registered mailing is within the five business days following the opening of bids.

### **3. QUALIFICATIONS OF BIDDERS AND REQUIRED SUBMISSIONS**

The County may make such investigation as it deems necessary to determine the ability of the Bidders to perform the Work, which includes investigation of any and all subcontractors listed with the bid. The Bidder shall furnish any information and data for this purpose as the County may request.

### **4. INTERPRETATIONS AND ADDENDA**

Any explanation desired by a bidder regarding the meaning or interpretation of the Contract Documents must be requested in writing to the County Engineer or Design Professional as the case may be and with reasonable time allowed for a reply to reach bidders before submission of their bids. Any interpretation or instruction made by the County Engineer will be in the form of an addendum to the Contract Documents or clarification and will be furnished to all prospective bidders. Oral explanations or instructions given before the award of the Contract will not be binding. Bidders are required to bring to the attention of the County Engineer, the discovery of any apparent ambiguity, inconsistency, error, discrepancy, omission in the Contract Documents for interpretation and correction at least ten (10) working days before opening of bids with the exception of Saturdays, Sundays and holidays.

All Addenda issued through the Offices of the County Engineer are amendments to the Contract Documents and shall be considered in preparing bids. Same shall become part of the Contract Documents.



Addenda take precedence over all earlier documents and over each other according to the latest date. Addenda unless themselves interpretive remain subject to interpretation the same as any other document incorporated in the Contract.

Addenda may be issued by the County Engineer up to seven (7) working days prior to the opening of bids. Failure of any bidder to receive an addendum shall not relieve such bidder from the obligation imposed by such addendum. Bidders are to keep themselves currently acquainted with the Contract Documents during the entire bidding period and make inquiry on their own initiative as to issuance of any Addenda. Receipts of all Addenda shall be acknowledged on the "*Acknowledgement of Receipt of Changes*" included in the bid package and must be submitted with the bid.

## **5. OBLIGATION OF BIDDER TO INSPECT SITE AND CONTRACT DOCUMENTS**

At the time of the opening of bids, each Bidder will be presumed to have inspected the site(s) and to have read, and be thoroughly familiar with the Contract Documents. The failure or neglect of any Bidder to receive or examine any form, instrument, or document shall in no way relieve any Bidder from any obligation in respect to its bid.

The Bidder shall examine the contents of the Project Manual and the set of Drawings and assure itself that all pages of the Specifications, Drawings, and other Contract Documents are included in the documents obtained for bidding purposes. Should the Specifications, Drawings, and other Contract Documents be incomplete, the Bidder shall notify the County Engineer in writing, who will supply the Bidder with any missing pages of Specifications, Drawings, or other Contract Documents. The lack of such written notification by the Bidder will be construed as evidence that the Specifications, Drawings, or other Contract Documents supplied it for bidding purposes are full and complete and as a waiver of any subsequent claim to the contrary.

## **6. BID AND PERFORMANCE GUARANTEE**

Each bidder must furnish a Bid Bond, Certified Check or Bank Cashier's Check in the amount of ten percent (10%) of the Bid. Checks shall be drawn to the order of the County of Union, New Jersey, not to exceed \$20,000.

Each bidder must furnish with the bid a certificate from a Surety Company, i.e. Consent of Surety, stating that in the event of the contract being awarded to said bidder, such Surety Company will provide the Contractor with Bonds guaranteeing the faithful performance of the Work in accordance with the plans and specifications, and the payment for labor, materials, and all other indebtedness which may accrue on the account of this Work. A Performance, Labor and Materials bond will be furnished by the Contractor upon an award of Contract, and will be in the amount of 100% of the contract price.

A one-year Maintenance Bond will be required upon acceptance of the Project by the County in the amount as stated in Section 15 of the General Specifications. Bonds will be written by a firm authorized to issue the bonds under the laws of the State of New Jersey and be in a form acceptable to the County Counsel.

N.J.S.A. 40A:11-1.1 et. seq. allows the prime Contractor to furnish the Performance Security for his Subcontractors. The County of Union requires Performance Security to be furnished by the prime contractor for the entire job in the total amount of the contract.

The County of Union shall award the contract or reject all bids within sixty (60) days; except that the bids of any bidders who consent thereto may, at the request of the County be held for consideration for such longer periods as may be agreed.

The County will return all certified checks or cashier's checks after the proposals have been opened, read, tabulated and checked except those of the three (3) bidders who have bid the lowest total price for carrying out the Project. The County will return the checks of these bidders when a contract is awarded to the successful bidder within ten (10) days after the award of the contract.

If the successful bidder refuses or neglects to sign the said Agreement and furnish the required bonds, the Bid Bond will be held and used by the County to offset any damages for such refusal or neglect.

## **7. COMMENCEMENT AND COMPLETION**

Work will not commence until a Notice to Proceed is received from the County Engineer.

Upon substantial completion of the Project, the Contractor must request a joint inspection with the County Engineer. Upon completion of this inspection, the County Engineer will prepare a list of incomplete or incorrect items (punch list) and have Contractor initial and date same. The Contractor shall rectify all deficiencies noted on the punch list within 30 calendar days of receipt of the list. The County Engineer may approve extensions for extenuating circumstances.

## **8. BIDDER AFFIDAVIT**

All Bidders are required to complete, sign, and submit with their Bid, the attached "Affidavit Regarding List of Debarred, Suspended or Disqualified Bidders". (See form enclosed)

## **9. BID SECURITY**

All Bidders are required to submit a form of Bid Security with their bids.  
(Bid Bond or Certified Funds)

The Bid Security shall be in the amount of ten percent (10%) of the Bid, but not in excess of Twenty Thousand Dollars (\$20,000.00), and payable to the order of the "County of Union."

## **10. LABOR AND MATERIALS**

The prices will cover all costs of any nature incident to and growing out of the Work, including all labor, material, equipment, transportation, loss by damage or destruction of the Project, settlement of damages, and for replacement of defective work or materials. N.J.S.A. 54:32B-1 et seq. exempts all materials sold to the County of Union from sales or use taxes and should not be included in the prices provided on the Bidding Sheet.

## **11. INSURANCE REQUIREMENTS**

The County of Union requires all contractors to be able to comply with the following insurance requirements. In the event a bid is accepted by the County, the contractor must accept the applicable insurance requirements, as set forth below, as part of any contract awarded to it by the County.

Contractor shall carry and maintain at all times while the contract is in full force and effect, the following insurance coverage with an insurance company or companies acceptable to the County, with limits not less than those shown below. A Certificate of Insurance shall be filed with the County prior to commencement of any Work indicating the following:

- a) Commercial General Liability (CGL): Coverage for all operations including, but not limited to, contractual, products and completed operations, and personal injury with limits no less than \$5,000,000 per occurrence/\$10,000,000 aggregate. The County of Union, its Board of Chosen Freeholders, officers, employees, agents and servants shall be included as an additional insured. Coverage is provided on a primary and non-contributory basis to the County of Union, et al.
- b) Automobile Liability: Coverage for all owned, non-owned and hired vehicles with limits not less than \$5,000,000 per occurrence, combined single limits (CSL) or its equivalent.
- c) Workers Compensation: As required by the State of New Jersey and Employers Liability with limits not less than \$1,000,000 per accident for bodily injury or disease.
- d) Professional Liability (if design/build): Coverage with limits not less than \$1,000,000 per occurrence or claim, \$2,000,000 aggregate

- e) Contractor's Pollution Legal Liability and/or Asbestos Legal Liability and/or Errors & Omissions (if project involves environmental hazards): Coverage with limits no less than \$1,000,000 per occurrence or claim/\$2,000,000 aggregate.
- f) Builders Risk (for major renovations): During the course of construction utilizing an "All Risk" coverage form with limits equal to the completed value of the project and no coinsurance penalty provisions.

Where applicable, a waiver of subrogation in favor of the County of Union, its Board of Chosen Freeholders, officers, employees, agents, servants and the State of New Jersey is to be included in those policies of insurance where permitted by law.

Notice of Cancellation: Each insurance policy required above shall provide that coverage shall not be canceled, except with notice to the Entity.

Special Risks or Circumstances: The County reserves the right to modify these requirements, including limits, based on the nature of the risk, prior experience, insurer, coverage, or other special circumstances.

## **12. INDEMNIFICATION REQUIREMENTS**

The County of Union requires all bidders to accept the following indemnification requirements in the event the County accepts their bid. The Contract awarded by the County to the successful bidder will contain the following provision:

"To the fullest extent permitted by law the Contractor shall indemnify and hold harmless the owner and the owner's consultants, agents, representatives, and employees from and against any and all claims, damages, losses, costs, and expenses, including, but not limited to attorneys' fees, legal costs and legal expenses arising out of or resulting from the performance of the Contractor's work under this contract, provided that such claim, damage, loss, cost, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the work itself) caused or alleged to be caused by the negligent acts, negligent omissions, and/or fault of the Contractor, anyone directly or indirectly employed or retained by the Contractor, or anyone for whose acts the Contractor may be liable regardless of whether caused in part by the negligent act or omission of a party indemnified hereunder provided it is not caused by the sole negligence of a party indemnified hereunder. Contractor shall further indemnify and hold harmless the County and the County's consultants, agents, representative, and employees from and against any and all claims, damages, losses, costs, and expenses, including, but not limited to attorneys' fees, legal costs and legal expenses, arising out of or resulting from performance of the work, provided that such claim, damage, loss, cost, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the work itself) caused or alleged to be caused by the negligent acts, negligent omissions, and/or fault of

the County or the County's consultants, agents, representatives, or employees and arises out of this project and provided such claim, damage, loss, cost, or expense is not caused by the sole negligence of a party indemnified hereunder."

### **13. ROYALTIES AND PATENTS**

The Contractor shall pay all royalties and license fees. He shall defend all suits or claims for infringement of any patent rights and shall hold the County harmless from loss on account thereof.

### **14. PLANS AND SPECIFICATIONS**

In carrying out the Work, the plan(s) and the specifications will be followed by the Contractor. Minor alterations in the plan may be made or permitted by the County Engineer from time to time and, if no additional Work is necessary, there will be no additional charge for carrying out such minor alterations.

The Contractor shall provide the County Engineer a set of reproducible as-built drawings upon completion of the Project. The Contractor shall maintain an updated construction progress plan in the Project field office at all times.

When applicable, The New Jersey Department of Transportation Standard Specifications for Road and Bridge Construction, as amended, and Supplemental Specifications for State Aid Projects, herein after referred to as the "Standard Specifications", are made a part of these specifications and contract for the improvements, and will govern the construction of this Project, the material used and the execution of this Project, except as revised and modified herein. The references to these specifications are given herein for the purpose of aiding in the rapid location of the description of the various items herein specified. The entire Work must be carried on and completed to the satisfaction of the County. The Standard Specifications are amended as follows:

"Any reference to the Commissioner, Department, Department Laboratory, Engineer or Inspector should be redefined to be the County of Union".

### **15. GUARANTEE AGAINST DEFECTIVE WORK**

Prior to final payment being made or before the release of the performance security required by Section 3 above, the Contractor and Surety shall execute and deliver to the County an original Maintenance Bond with an original signature and seal having a penal sum equal to:

- A) One hundred percent (100%) of the final adjusted Contract amount, if such amount is \$50,000.00 or less;

- B) Fifty percent (50%) of the final adjusted Contract amount, if such amount be greater than \$50,000.00 but less than \$250,000.00; and,
- C) Twenty-five percent (25%) of the final adjusted contract amount, if such amount is \$250,000.00 or more.

The Bond and Surety shall be satisfactory to the Union County Counsel. The Surety shall hold a Certificate of Authorization to do business in the State of New Jersey and shall conform to P.L. 1995 c.384, codified as N.J.S.A. 2A:44-143, 144. The Surety Disclosure Statement and Certification required by N.J.S.A. 2A: 44-143, 144, shall be attached to the Bond. Such Maintenance Bond shall remain in full force and effect for a period of one (1) year from the date of Final Completion. Such Maintenance Bond shall also provide that the Contractor and the Surety guarantee to replace for the said period of one (1) year from the date of Final Completion, all Work performed and/or all materials furnished that were not performed or were not furnished in accordance to the terms and performance requirements of the Contract Documents, and will make good any defects thereof which become apparent before the expiration of one (1) year. If, during that period, any part of the Project, in the judgment of the Engineer, is found defective, the Contractor will repair or replace same within five (5) days of receipt of notice from the County Engineer. If the Contractor refuses or neglects to do such Work in the time specified, the County Engineer may have the Work done by others and the Contractor or his Surety thereof will pay the cost.

The Contractor will furnish the County a Maintenance Bond for a percentage of the final adjusted contract price, as stated above. The one (1) year period will start the day of Final Completion of Project by the County. Final payment is conditional on the receipt of a maintenance bond in a form acceptable to County Counsel.

## **16. TRAFFIC AND STREET MAINTENANCE**

The Work must be started and performed by the Contractor in such a manner as to minimize delays to the traveling public. It must be completed in a timely fashion, with little or no inconvenience to traffic and pedestrians, where such inconvenience may be avoided.

All municipal, county, and state roadways shall remain open to traffic unless otherwise provided for in the technical specifications.

If modified traffic patterns are authorized in order to provide a safe working or traveling environment, the Contractor is responsible for providing all equipment, barrels, cones, signs, and barricades to implement the work zone and detours, unless otherwise specified in the technical specifications. All work zones and detours shall be established in accordance with the technical plans and specifications if provided or in strict compliance with the current version of the Manual for Uniform Traffic Control Devices (MUTCD). The Contractor shall obtain approval for these work zones and

detour plans from the Municipal Police or applicable police agency and the Union County Bureau of Traffic Maintenance prior to implementation.

All traffic control plans shall provide for safe movement of vehicular, bicycle, and pedestrian traffic. Particular attention shall be given to requirements of the Americans with Disabilities Act.

No portion of any street or alleyway may be used for the storage of any materials or equipment without the approval of the Municipal Police or other applicable police agency. Sidewalks, gutters, drains, fire hydrants and private drives shall be maintained for their intended use unless specifically approved by the County Engineer.

Upon suspension of Work, at the end of the day or for protracted periods, the Contractor shall remove all rubbish and materials from the Work site to the approved storage/staging location. All road cuts, saw cuts, and trenches that may pose hazard to vehicular, pedestrian, or bicycle traffic, to include handicapped users, shall be filled to the surface of the roadway or sidewalk. At no time will steel plates or settled trenches be allowed at the daily suspension of Work, unless specifically approved by the County Engineer.

Use of Traffic Control Officers shall be determined by the County in accordance with the provisions of N.J.S.A. 40A:11-23.1(c). If applicable to the Project, the County shall have provided an allowance for same as set forth in the Bid Form.

With respect to pedestrian traffic, the Contractor shall install signs restricting access of the general public and, as necessary, Union County employees to the area of construction. The Contractor shall provide safe access to required areas and place physical barriers to restricted areas. These barriers may range from caution tape to actual barriers, at the direction of the County Engineer.

## **17. CONTRACTOR'S EMPLOYEES**

The Contractor must employ only suitable and competent labor in the Work, and must remove from the Work any incompetent, unsuitable, or disorderly person upon complaint from the County Engineer.

The parties to any contract resulting from this proposal do hereby agree that the provisions of N.J.S.A. 10:2-1 through 10:2-4 (discrimination in employment on public works contracts): 34:11-56.25 et seq. (payment of prevailing rate of wages determined pursuant to N.J.S.A. 34:11-56.30 by the Commissioner), and the Rules and Regulations promulgated pursuant thereto, are hereby made a part of any contract and are binding upon them.

There will be no discrimination against any employee who is employed in the Work to be covered by any contract resulting from this bid because of age, race, creed, color, national origin, ancestry, marital status or sex.

Any person, firm, or corporation violating the provisions of this Section will be deemed and judged a disorderly person.

### **18. OWNERSHIP DISCLOSURES REQUIRED**

Pursuant to P.L. 1977, N.J.S.A. 52:25-24.2, the Bidder shall submit with its Bid, or prior to receipt of bids, a statement setting forth the names and addresses of all stockholders in the corporation or partnership bidding who own ten percent (10%) or greater interest therein. (See forms attached)

### **19. NON-COLLUSION AFFIDAVIT**

The Bidder shall submit with its bid either the attached completed "Non-Collusion Affidavit" or a statement of non-collusion with verbiage similar to same.

### **20. EQUAL EMPLOYMENT OPPORTUNITY COMPLIANCES**

The successful bidder shall be required to complete and submit an Initial Project Workforce Report, New Jersey Department of Treasury Form AA-201, upon notification of award. Failure to submit this completed form may result in the Contract being terminated.

The successful bidder shall also be required to submit a copy of its Monthly Project Workforce Report, New Jersey Department of Treasury Form AA-202, to the New Jersey Department of Treasury's Division of Public Contracts Equal Employment Opportunity Compliance and to the Board.

### **21. COMPLIANCE WITH NEW JERSEY PREVAILING WAGE ACT**

The County of Union, in order to fulfill the requirements of N.J.S.A. 34:11-56a.25 et seq, requires that the following additional conditions be strictly followed. The bidders represent that he is not listed or is not on record in the Office of the Commissioner or the Department of Labor and Industry as one who failed to pay prevailing wages in accordance with the provisions of this Act. The bidder agrees to the inclusion of a contract provision upon award which specifically requires said Contractor to fully comply with each and all of the requirements of the aforesaid Act as it relates to prevailing rates of wages on public contracts as set forth in the New Jersey Prevailing Wage Act, P.L. 1963, Chapter 150 and P.L. 1974, Chapter 64.



A Copy of the Prevailing Wage Rates is attached for your reference. Applicable rates are those wages and fringe benefit rates in effect on the date the contract is awarded. All predetermined rate increases listed at the time the contract award must also be paid, beginning on the dates specified. Rates may change between the time of issuance of this determination and the award of the public works contract. Therefore, prior to the award of the contract, verification must be made with the Public Contracts section, to insure that the rates contained in this determination are still prevailing.

The Contractor agrees to abide and be bound by each and all of the said statutory provisions with respect to the payment of prevailing rates of wages, and acknowledges that the County reserves the right to terminate the Contractor's (or his subcontractors') right to proceed with the scope of Work, or such portion thereof that relates to the failure to pay prevailing rates of wages. In such event or under the terms of N.J.S.A. 34:11-56.27, the Contractor and his surety will be liable to the County of Union for any excess costs occasioned by such a violation.

The Contractor or subcontractors for this Project will post the Prevailing Wage Rates for each craft and classification involved as determined by the Commissioner of Labor and Industry, including the effective date of any changes thereof, in prominent and easily accessible places at the site of the Work or at such place or places as are used by them to pay workmen their wages.

The County of Union requires a copy of payroll records from the Contractor and subcontractors. Payroll records shall be submitted with each voucher request for payment. Prevailing wage rates may be obtained from the New Jersey Labor, Division of Workplace Standards, Public Contracts Section, (609-292-2259).

In addition to compliance with the New Jersey Prevailing Wage Act, the County requires compliance with procedures established by Resolution No. 2014-0408 adopted by the Union County Board of Chosen Freeholders on May 8, 2014. The resolution is furnished in Section 51 of these General Specifications.

#### UNION LABOR IS PREFERRED ON ALL COUNTY WORK

The foregoing reference to specific laws will not be deemed to be a limitation of obligation of the Contractor to perform his obligations in full compliance with the provisions and requirements of all federal and state statutes and local ordinances applicable to the Work to be done under the contract.

It is agreed and understood that any contracts and/or orders placed as a result of this proposal will be governed and construed and the rights and obligations of the parties hereto will be determined in accordance with the laws of the State of New Jersey.

Upon completion of the Work, the Contractor will furnish a Certification of Compliance with the New Jersey Prevailing Wage Act. The certificate in a form acceptable to County Counsel is a condition of the final payment. (See form attached)

## **22. BRAND NAME OR EQUAL**

When the Specifications, Forms, and other Contract Documents use “brand name or equivalent” or similar language, the listed brand name shall serve as a reference or point of comparison for the functional or operational characteristic desired for the goods or services being requested. Where a bidder attempts to submit an equivalent product for a brand name, it shall be the responsibility of the bidder to fully describe and document the product to be provided with the bid in order to establish the equivalence claim.

- A. If the Bidder proposes to offer substitute goods as an equal to those specified herein, the bidder shall so indicate with the Bid Proposal. For the purposes of this paragraph, a proposed item shall be considered equal to goods specified herein if:
  - 1. The County, in its sole discretion, determines that: (i) the goods conform substantially, even with deviations, to the brand name goods specified herein; (ii) the goods are equal to or greater than the brand name goods specified herein in terms of quality, durability, functionality, appearance, strength and design; (iii) the goods are capable, at least as well as the brand name goods specified herein, or performing with existing equipment; and (iv) the goods do not cost the County more than the brand name goods specified herein costs the County.
  
- B. To offer substitute goods as an equal to those specified herein, it is necessary that:
  - 1. The Bidder submits sufficient information with its bid to permit the County to determine that the goods are equivalent to the brand name goods specified herein, including, but not necessarily limited to the brand, catalog number and specifications/data sheets;
  - 2. The Bidder fully identifies and describes the variations of the goods from the brand name goods specified herein on a separate sheet that is to be submitted with the bid proposal. Bidder’s literature WILL NOT suffice in explaining exceptions to these specifications.

3. The Bidder certifies that the goods (i) are similar in substance to the brand name goods specified, and (ii) are suited to the same use as the item specified;
- C. The County shall be allowed a reasonable time within which to evaluate the Bidder's proposal to offer substitute goods as an equal to those specified herein. The County shall be the sole judge of acceptability. No "or-equal" goods shall be ordered, delivered, assembled, set-up or utilized until the County's evaluation is complete. The County's determination as to equivalency shall be deemed final and absolute.

In the event the Bidder does not provide sufficient supporting documentation with the bid, it will be presumed and required that the brand name goods and services as described in the specifications will be provided.

### **23. LINES AND GRADES**

Normally, horizontal and vertical control points will be provided in the technical specifications. All other surveying will be the responsibility of the Contractor unless otherwise noted.

### **24. NUMBER OF WORKING DAYS**

In accordance with NJSA 40A:11-17, the Work for the within Project shall be completed as specified on the Time of Completion Form. See form attached

There shall be taken a deduction from the contract price, or any wages paid by the County, to any inspector(s) necessarily employed by it on the Work, for any number of days in excess of the number allowed in the specifications.

### **25. PROMPT PAYMENT OF CONSTRUCTION CONTRACTS (NJ Prompt Payment Act)**

Pursuant to NJSA 2A:30A-1 et. seq., payment to the Contractor, other than for Work done pursuant to a contact allowance, where applicable, shall be processed and paid as follows:

1. All contractor bills shall be either approved for payment, or notice provided as to why the bill or any portion of it will not be approved by the representative(s) of the governing body no later than the public meeting following 20 calendar days of the billing date as defined in the statute.

2. If the billing is approved, said bill shall be paid in the payment cycle following the meeting.

## **26. STOPPING WORK ON ACCOUNT OF BAD WEATHER**

Work must only be performed in weather suitable for the type of construction planned or underway. Extremes in temperature, humidity, precipitation, evaporation, etc. can detrimentally affect the constructed product. Refer to the Standard and Technical Specifications for specific items.

## **27. ACCESS FOR OTHER CONTRACTORS**

The Contractor for this Work will give proper access to other contractors who may be employed upon the Project and must not hinder or delay unnecessarily any Work that may be progressing under other contracts.

## **28. CONDEMNED MATERIALS AND WORK**

Any materials and or part of the Work that may be condemned by the County Engineer will be removed and replaced by the Contractor or otherwise rectified, as may be directed by the County Engineer. No payment will be made upon the Work until such faulty work has been made good as may be directed. In the event the Contractor refuses or neglects to make good such faulty work, he will be deemed to have abandoned the contract and proceedings may be taken against him as provided herein.

## **29. STORAGE**

In the event that it is necessary for the Contractor to stockpile or store materials or equipment on the job site, the Contractor shall inform the County of such necessity and the County may offer available space, if any, for storage of such materials or equipment. The Contractor shall use said space only for such purpose. Any and all materials which may be stored in such space or which may be brought onto the job site at any time by the Contractor will be at the Contractor's sole risk. The County will not be responsible for loss of or damage to said materials or equipment for any cause whatsoever. The Contractor shall take necessary measures to protect any such storage area and shall be responsible for any and all damages.

## **30. FINAL CLEAN UP**

Upon completion of the Work, the Contractor will remove all equipment, unused materials, rubbish, etc., and will repair, or replace in an a manner acceptable to the County Engineer, all areas that may have been damaged in the prosecution of the

Work. Same shall be a condition precedent to final payment. Should said Contractor fail to comply with this requirement, the County shall undertake the clean-up with its own forces and charge the cost of same against the Contractor's contract balance.

### 31. SUB-LETTING OF WORK

Except for the List of Subcontractors, pursuant to NJSA 40A:11-16 (See form attached), no portion of the Work will be sublet by the Contractor to any other entities, except with the consent of the County Engineer. A complete list of subcontractors must be submitted to the County Engineer at the preconstruction meeting. If the job does not warrant a preconstruction meeting, the Contractor must submit such list prior to the start of Work.

All Subcontractors will be subject to NJSA 34:11-56 et al.

N.J.S.A. 40A:11-16 requires the bidder to list in the bid sheets the name or names of all subcontractors involved in the following types of Work: plumbing and gas fitting and all kindred work, steam and hot water heating, ventilating apparatus, steam power plants and kindred work, electrical work, ornamental iron work, and structural steel. In addition, the County may require the identification of specific additional subcontractors. If these trades are expected to be part of the contract, such subcontractors should be listed on the "Subcontractor Identification Statement List of Subcontractors" and Bidder shall certify same on the accompanying sheet titled "Subcontractor Identification Certification". (See forms attached) **Bidder's failure to submit these two forms shall be considered a material defect and result in rejection of Bidder's bid.** Substitutions of any listed subcontractors pursuant to NJSA 40A:11-16 will not be permitted except with the consent of the County Engineer.

### 32. SAFETY

The Contractor shall observe all rules and regulations of the Federal, State, and local health officials. Attention is directed to Federal, State, and local laws, rules, and regulations concerning construction safety and health standards. The Contractor shall not require any worker to work in surroundings or under conditions that are unsanitary, hazardous, or dangerous to the worker's health or safety.

The Contractor shall admit to the site, without delay and without the presentation of an inspection warrant, any inspector of OSHA or other legally responsible agency involved in safety and health administration upon presentation of proper credentials.

The Contractor shall make available to the Contractor's employees, subcontractors, the County Engineer, and the public, all information pursuant to OSHA 29 CFR Part 1926.59 of The Hazard Communication Standard 29 CFR 1910.1200, and shall also maintain a file on each job site containing all Material Safety Data Sheets (MSDS) for products in use at the Project. These Material Safety Data Sheets shall be made available to the Engineer upon request.

The Contractor shall at all times conduct the Work to provide for the safety and convenience of the general public and protection of persons and property. The safety provisions of applicable laws, OSHA regulations, building and construction codes, and the rules and regulations of the New Jersey Department of Labor and Commerce shall be observed.

### **33. QUALITY, SAFETY AND PERFORMANCE STANDARDS**

All goods and services must be constructed and provided with the highest quality materials and workmanship. It is the intent of these specifications that only equipment equal to, or exceeding, the standard specified will be acceptable in order to protect the safety of the occupants of the Building.

### **34. MATTERS NOT MENTIONED IN CONTRACT DOCUMENTS**

Any Work, material, or method, not specifically described in these specifications, but shown upon the plans of the Work, will be carried out as shown on said plan.

### **35. PERMITS**

The Contractor will obtain all necessary permits required by law and provide the County with necessary approvals prior to commencement of permitted Work.

### **36. CONTRACTOR TO PROVIDE PROOF OF PAYMENT**

Upon the completion of the Work, the Contractor will furnish a General Release as proof that all claims for labor, materials, etc., have been settled by the Contractor. The General Release, in a form acceptable to County Counsel, is a condition of final payment.

### **37. CHANGE ORDERS**

Change Order Procedures shall comply with *N.J.A.C. 5:30-11.1 et seq.*, "Change Orders and Open End Contracts" and subsequent provisions of the New Jersey Administrative Code.

### **38. SUPPLEMENTAL WORK**

In case any supplemental work is necessary, it will be performed by the Contractor at a price fixed by agreement between the Contractor and the County Engineer and approved by the County as specified in Section 36. The Contractor will

do no supplemental work on any character, for which the Contractor will demand pay, except upon the written order of the County.

### **39. FORM OF CONTRACT**

The Contract will be subject to all statutory provisions on the matter of Public Works, Public Contracts, The Law Against Discrimination, the Laws Governing Affirmative Action and Prevailing Rates of Wages under the laws of New Jersey.

The Agreements shall be executed by both parties not later than twenty-one (21) days from the date of the award by the County (Sundays and holidays excluded); however, such time frame may be extended by agreement of the parties.

### **40. PROGRESS PAYMENTS**

Monthly progress payments will be made based on the value of labor and materials incorporated in the Work and of materials suitably stored at the site. An itemized schedule of values shall be submitted with each Application for Payment.

(Refer to the Owner/Contractor Agreement for Retainage and other conditions pertaining to payment and the application of NJSA 2A:30A-1 et. seq.)

All Applications for Payment shall be accompanied by paid invoices for materials incorporated in the Work and for materials suitably stored at the site, and affidavit(s) by Subcontractors whose Work was included in the next to the last application to the effect such Work and such materials have been paid for.

No payment shall be made without Contractor having provided all submittals set forth in this Section, and the approval of same by the County.

For contracts exceeding \$100,000.00, monthly payments will be made on the Work to the extent of 98% of the value of the Work done which is considered to be retainage.

For contracts less than \$100,000.00, monthly payments will be on the Work to the extent of 90% of the value of the Work done. In lieu of the retainage, the Contractor will, at his option, deposit with the County Counsel negotiable bearer bonds of the State of New Jersey or any political subdivision thereof, equal to the amount otherwise withheld as retainage.

When the Project is completed, the final cost of the Project will be based on actual quantities of authorized Work done under each item scheduled in the bidding sheet and approved Change Orders, if any. The money due to the Contractor as determined by said final certificate after deduction of previous monthly payments on

account, will be paid to the Contractor in accordance with the terms of the contract dealing with Prompt Payment, providing, however that before such final payment is made, all outstanding claims against the Contractor must be satisfied. Before final payment is released, the Contractor must furnish: **a)** Maintenance Bond (see Section 6 of these general specifications); **b)** Certification of Compliance, New Jersey Prevailing Wage Act (see Sections 21 and 51); and **c)** General Release (see Section 36) in a form satisfactory to County Counsel; **d)** complete set of as-built plans in the latest AutoCad on compact disc; and **e)** a complete set of in-progress photos in jpg, jpeg, or bmp digital format on a compact disc.

#### **41. INSPECTION**

The Work must be done in accordance with the plans and specifications, and will be inspected by the County Engineer. An inspector may be placed upon the Work at any time by the County Engineer to see that the plans, specifications, and instructions of the County Engineer are carried out. In connection herewith, bidders are referred to N.J.S.A. 40A:11-17.

#### **42. DAMAGES**

The Contractor will be held responsible for all damages that may occur to Work, or to persons or property by reason of the nature of the Work or from the elements, or by reason of inadequate protection of the Work, or from any carelessness or negligence on his part or on the part of his employees. The County will withhold payments on the Work until all suits or claims for damages sustained on, or by reason of, this Work will have been settled by the Contractor.

The construction and final completion of this Work will be guaranteed by the Contractor. Any damages that may be done to the Work or any part thereof, by the elements or otherwise, during its construction, will be made good by the Contractor.

#### **43. LIQUIDATED DAMAGES**

If the Project is not completed within the time specified herein or within such further time as may have been granted by the County Engineer, then the Contractor hereby agrees to pay to the County as liquidated damages, but not as a penalty, \$1,000.00 per day for each and every calendar day that he is in default on time to complete the Work. The said sum will be deducted from moneys due the Contractor and if the damages exceed this amount, then the Contractor or his Surety Company will pay the excess. These damages may be waived at the option of the County.



## **44. AFFIRMATIVE ACTION REQUIREMENTS**

### **EXHIBIT B (Revised 4/10)**

#### **MANDATORY EQUAL EMPLOYMENT OPPORTUNITY LANGUAGE N.J.S.A. 10:5-31 et seq. (P.L. 1975, C. 127) N.J.A.C. 17:27**

#### **CONSTRUCTION CONTRACTS**

During the performance of this contract, the contractor agrees as follows:

The contractor or subcontractor, where applicable, will not discriminate against any employee or applicant for employment because of age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex. Except with respect to affectional or sexual orientation and gender identity or expression, the contractor will ensure that equal employment opportunity is afforded to such applicants in recruitment and employment, and that employees are treated during employment, without regard to their age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex. Such equal employment opportunity shall include, but not be limited to the following: employment, up-grading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the Public Agency Compliance Officer setting forth provisions of this nondiscrimination clause.

The contractor or subcontractor, where applicable will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex.

The contractor or subcontractor will send to each labor union, with which it has a collective bargaining agreement, a notice, to be provided by the agency contracting officer, advising the labor union or workers' representative of the contractor's commitments under this act and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

The contractor or subcontractor, where applicable, agrees to comply with any regulations promulgated by the Treasurer, pursuant to N.J.S.A. 10:5-31 et seq., as amended and supplemented from time to time and the Americans with Disabilities Act.

When hiring or scheduling workers in each construction trade, the contractor or subcontractor agrees to make good faith efforts to employ minority and women workers in each construction trade consistent with the targeted employment goal prescribed by N.J.A.C. 17:27-7.2; provided, however, that the Division may, in its discretion, exempt a contractor or subcontractor from

compliance with the good faith procedures prescribed by the following provisions, A, B and C, as long as the Division is satisfied that the contractor or subcontractor is employing workers provided by a union which provides evidence, in accordance with standards prescribed by the Division, that its percentage of active "card carrying" members who are minority and women workers is equal to or greater than the targeted employment goal established in accordance with N.J.A.C. 17:27-7.2. The contractor or subcontractor agrees that a good faith effort shall include compliance with the following procedures:

(A) If the contractor or subcontractor has a referral agreement or arrangement with a union for a construction trade, the contractor or subcontractor shall, within three business days of the contract award, seek assurances from the union that it will cooperate with the contractor or subcontractor as it fulfills its affirmative action obligations under this contract and in accordance with the rules promulgated by the Treasurer pursuant to N.J.S.A. 10:5-31 et. seq., as supplemented and amended from time to time and the Americans with Disabilities Act. If the contractor or subcontractor is unable to obtain said assurances from the construction trade union at least five business days prior to the commencement of construction work, the contractor or subcontractor agrees to afford equal employment opportunities minority and women workers directly, consistent with this chapter. If the contractor's or subcontractor's prior experience with a construction trade union, regardless of whether the union has provided said assurances, indicates a significant possibility that the trade union will not refer sufficient minority and women workers consistent with affording equal employment opportunities as specified in this chapter, the contractor or subcontractor agrees to be prepared to provide such opportunities to minority and women workers directly, consistent with this chapter, by complying with the hiring or scheduling procedures prescribed under (B) below; and the contractor or subcontractor further agrees to take said action immediately if it determines that the union is not referring minority and women workers consistent with the equal employment opportunity goals set forth in this chapter.

(B) If good faith efforts to meet targeted employment goals have not or cannot be met for each construction trade by adhering to the procedures of (A) above, or if the contractor does not have a referral agreement or arrangement with a union for a construction trade, the contractor or subcontractor agrees to take the following actions:

(1) To notify the public agency compliance officer, the Division, and minority and women referral organizations listed by the Division pursuant to N.J.A.C. 17:27-5.3, of its workforce needs, and request referral of minority and women workers;

(2) To notify any minority and women workers who have been listed with it as awaiting available vacancies;

(3) Prior to commencement of work, to request that the local construction trade union refer minority and women workers to fill job openings, provided the contractor or subcontractor has a referral agreement or arrangement with a union for the construction trade;

(4) To leave standing requests for additional referral to minority and women workers with the local construction trade union, provided the contractor or subcontractor has a referral agreement or arrangement with a union for the construction trade, the State Training and Employment Service and other approved referral sources in the area;

(5) If it is necessary to lay off some of the workers in a given trade on the construction site, layoffs shall be conducted in compliance with the equal employment opportunity and non-discrimination standards set forth in this regulation, as well as with applicable Federal and State court decisions;

(6) To adhere to the following procedure when minority and women workers apply or are referred to the contractor or subcontractor:

(i) The contractor or subcontractor shall interview the referred minority or women worker.

(ii) If said individuals have never previously received any document or certification signifying a level of qualification lower than that required in order to perform the work of the construction trade, the contractor or subcontractor shall in good faith determine the qualifications of such individuals. The contractor or subcontractor shall hire or schedule those individuals who satisfy appropriate qualification standards in conformity with the equal employment opportunity and non-discrimination principles set forth in this chapter. However, a contractor or subcontractor shall determine that the individual at least possesses the requisite skills, and experience recognized by a union, apprentice program or a referral agency, provided the referral agency is acceptable to the Division. If necessary, the contractor or subcontractor shall hire or schedule minority and women workers who qualify as trainees pursuant to these rules. All of the requirements, however, are limited by the provisions of (C) below.

(iii) The name of any interested women or minority individual shall be maintained on a waiting list, and shall be considered for employment as described in (i) above, whenever vacancies occur. At the request of the Division, the contractor or subcontractor shall provide evidence of its good faith efforts to employ women and minorities from the list to fill vacancies.

(iv) If, for any reason, said contractor or subcontractor determines that a minority individual or a woman is not qualified or if the individual qualifies as an advanced trainee or apprentice, the contractor or subcontractor shall inform the individual in writing of the reasons for the determination, maintain a copy of the determination in its files, and send a copy to the public agency compliance officer and to the Division.

(7) To keep a complete and accurate record of all requests made for the referral of workers in any trade covered by the contract, on forms made available by the Division and submitted promptly to the Division upon request.

(C) The contractor or subcontractor agrees that nothing contained in (B) above shall preclude the contractor or subcontractor from complying with the union hiring hall or apprenticeship policies in any applicable collective bargaining agreement or union hiring hall arrangement, and, where required by custom or agreement, it shall send journeymen and trainees to the union for referral, or to the apprenticeship program for admission, pursuant to such agreement or arrangement. However, where the practices of a union or apprenticeship program will result in the exclusion of minorities and women or the failure to refer minorities and women consistent with the targeted county employment goal, the contractor or subcontractor shall consider for employment persons referred pursuant to (B) above without regard to such agreement or arrangement; provided further, however, that the contractor or subcontractor shall

not be required to employ women and minority advanced trainees and trainees in numbers which result in the employment of advanced trainees and trainees as a percentage of the total workforce for the construction trade, which percentage significantly exceeds the apprentice to journey worker ratio specified in the applicable collective bargaining agreement, or in the absence of a collective bargaining agreement, exceeds the ratio established by practice in the area for said construction trade. Also, the contractor or subcontractor agrees that, in implementing the procedures of (B) above, it shall, where applicable, employ minority and women workers residing within the geographical jurisdiction of the union.

After notification of award, but prior to signing a construction contract, the contractor shall submit to the public agency compliance officer and the Division an initial project workforce report (Form AA 201) electronically provided to the public agency by the Division, through its website, for distribution to and completion by the contractor, in accordance with N.J.A.C. 17:27-7. The contractor also agrees to submit a copy of the Monthly Project Workforce Report once a month thereafter for the duration of this contract to the Division and to the public agency compliance officer.

The contractor agrees to cooperate with the public agency in the payment of budgeted funds, as is necessary, for on-the-job and/or off-the-job programs for outreach and training of minorities and women.

(D) The contractor and its subcontractors shall furnish such reports or other documents to the Division of Public Contracts Equal Employment Opportunity Compliance as may be requested by the Division from time to time in order to carry out the purposes of these regulations, and public agencies shall furnish such information as may be requested by the Division of Public Contracts Equal Employment Opportunity Compliance for conducting a compliance investigation pursuant to **Subchapter 10 of the Administrative Code (NJAC 17:27)**.

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#### 45. INVESTMENT ACTIVITIES IN IRAN

Pursuant to P.L. 2012, c.25, codified as NJSA 2:32-55 *et seq*, prohibits State and local public contracts with persons or entities engaging in certain investment activities in energy or finance sectors of Iran.

#### 46. COMPLIANCE WITH THE PUBLIC WORKS CONTRACTOR REGISTRATION ACT - (NJSA 34:11-56.48 *et. seq.*)

Pursuant to the above-referenced law, Bidders are required to be registered with the New Jersey Department of Labor and to possess a current certificate by said Department indicating compliance with the Act prior to the time and date that bids are received. Bidders are notified of this requirement of their compliance. Such certificates or applications shall also be provided for each Subcontractor furnishing plumbing and gas fitting, steam and hot water heating and ventilating apparatus, and all kindred work, steam power plants and kindred work, electrical work, structural steel and ornamental iron work, and such other subcontractors as the specifications require relative to prior identification.

#### 47. UTILITIES

Attention of the bidder is directed to the fact that the approximate locations of known utility structures and facilities that may be encountered within and adjacent to the limits of the Work are shown on the plans and described herein. The accuracy and completeness of this information is not guaranteed by the County Engineer and the bidder is advised to ascertain for himself all the facts concerning the location of these and other utilities.

The Contractor will not proceed with his Work until he has made diligent inquiries of all public utility and municipal officials to determine the exact location of all underground structures and pipes within the site of the Project. The Contractor will notify utility owners not less than ten (10) days in advance of the time he proposes to perform any Work that will endanger or affect their facilities in compliance with **New Jersey One-Call**. In excavating in any part of the Work, care must be taken not to remove or damage any gas, water, sewer, or other pipe, conduit, or structure, - public or private - without the concurrence of the owner and the County Engineer. The Contractor will, at his own expense, shore up, secure and maintain a continuous flow in such structures, and will keep them in repair until final acceptance of the Work.

When pipes or other structures are encountered or when the removal, relocation or protection of these utilities are necessary in carrying out the Project as planned, the Contractor will cooperate with the owner of said utilities and will permit the owners or their agents access to the site of the Work in order to relocate or protect their facilities and not hinder or delay unnecessarily the Work of the owners in moving same. No extra

allowance of payment will be made to the Contractor for the use of any materials, equipment, etc., or for the performance of any Work in connection with the moving of said structures unless the Contractor is specifically ordered by the County Engineer to furnish such materials, equipment, or services. If directed by the County Engineer to do any Work or furnish any materials or equipment, payment will be allowed the Contractor in accordance with the unit prices bid for such Work, or, if such items are not scheduled in the proposal, such Work shall be allowed "Supplemental Work" as provided in Section 39 of these general specifications. The corporations, companies, agencies or municipalities owning or controlling the utilities, and the name, and telephone numbers are listed in the beginning of the Technical Specifications.

#### **48. MATERIAL COMPLIANCE AND SHOP DRAWINGS**

The Contractor will require the manufacturer or supplier to furnish three (3) copies of Certification of Compliance with each delivery of materials, components and manufactured items for the Project. Two (2) copies will be furnished to the County Engineer; one copy will be retained by the Contractor. Certificates of Compliance will contain the following information:

1. Project to which material is consigned;
2. Name of the Contractor to which the material is supplied;
3. Kind of material supplied;
4. Quantity of material represented by the Certificate;
5. Means of identifying the consignment, such as label marking, seal number, etc.;
6. Date and method of shipment;
7. That the material is in conformity with the pertinent specifications stated in the certificate; and
8. Signature of a person having legal authority to bind the supplier.

The Contractor will submit to the County Engineer for his approval five (5) copies of complete and fully detailed shop or working drawings for those items listed in the beginning of the technical specifications.

Each drawing will identify the name of the job, location and Contractor.

All drawings will be approved in accordance with the standard specifications. Refer to the Technical Specifications for specific items.

All materials or articles used in the Work will be of American manufacture, insofar as same are available, in conformance with N.J.S.A. 40A:11-18.

#### **49. PRECONSTRUCTION**

In order to provide full coordination of this Project among the parties concerned, the County Engineer will arrange for a preconstruction meeting between the Contractor, County Engineer and other interested parties as soon as possible after the contract is executed. At this meeting the Contractor will present his proposed schedule of Work which shall be subject to review and approval of the County through its designated representatives.

#### **50. DISPUTES UNDER THE CONTRACT**

A dispute arising under the Contract shall be submitted in writing to the County Engineer with all facts and supporting data. The County Engineer will review the dispute and issue his decision or request additional facts or documentation after which he will render his decision.

In the event the dispute is not then resolved, the matter shall, pursuant to law, be submitted to mediation before being submitted to a court of competent jurisdiction venued in Union County.

The County Engineer will notify the County Counsel when a matter is to be submitted to mediation. The County Counsel will communicate with the parties and inform them of the procedures to be followed in making such a submission.

**[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]**

## 51. CONTRACTOR BUSINESS REGISTRATION CERTIFICATE New Mandatory Requirement -Effective 1/18/2010

The recently enacted **P.L. 2009, c.315**, requires that effective January 18, 2010; a contracting agency must receive proof of the bidder's business registration prior to the award of a contract. However, the proof must show that the bidder was in fact registered with the State of New Jersey Department of the Treasury, Division of Revenue and obtained the business registration prior to the receipt of bids.

If subcontractors are named on the bid, proof of the business registration for each subcontractor must be provided prior to the award of bid. Similarly to the bidder, the proof must show that each subcontractor was registered with the State of New Jersey Department of the Treasury, Division of Revenue and obtained the business registration prior to the receipt of bids.

Proof of business registration shall be

- A copy of a Business Registration Certificate issued by the Department of the Treasury, Division of Revenue; or
- A copy of the web version provided by the NJ Division of Revenue, or

Register online at <http://www.state.nj.us/treasury/revenue/busregcert.htm>. Click the "online" link and then select "Register for Tax and Employer Purposes or call the Division at 609-292-1730.

**Note: A NJ Certificate of Authority is not acceptable.**

**FAILURE** to submit proof of registration of the bidder or any subcontractor named on the bid prior to the award of contract shall be cause to reject the bid.

**FAILURE** of the bidder or any subcontractor named on the bid to be registered prior to the receipt of bids is cause for a **MANDATORY REJECTION** of bids. (A NON-WAIVABLE DEFECT). This covers construction Work as well as non-construction bids.

### **IN ADDITION:**

*N.J.S.A. 52:32-44* imposes the following requirements on Contractors and all subcontractors that knowingly provide goods or perform services for a Contractor fulfilling this contract:

- 1) the Contractor shall provide written notice to its subcontractors and suppliers to submit proof of business registration to the Contractor;
- 2) subcontractors through all tiers of a project must provide written notice to their subcontractors and suppliers to submit proof of business registration and subcontractors shall collect such proofs of business registration and maintain them on file;



- 3) prior to receipt of final payment from a contracting agency, the Contractor must submit to the contacting agency an accurate list of all subcontractors and suppliers or attest that none was used; and,
- 4) during the term of this contract, the Contractor and its affiliates shall collect and remit, and shall notify all subcontractors and their affiliates that they must collect and remit, to the Director, New Jersey Division of Taxation, the use tax due pursuant to the Sales and Use Tax Act, (*N.J.S.A. 54:32B-1 et seq.*) on all sales of tangible personal property delivered into this State.

A Contractor, subcontractor or supplier who fails to provide proof of business registration or provides false business registration information shall be liable to a penalty of \$25 for each day of violation, not to exceed \$50,000 for each business registration copy not properly provided or maintained under a contract with a contracting agency. Information on the law and its requirements are available by calling (609) 292-9292.

**[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]**

## **52. BID PROTEST – LEGAL FEES AND COSTS**

In the event a Bidder unsuccessfully challenges a Bid Submission by filing an action in a court of law concerning same, said Bidder shall be responsible for payment of reasonable legal costs and fees incurred by the County relating to said protest.

## **53. AMERICAN GOODS AND PRODUCTS WHERE POSSIBLE**

Bidder shall comply with the requirements of NJSA 40A:11-18 and use only manufactured and farm products of the United States, wherever available, for the Project.

## **54. NEW JERSEY PAY-TO-PLAY REQUIREMENTS**

This Contract is required by law to be publicly advertised for bids. As such, lists of political contributions pursuant to NJSA 19A:44A-1 et. seq. are NOT REQUIRED to be provided with the bids.

## **55. STATEMENT OF EQUIPMENT TO BE USED IN CONSTRUCTION**

Pursuant to NJSA 40A:11-20 entitled Certificate of Bidder Showing Ability to Perform Contract, the County requires a Certification from all bidders submitting a bid showing that the Bidder owns, leases, or controls all necessary equipment required by the Project Plans and Specifications. All bidders shall provide this information at the time of the bid opening using the attached form entitled, "CERTIFICATE OF BIDDER SHOWING ABILITY TO PERFORM CONTRACT".

If the Bidder is not the actual owner of the equipment, it shall state the source from which the equipment will be obtained and shall attach a certificate from the owner or person in control of the equipment demonstrating that the equipment owner has granted the Bidder control of the requisite equipment during such time as may be necessary for completion of the portion of the contract for which the equipment is necessary.

## **56. NEW JERSEY SALES AND USE TAX REQUIREMENTS,**

Contractors are required to comply with the following:

New Jersey Sales and Use Tax Requirements: All contractors with subcontractors, or any of their affiliates, who enter into contracts for the provision of goods or services with or for New Jersey local government entities, are required to collect and remit to the New Jersey Director of Taxation in the Department of the Treasury the use tax due on all of their sales of tangible personal property delivered into the State of New Jersey pursuant to the "Sales and Use Tax Act," (NJSA 54:32B-1 et, seq.),

regardless of whether the tangible personal property is intended for a contract with the contracting agency. This tax shall be remitted for the term of the Contract.

For purposes herein "affiliate" shall mean any entity that: (a) directly, indirectly, or constructively controls another entity, (b) is directly, indirectly, or constructively controlled by another entity, or (c) is subject to the control of a common entity. For purposes of the immediately preceding sentence, an entity controls another entity if it owns, directly or indirectly, more than fifty percent (50%) of the ownership interest in that entity. NJSA 52:32-44(g)(3).

ALFRED J. FAELLA  
COUNTY MANAGER

LAURA M. SCUTARI, QPA, MPA  
DIRECTOR / DIVISION OF PURCHASING

**BID DOCUMENT SUBMISSION CHECKLIST**

ALL SIGNATURES AND SEALS SHALL BE ORIGINALS UNLESS OTHERWISE SPECIFIED  
BID SHEETS SHOULD NOT BE SUBMITTED DOUBLE SIDED PAGES, (SINGLE SIDE ONLY)

**EACH BIDDER SHOULD COMPLETE THIS FORM AND INITIAL EACH ENTRY.**

DATE COMPLETED: \_\_\_\_\_

**PLEASE SUBMIT BID DOCUMENTS ON SINGLE SIDED PAPER ONLY, WITH THE EXCEPTION OF THE SURETY AND BID BOND DOCUMENTS.**

**IN ACCORDANCE WITH THE BID SPECIFICATIONS I HAVE REVIEWED, COMPLETED / EXECUTED AND INCLUDED THE FOLLOWING FORMS:**

\_\_\_\_\_ Bid Form Page (**Signed, Dated and Bid on all alternatives applicable to the Work**).

\_\_\_\_\_ Security in the form of:

- \_\_\_\_\_ Bid bond in an amount equal to 10% of the total amount of this bid not to exceed \$20,000.00; or
- \_\_\_\_\_ Certified check or cashier's check in the amount of 10% of this bid not to exceed \$20,000.00

\_\_\_\_\_ Consent of Surety form signed by a Surety Company if the total amount of your Bid is over \$36,000.00. If your bid is accepted, the Surety Company that provided the Consent shall be required to furnish a Performance, Labor and Materials Bond in the amount of 100% of the award of the contract. The County of Union has provided its Consent of Surety form for your use. The use of this form by your Surety Company will expedite the bid review process and eliminate the possibility of having your bid rejected. If, however, you should need to use another form, please use language similar to that used on the Union County form and avoid making any additions or deletions to the Union County form language. In lieu of the Consent of Surety you may submit a Certified Check in the full amount of the bid.

\_\_\_\_\_ STATEMENT OF BIDDER OWNERSHIP. Pursuant to N.J.S.A. 52:25-24.2, which includes **BOTH** of the following documents:

- Bidder Signature Page
- Bidder Disclosure Statement (**Fill out 2 pages completely**)

\_\_\_\_\_ SUBCONTRACTOR IDENTIFICATION. Pursuant to N.J.S.A. 40A:11-16, which includes **BOTH** of the following documents:

- Subcontractor Identification Statement: List of Subcontractors (**only for certain types of work**)
- Subcontractor Identification Certification

\_\_\_\_\_ Acknowledgement of Addendum form: (**This form is to be used only when an addendum has been added to the specifications**).

\_\_\_\_\_ A copy of the State of New Jersey Department of the Treasury, Division of Revenue, **Business Registration Certificate ("BRC")** should be included with the bids as it must be received by the County prior to the award of the contract. The BRC provided must show that the Bidder was registered at the time of receipt of bids or the bid will be rejected.

\_\_\_\_\_ A copy of the State of New Jersey Department of the Treasury, Division of Revenue, **Business Registration Certificate ("BRC")** of all named or listed subcontractors (List of Subcontractors) in a Construction bid should be included with the bid as the BRC(s) must be received by the County prior to the award of the contract. Each subcontractor's certificate provided must show that the subcontractor was registered at the time of the receipt of bids or the bid will be rejected.

- \_\_\_\_\_ Affirmative Action Requirement
- \_\_\_\_\_ Experience Statement
- \_\_\_\_\_ Certificate of Bidder showing ability to perform Contract
- \_\_\_\_\_ Non-Collusion Affidavit – Fill out completely and notarize
- \_\_\_\_\_ Certificates from New Jersey Department of Labor – Public Works Contractor Registration Act. **(Only for certain types of work)**
- \_\_\_\_\_ Federal Attachments **(If applicable)**
- \_\_\_\_\_ NJDPMC Certificate / Notice of Classification **(If applicable)**
- \_\_\_\_\_ Americans with Disabilities Act
- \_\_\_\_\_ Statement of Bidder's Qualifications
- \_\_\_\_\_ Contractor Performance Record
- \_\_\_\_\_ Affidavit Regarding List of Debarred, Suspended or Disqualified Bidders
- \_\_\_\_\_ Prior Negative Experience Questionnaire
- \_\_\_\_\_ Contractor's Certification of Compliance – New Jersey Prevailing Wage Act
- \_\_\_\_\_ Uncompleted Contracts Affidavit **(For Bidder, if applicable) MUST ALSO PROVIDE DPMC FORM 701**
- \_\_\_\_\_ Certificate of Insurance Statement
- \_\_\_\_\_ Collection of Use Tax on Sales to Local Government Statement
- \_\_\_\_\_ Time of Completion
- \_\_\_\_\_ Disclosure of Investment Activities in Iran form

**I HAVE TAKEN THE FOLLOWING ACTIONS:**

- \_\_\_\_\_ Visited the site and attended the Pre-Bid Meeting **(Where applicable)**
- \_\_\_\_\_ Reviewed the Contract Documents (including any permits the County or its professionals may have obtained), Work, Site, Locality, and Local Conditions and Laws and Regulations that in any manner may affect Cost, Progress, Performance or Furnishing of Work.
- \_\_\_\_\_ Reviewed Bond Requirements
- \_\_\_\_\_ Provided Proof of Compliance with New Jersey Prevailing Wage Act
- \_\_\_\_\_ Reviewed Form of Owner/Contractor Agreement and General Conditions to the Contract

**NOTE: QUESTIONS PERTAINING TO THIS BID ARE TO BE DIRECTED TO DIVISION OF ENGINEERING AT 908-789-3675**

## **BIDDING DOCUMENTS**

The Bidding Documents consist of the following items:

- **ADDENDA, if issued**
- **CLARIFICATIONS, if issued**
- **INSTRUCTION TO BIDDERS**
- **BID FORM**
- **SPECIFICATIONS:**      **As outlined in the Table of Contents and included in the Project Manual.**
- **DRAWINGS:**              **As per List of Drawings, indicated on the Project Title Sheet.**

Bidder's Name \_\_\_\_\_

**BID FORM**

I/We have carefully examined the plans, specifications, and advertisement for bid for the

**SENSORY TRAIL IMPROVEMENTS AT WATCHUNG RESERVATION  
BOROUGH OF MOUNTAINSIDE, COUNTY OF UNION, NEW JERSEY  
BA No. 43-2016; Union County Engineering Project No. 2016-006**

that is on file in the Union County Division of Engineering. I/We have inspected the site of the work and will contract to do all the work and furnish all materials mentioned in said plans and specifications. Work will be accomplished in the manner prescribed therein.

**BASE BID ITEMS:**

ITEM NO	DESCRIPTION	UNIT	CONTRACT QUANTITY	UNIT PRICE	AMOUNT
1	Clearing and Preparation of Site, Mobilization and Demobilization	LS	1		
2	Earthwork and Subgrade Preparation, including all Cuts, Fills, Import Fill (if required), Compaction, Grading, Removal of Excess/Unsuitable Soils, and all Incidental Work	LS	1		
3	Excavate Existing Walkway to be Removed, 2" Thick, Topsoil, Lime, Fertilize and Seed	SY	785		
4	Root Prune (if and where directed)	ALLOW	1	\$2,500.00	\$2,500.00
5	Excavate, 4" Thick, Compact Subgrade, and Construct Stone Dust Walkway, 4" Thick, including Filter Fabric	SY	1,350		
6	Talking Informational Sensory Kiosk, including Concrete Foundations	UN	2		
7	Stepping Stones (to match existing)	LS	1		
8	Rest Flag Pole and Conduit (for future lighting)	LS	1		
9	Trash and Recycling Receptacle, including Concrete Foundations	PR	2		
10	Stone Veneer Seat Wall, 21" High, including Concrete Footing	LF	85		
11	Concrete Paver Patio, including sub-base	SY	395		
12	Concrete Paver Walkway, including sub-base	SY	190		
13	Timber Boardwalk, including Vertical Posts and Concrete Foundations	SF	1,145		
14	Galvanized Steel Handrail, including Vertical Posts and Concrete Foundations	LF	260		
15	Galvanized Steel Handrail	LF	360		

16	Concrete Depressed Curb	LF	710		
17	Engineered Wood Fiber Safety Mulch, 6" Thick	SF	2,510		
18	Raised Garden Planter	UN	3		
19	Gazebo, 30' Wide, including Concrete Foundations	UN	1		
20	Chitter-Chatter Noodle, including Concrete Foundations	PR	1		
21	Sensory Play Center, including Concrete Foundations	UN	1		
22	Log Crawl Tunnel, including Concrete Foundations	UN	1		
23	Log Balance Beam, including Concrete Foundations	UN	2		
24	Log Stepper, including Concrete Foundations	UN	4		
25	Mushroom Stepper, including Concrete Foundations	UN	3		
26	Goblet Drum, including Concrete Foundation	UN	1		
27	Kundo Drum, including Concrete Foundation	UN	1		
28	Kettle Drum, including Concrete Foundation	UN	1		
29	Vivo Metallophone, including Concrete Foundation	UN	1		
30	Log Bench, 6' Long, including Concrete Foundations	UN	10		
31	Acorn Seat, including Concrete Foundations	UN	8		
32	Decorative Table, including Concrete Foundations	UN	2		
33	Fire Pit Kit, including sub-base	UN	1		
34	Fire Wood Storage Rack with Cover, including 4" Thick Concrete Pad	UN	1		
35	Sugar Maple, 2" – 2 ½" caliper (if and where ordered)	UN	1		
36	Golden Rain Tree, 7' – 8' height (if and where ordered)	UN	1		
37	Forest Pansy Eastern Redbud, 7' – 8' height (if and where ordered)	UN	1		
38	Cherokee Brave Dogwood, 7' – 8' height (if and where ordered)	UN	5		
39	Pink Chimes Japanese Snowbell, 7' – 8' height (if and where ordered)	UN	1		
40	Goldilocks Hinoki False Cypress, 8' – 10' height (if and where ordered)	UN	1		
41	Blue Colorado Spruce, 8' – 10' height (if and where ordered)	UN	2		
42	Green Giant Arborvitae, 8' – 10' height (if and where ordered)	UN	3		
43	Lo & Behold Ice Chip Butterfly Bush, 12" – 18" height (if and where ordered)	UN	8		



44	Ruby Spice Summersweet, 24" – 30" height (if and where ordered)	UN	3		
45	Sunshine Blue Bluebeard, 18" – 24" height (if and where ordered)	UN	3		
46	Blue Mist Dwarf Fothergilla, 18" – 24" height (if and where ordered)	UN	3		
47	Hoogendorn Japanese Holly, 18" – 24" height (if and where ordered)	UN	25		
48	Henry's Garnet Virginia Sweetspire, 24" – 30" height (if and where ordered)	UN	3		
49	Gold Star Juniper, 24" – 30" spread (if and where ordered)	UN	3		
50	Bird's Nest Spruce, 18" – 24" height (if and where ordered)	UN	6		
51	Summer Wine Ninebark, 24" – 30" height (if and where ordered)	UN	1		
52	Anthony Waterer Spirea, 18" – 24" height (if and where ordered)	UN	11		
53	Bloomerang Purple Lilac, 24" – 30" height (if and where ordered)	UN	1		
54	Compact Koreanspice Virburnum, 24" – 30" height (if and where ordered)	UN	3		
55	Common Milkweed, 2 gallon (if and where ordered)	UN	5		
56	Pink Grapefruit Yarrow, 2 gallon (if and where ordered)	UN	4		
57	Overdam Feather Reed Grass, 2 gallon (if and where ordered)	UN	18		
58	Zagreb Tickseed, 2 gallon (if and where ordered)	UN	12		
59	Magnus Purple Coneflower, 2 gallon (if and where ordered)	UN	8		
60	Hidcote English Lavender, 2 gallon (if and where ordered)	UN	8		
61	Morning Light Maiden Grass, 2 gallon (if and where ordered)	UN	4		
62	Walker's Low Catmint, 2 gallon (if and where ordered)	UN	19		
63	Hamel Dwarf Fountain Grass, 2 gallon (if and where ordered)	UN	29		
64	Karley Rose Oriental Fountain Grass, 2 gallon (if and where ordered)	UN	7		
65	Russian Sage, 2 gallon (if and where ordered)	UN	12		
66	Northwind Switchgrass, 2 gallon (if and where ordered)	UN	6		
67	Alexandra Garden Phlox, 2 gallon (if and where ordered)	UN	4		
68	Goldsturm Black-Eyed Susan, 2 gallon (if and where ordered)	UN	8		
69	May Night Garden Sage, 2 gallon (if and where ordered)	UN	6		

70	Carousel Little Bluestem, 2 gallon (if and where ordered)	UN	3		
71	Helene Von Stein Lamb's Ear, 2 gallon (if and where ordered)	UN	11		

**TOTAL BASE BID ITEMS NO. 1 THRU 71:**

\_\_\_\_\_  
Written

\_\_\_\_\_  
Figures

**BID CONTINGENCY: (To be used if and when directed by the County)**

**Fifty Thousand Dollars and No Cents**

Written

**\$50,000.00**

Figures

**TOTAL BASE BID ITEMS NO. 1 THROUGH 71 PLUS BID CONTINGENCY AMOUNT:**

\_\_\_\_\_  
Written

\_\_\_\_\_  
Figures

**NOTE: Bid Contingency may include one-half of one percent of contract amount set aside for local training if and when directed by the County.**

**Bidder's Name**\_\_\_\_\_

**ALTERNATES:**

Alternates may be added to the Total Base Bid Amount. The bid will be awarded and / or Alternates will be selected as follows:

1. Award Base Bid Only
2. Award Base Bid + Alternate No. 1, and 2
3. Award Base Bid + Alternate No. 1, 2, and 3
4. Award Base Bid + Alternate No. 1, 2, 3, and 4

Contractor must propose on the alternate listed below and as further described in Division-2 of these Specifications.

ALTERNATE NO. 1: Braille Trail Loop Nylon Rope, including Vertical Posts and Gravel Foundations

ADD 1,105 LF: \$ \_\_\_\_\_ \$ \_\_\_\_\_  
Written Figures

ALTERNATE NO. 2: Braille Trail Loop Nylon Rope

ADD 185 LF: \$ \_\_\_\_\_ \$ \_\_\_\_\_  
Written Figures

ALTERNATE NO. 3: Braille Trail Loop Sign, including Concrete Foundation

ADD 10 UN: \$ \_\_\_\_\_ \$ \_\_\_\_\_  
Written Figures

ALTERNATE NO. 4: Trailhead Entry Sign, including Concrete Foundations

ADD 1 UN: \$ \_\_\_\_\_ \$ \_\_\_\_\_  
Written Figures

**NOTE: Bid Contingency may include one-half of one percent of contract amount set aside for local training if and when directed by the County.**

**Bidder's Name**\_\_\_\_\_

**CONSENT OF SURETY**  
TO ACCOMPANY PROPOSAL (BID)

\_\_\_\_\_ (hereinafter called Surety), organized and existing under the laws of the State of \_\_\_\_\_ duly authorized and qualified to transact business in the State of New Jersey, in consideration of the sum of One Dollar (\$1.00), lawful money of the United States of America, to it in hand paid, receipt whereof is hereby acknowledged, and in consideration, hereby certifies and agrees that if the contract for which the attached proposal is made be awarded to \_\_\_\_\_ (hereinafter called Contractor) for the performance of certain work and labor or the supplying of certain materials, or both, as more particularly set forth in said proposal and described for purposes of this instrument as a proposal for \_\_\_\_\_ to the COUNTY OF UNION and if Contractor shall enter into the contract, Surety will become bound as surety for its faithful performance, labor and material payment and will provide the Contractor with a performance, labor and material payment bond in the full amount of the contract price.

**NOTE:**  
Expiration date  
Needed if Annual  
Surety

\_\_\_\_\_  
**NAME OF INSURANCE COMPANY**

**ADDRESS:** \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
**ORIGINAL SIGNATURE**  
**ATTORNEY-IN-FACT FOR INSURANCE CO.**

**NOTE: PROOF OF AUTHORITY OF OFFICERS OF SURETY COMPANY TO EXECUTE THIS DOCUMENT MUST BE SUBMITTED.**

**BIDDER SIGNATURE PAGE**

THE BIDDER MUST READ THE FOLLOWING INSTRUCTIONS TO COMPLETE THIS PAGE:

1. If doing business under a **trade name, partnership or a sole proprietorship**, you must submit the bid under exact title of the trade name, partnership, or proprietorship, and the bid must be signed by either the **owner**, or a **partner** and **witnessed** by a **notary public**.
2. If a **Corporation**, the bid must be signed by the **President** or **Vice President** and **witnessed** by a **Corporate Secretary** (corporate title must be exact) and **affix corporate seal**. If a Corporate Secretary does not exist, President or Vice President's signature shall be witnessed by a Notary Public.
3. Other persons **authorized** by **corporate resolution** to execute agreements in its behalf may also sign the bid documents (pages). **Copy of a resolution must accompany the bid**.
4. The person who signs this bid form **must also** sign the **Non-Collusion Affidavit**.
5. You **cannot** witness your own signature.

\_\_\_\_\_  
**NAME OF BIDDER**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
**ADDRESS OF BIDDER**

\_\_\_\_\_  
**ORIGINAL SIGNATURE  
CORPORATE SECRETARY**

\_\_\_\_\_  
**PRINT NAME AND TITLE  
CORPORATE SECRETARY**

**TEL:** \_\_\_\_\_  
**FAX:** \_\_\_\_\_  
**E-Mail:** \_\_\_\_\_

**BY:** \_\_\_\_\_  
**ORIGINAL SIGNATURE**

**Corporate Seal**

\_\_\_\_\_  
**PRINT OR TYPE NAME AND TITLE**

**WARNING: IF YOU FAIL TO FULLY, ACCURATELY, AND COMPLETELY SUPPLY THE INFORMATION REQUESTED ON THIS PAGE, YOUR BID MAY BE REJECTED.**

Bidder's Name \_\_\_\_\_

**BIDDER DISCLOSURE STATEMENT**

N.J.S.A. 52:25-24.2 (P.L. 1977 c. 33)

Failure of the bidder/respondent to submit the required information is cause for automatic rejection.

*CHECK ONE*

I certify that the list below contains the names and home addresses of all stockholders holding 10% or more of the issued and outstanding stock of the undersigned.

**OR**

I certify that no one stockholder owns 10% or more of the issued and outstanding stock of the undersigned.

**LEGAL NAME OF BIDDER:** \_\_\_\_\_

**Check the box that represents the type of business organization:**

Partnership

Corporation

Sole Proprietorship

Limited Partnership

Limited Liability Company

Limited Liability Partnership

Subchapter S Corporation

**Complete if the bidder/respondent is one of the 3 types of corporations:**

**Date Incorporated:** \_\_\_\_\_ **Where Incorporated:** \_\_\_\_\_

**BUSINESS ADDRESS:**

\_\_\_\_\_  
**Street Address** **City** **State** **Zip Code**

\_\_\_\_\_  
**Telephone #** **Fax #**

Pursuant to N.J.S.A. 52:25-24.2, also referred to as P.L. 1977, c. 33, no corporation or partnership shall be awarded any contract for the performance of any work or the furnishing of any materials or supplies, unless, prior to the receipt of the bid or accompanying the bid of said corporation or partnership, there is submitted a statement setting forth the names and addresses of all stockholders in the corporation or partnership who own ten (10) percent or more of its stock of any class, or of all individual partners in the partnership who own a ten (10) percent or greater interest therein. Further, the Attorney General has concluded that the provisions of N.J.S.A. 52:25-24.2, in referring to corporations and partnerships, are intended to apply to all forms of business entities, including, but not limited to, corporations, limited partnerships, limited liability companies, limited liability partnerships, Subchapter S corporations, partnerships and sole proprietorships.

Bidders are required to disclose whether they are a partnership, corporation, limited liability company or sole proprietorship. The Stockholder Disclosure Certification form shall be completed, signed and notarized. Failure of the bidder to submit the required information is cause for automatic rejection of the bid.

**BIDDER DISCLOSURE STATEMENT** – (Continued)

**N.J.S.A. 52:25-24.2**, also referred to as **P.L. 1977, Ch. 33**, requires all corporate, limited liability and partnership bidders for state, county, municipal or school district contracts to submit a list of names and addresses of all stockholders owning 10% or more of their stock or 10% or more of the stock of the corporate stockholders or in the case of partnership or limited liability company, the names and addresses of those partners or owners owning 10% or greater interest in the partnership or limited liability company. Furthermore, the Union County Board of Chosen Freeholders requires a statement from all Bidders, which must indicate all Principals of Bidders.

You must set forth the name, home address, title and percentage of ownership of every person who is an owner of the bidder. You must also set forth the business form of the bidder.

II. Principals:

	<b>NAME</b>	<b>HOME ADDRESS</b>	<b>TITLE</b>	<b>% OF OWNERSHIP</b>
1.				
2.				
3.				
4.				

If one or more of the owners of the Bidder is itself a corporation, limited liability company or partnership, then for that corporation, limited liability company or partnership owner you must set forth the name, home address, title and percentage of ownership of every person who is an owner of that corporation, limited liability company or partnership.

	<b>NAME</b>	<b>HOME ADDRESS</b>	<b>TITLE</b>	<b>% OF OWNERSHIP</b>
1.				
2.				
3.				
4.				

Bidder's Name \_\_\_\_\_

**SUBCONTRACTOR IDENTIFICATION STATEMENT**

**LIST OF SUBCONTRACTORS**

This form is ONLY required for plumbing and gas fitting, steam and hot water heating and ventilating apparatus, steam power plants, electrical work, structural steel, ornamental iron work, and any other trades required to be identified by the specifications (including, but not limited, to satisfying any DPMC Classification requirements).

**CHECK THIS BOX IF NONE OF THE ABOVE LISTED TRADES OR THOSE REQUIRED TO BE IDENTIFIED IN THE SPECIFICATIONS ARE TO BE USED TO PERFORM THE WORK**

In compliance with N.J.S.A. 40A:11-16 and the bid specifications, the undersigned hereby lists the name or names of the following subcontractors:

Company Name: \_\_\_\_\_

Address: \_\_\_\_\_

Telephone: \_\_\_\_\_ Subcontract Amount: \$ \_\_\_\_\_

Specific Scope of Work Subcontracted: \_\_\_\_\_

License No. \_\_\_\_\_

Company Name: \_\_\_\_\_

Address: \_\_\_\_\_

Telephone: \_\_\_\_\_ Subcontract Amount: \$ \_\_\_\_\_

Specific Scope of Work Subcontracted: \_\_\_\_\_

License No. \_\_\_\_\_

Company Name: \_\_\_\_\_

Address: \_\_\_\_\_

Telephone: \_\_\_\_\_ Subcontract Amount: \$ \_\_\_\_\_

Specific Scope of Work Subcontracted: \_\_\_\_\_

License No. \_\_\_\_\_

**IF MORE THAN THREE SUBCONTRACTORS, PLEASE COPY THIS SHEET AS NECESSARY AND ATTACH TO THE BID PACKAGE.**

(Continued on following page)



Bidder's Name \_\_\_\_\_

**SUBCONTRACTOR IDENTIFICATION CERTIFICATION**

Note the law does not permit the listing of alternate subcontractors. However, multiple subcontractors for the same trade are permitted to be named provided the bidder meets the following requirements:

- Bidder identifies each subcontractor named for that category;
- Bidder states the scope of work, goods and services (the portion of the work) to be performed by each subcontractor; and
- Bidder provides the price quote provided by each subcontractor.

The bidder is advised that any change of subcontractor(s) from ones listed herein is subject to the County's approval. Change of subcontractor(s) will be approved only if made for good cause and not as a result of an arbitrary purpose.

The undersigned Bidder certifies and declares that the subcontractors listed above shall be used as subcontractors to complete certain portions of the work in this project as set forth in N.J.S.A. 40A: 11-16.

\_\_\_\_\_  
**Witness**

**Date** \_\_\_\_\_

\_\_\_\_\_  
**NAME OF BIDDER**

\_\_\_\_\_  
**ADDRESS**

**By:** \_\_\_\_\_  
**ORIGINAL SIGNATURE ONLY**

\_\_\_\_\_  
**PRINT NAME AND TITLE**

Bidder's Name: \_\_\_\_\_

**ACKNOWLEDGMENT OF ADDENDUM**

**COUNTY OF UNION**

\_\_\_\_\_  
**(Name of Construction /Public Works Project)**

\_\_\_\_\_  
**(Project or Bid Number)**

Pursuant to N.J.S.A. 40A:11-23.1a., the undersigned bidder, hereby acknowledges receipt of the following notices, revisions, or addenda to the bid advertisement, specifications or bid documents. By indicating date of receipt, bidder acknowledges the submitted bid takes into account the provisions of the notice, revision or addendum. Note that the County of Union's record of notice to bidders shall take precedence and that failure to include provisions of changes in a bid proposal may be subject for rejection of the bid.

<b>Local Unit Reference Number or Title of Addendum/Revision</b>	<b>How Received (mail, fax, pick-up, etc.)</b>	<b>Date Received</b>

**ACKNOWLEDGMENT BY BIDDER:**

**NAME OF BIDDER:** \_\_\_\_\_

**ORIGINAL SIGNATURE:** \_\_\_\_\_

**PRINTED NAME AND TITLE:** \_\_\_\_\_

**DATE:** \_\_\_\_\_

## **CONTRACTOR BUSINESS REGISTRATION CERTIFICATE**

New Mandatory Requirement - Effective 1/18/2010

The recently enacted **P.L. 2009, c.315**, requires that effective January 18, 2010; a contracting agency must receive proof of the bidder's business registration prior to the award of a contract. However, the proof must show that the bidder was in fact registered with the State of New Jersey Department of the Treasury, Division of Revenue and obtained the business registration prior to the receipt of bids.

If subcontractors are named on the bid, proof of the business registration for each subcontractor must be provided prior to the award of bid. Similarly to the bidder, the proof must show that each subcontractor was registered with the State of New Jersey Department of the Treasury, Division of Revenue and obtained the business registration prior to the receipt of bids.

Proof of business registration shall be

- A copy of a Business Registration Certificate issued by the Department of the Treasury, Division of Revenue; or
- A copy of the web version provided by the NJ Division of Revenue, or

Register online at [www.nj.gov/treasury/revenue/taxreg.htm](http://www.nj.gov/treasury/revenue/taxreg.htm). Click the "online" link and then select "Register for Tax and Employer Purposes or call the Division at 609-292-1730.

**Note: A NJ Certificate of Authority is not acceptable.**

**FAILURE** to submit proof of registration of the bidder or any subcontractor named on the bid prior to the award of a contract shall be cause to reject the bids.

**FAILURE** of the bidder or any subcontractor named on the bid to be registered prior to the receipt of bids is cause for a **MANDATORY REJECTION** of bids. (A NON-WAIVABLE DEFECT). This covers construction work as well as non-construction bids.

### **IN ADDITION:**

The contractor shall provide written notice to all **subcontractors and suppliers** not specifically named on the bid of the responsibility to register and submit proof of business registration to the contractor. The requirement of proof of business registration extends down through all levels (tiers) of the project.

Before final payment on the contract is made by the contracting agency, the contractor shall submit an accurate list and the proof of business registration of each subcontractor or supplier used in the fulfillment of the contract, or shall attest that no subcontractors were used.

For the term of the contract, the contractor and each of its affiliates and a subcontractor and each of its affiliates [N.J.S.A. 52:32-44(g)(3)] shall collect and remit to the Director, New Jersey Division of Taxation, the use tax due pursuant to the Sales and Use Tax Act on all sales of tangible personal property delivered into this State, regardless of whether the tangible personal property is intended for a contract with a contracting agency.

A business organization that fails to provide a copy of a business registration as required pursuant to section 1 of P.L.2001,c.134 (C.52:32-44 et al.) or subsection e. or f. of section 92 of P.L.1977,c.110 (C.5:12-92), or that provides false business registration information under the requirements of either of those sections, shall be liable for a penalty of \$25 for each day of violation, not to exceed \$50,000 for each business registration copy not properly provided under a contract with a contracting agency.

Bidder's Name \_\_\_\_\_


**BUSINESS REGISTRATION**  
Mandatory Requirement

**P.L. 2009, c.315**, requires that effective January 18, 2010; a contracting agency must receive proof of the bidder's business registration prior to the award of a contract. However, the proof must show that the bidder was in fact registered with the State of New Jersey Department of the Treasury, Division of Revenue and obtained the business registration prior to the receipt of bids.

If subcontractors are named on the bid, proof of the business registration for each must be provided prior to the award of a contract. Similarly to the bidder, the proof must show that each subcontractor was registered with the State of New Jersey Department of the Treasury, Division of Revenue and obtained the business registration prior to the receipt of bids.

Proof of business registration shall be:

- A copy of a Business Registration Certificate issued by the Department of Treasury, Division of Revenue; or
- A copy of the web printed version provided by the NJ Division of Revenue

 <p align="center"><b>STATE OF NEW JERSEY BUSINESS REGISTRATION CERTIFICATE</b></p>	<p><b>Taxpayer Name:</b> TAX REG TEST ACCOUNT</p> <p><b>Trade Name:</b></p> <p><b>Address:</b> 847 ROEBLING AVE TRENTON, NJ 08611</p> <p><b>Certificate Number:</b> 1093907</p> <p><b>Date of issuance:</b> October 14, 2004</p> <p><b>For Office Use Only:</b> 20041014112623533</p>
<p>STATE OF NEW JERSEY BUSINESS REGISTRATION CERTIFICATE FOR STATE AGENCY AND CASINO SERVICE CONTRACTORS</p> <p>DEPARTMENT OF TREASURY DIVISION OF REVENUE PO BOX 902 TRENTON, NJ 08646</p> <p>TAXPAYER NAME: TAX REGISTRATION TEST ACCOUNT</p> <p>TRADE NAME: CLIENT REGISTRATION</p> <p>TAXPAYER IDENTIFICATION#: 070-097-382/000</p> <p>SEQUENCE NUMBER: 0707310</p> <p>ISSUANCE DATE: 07/14/04</p> <p>ADDRESS: 847 ROEBLING AVE TRENTON NJ 08611</p> <p>EFFECTIVE DATE: 09/01/01</p> <p>FORM BRC(09/01)</p> <p><i>John S. Early</i> Acting Director</p> <p><small>This Certificate is NOT assignable or transferable. It must be conspicuously displayed at above address.</small></p>	

ATTACH BRC HERE	

Bidder's Name \_\_\_\_\_

**AFFIRMATIVE ACTION REQUIREMENT**

**REQUIRED AFFIRMATIVE ACTION EVIDENCE**

General Requirements of P.L. 1975, c. 127: You are hereby put on notice that:

CONSTRUCTION CONTRACTS: The successful contractor must submit within three (3) days of the notice of intent to award or the signing of the contract the initial project manning report (A.A.201). This report should be submitted at the time the signed contract is returned to the County of Union. Attention: *Affirmative Action Officer*.

**If the successful contract does not submit the initial project manning report (A.A.201) within the three (3) days from the time the signed contract is returned to the County of Union, the County of Union WILL declare the contractor non-responsive and award the contract to the next lowest responsible bidder.**

\_\_\_\_\_  
**NAME OF BIDDER**

\_\_\_\_\_  
**ORIGINAL SIGNATURE**

\_\_\_\_\_  
**PRINT OR TYPE NAME AND TITLE**

\_\_\_\_\_  
**DATE THIS FORM IS COMPLETED**

**EXPERIENCE STATEMENT**

I hereby certify that my company has performed the following private or public work, which is relevant to this bid. I further certify that my company has never defaulted under any contract. Should you not sign this form due to prior defaults, please provide details on an attached sheet.

\_\_\_\_\_  
Witness

\_\_\_\_\_  
Date

\_\_\_\_\_  
NAME OF BIDDER

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
ADDRESS

By: \_\_\_\_\_  
ORIGINAL SIGNATURE ONLY

\_\_\_\_\_  
\_\_\_\_\_  
PRINT NAME AND TITLE

**YOU MAY ATTACH ADDITIONAL SHEETS, BUT YOU MUST SIGN AND WITNESS THIS SHEET.**

Bidder's Name \_\_\_\_\_

**CERTIFICATE OF BIDDER SHOWING ABILITY TO PERFORM CONTRACT**

STATE OF NEW JERSEY / \_\_\_\_\_ )  
Specify, if Other ) SS:  
COUNTY OF \_\_\_\_\_ )

I, \_\_\_\_\_, of the (City, Town, Borough, etc.) of \_\_\_\_\_  
State of \_\_\_\_\_, of full age, being duly sworn according  
to law on my oath depose and say that:

I am \_\_\_\_\_ of the firm of \_\_\_\_\_,  
the Bidder making the proposal for the above named Project ("Contractor"), and that I executed said  
proposal with full authority to do so; and that said Contractor, pursuant to N.J.S.A. 40A:11-20, certifies  
that it owns, leases or controls all the necessary equipment required by the Plans, Specifications and  
Advertisements under this Bids are asked for.

If the Bidder is not the actual owner or lessee of any such equipment, then the Bidder shall attach to this  
Certificate information identifying the source from which the equipment will be obtained, and such  
information shall be accompanied by a certificate from the owner or person in control of the equipment  
definitively granting to the Bidder the control of the equipment required during such time as may be  
necessary for the completion of that portion of the contract.

\_\_\_\_\_  
(Also type or print name of affiant under signature)

By: \_\_\_\_\_

Bidder's Name \_\_\_\_\_

**NON-COLLUSION AFFIDAVIT**

(N.J.S.A. 52:34-15)

STATE OF \_\_\_\_\_ )  
 )  
COUNTY OF \_\_\_\_\_ ) **SS:** \_\_\_\_\_

I \_\_\_\_\_, of the City of \_\_\_\_\_, in the County of \_\_\_\_\_, and the State of \_\_\_\_\_, of full age, being duly sworn according to law, on my oath depose and say that: I am \_\_\_\_\_ of the firm of \_\_\_\_\_, the bidder making the proposal for the above named project, and that I executed the said proposal for the above named project, and that I executed the said proposal with full authority to do so; that said bidder has not, directly or indirectly, entered into any agreement, participation in any collusion, or otherwise taken any action in restraint of free, competitive bidding in connection with the above named project; and that all statements contained in said proposal and in this Affidavit are true and correct, and made with full knowledge that the COUNTY OF UNION, NEW JERSEY relies upon the truth of the statements contained in said proposal and in the statements contained in the affidavit in awarding the contract for the said project.

I further warrant that no person or selling agency has been employed or retained to solicit or secure such contract upon an agreement or understanding for a commission, percentage, brokerage or contingent fee, except bona fide employees or bonafide established commercial or selling agencies maintained by \_\_\_\_\_ (N.J.S.A. 52:34-15).

\_\_\_\_\_  
**NAME OF BIDDER**

\_\_\_\_\_  
**ORIGINAL SIGNATURE ONLY**

**NOTE: The person who signed the bidder signature page for the bidder should sign this form also.**

Subscribed and sworn before me  
this \_\_\_\_\_ day of \_\_\_\_\_, 200\_\_\_\_\_.

\_\_\_\_\_  
Notary Public of the State of \_\_\_\_\_  
My commission expires: \_\_\_\_\_

**WARNING: IF YOU FAIL TO FULLY, ACCURATELY, AND COMPLETELY FILL OUT THIS AFFIDAVIT OF NON-COLLUSION, YOUR BID MAY BE REJECTED.**



**Contractor Registration Advisement**  
For Public Works Projects

A new law, known as "The Public Works Contractor Registration Act" (P.L. 1999, c.238), became effective April 11, 2000. Under the Act, no contractor/subcontractor will be permitted to bid on or engage in any contract for public work, as defined in Section 2 of P.L. 1963, c.150 (C:34:11-56.26), unless that contractor/subcontractor is registered with the New Jersey Department of Labor. The Act provides that upon registration with the Department, a public works contractor/subcontractor will be issued a certificate by the Department indicating compliance with the Act's requirements. The registration fee has been set at \$300.00 per year. Upon the effective date of the Act, public bodies will be expected to request production of such a certificate from those bidding on or engaging in public works projects.

It is important to note that the term "contractor," is defined in the, Act as, "a person, partnership, association, joint stock company, trust, corporation or other legal business entity or successor thereof who enters into a contract which is subject to the provision of the "New Jersey Prevailing Wage Act," P.L. 1963, c.150 (C.34:11-56.25, et seq.) for the construction, reconstruction, demolition, alteration, repair or maintenance of a public building regularly open to and used by the general public or a public institution, and includes any subcontractor or lower tier subcontractor as defined herein: except that, for the purposes of the act, no pumping station, treatment plant or other facility associated with utility and environmental construction, reconstruction, demolition, alteration, repair or maintenance shall be regarded as a public building regularly open to and used by the general public or a public institution."

Registration forms, copies of the Act, and other relevant information can be obtained by contacting:

Contractor Registration Unit  
New Jersey Department of Labor  
Division of Wage & Hour Compliance  
PO Box 389  
Trenton, New Jersey 08625-0389  
Telephone: 609-292-9464  
Fax: 609-633-8591  
E-mail: [contreg@dol.state.nj.us](mailto:contreg@dol.state.nj.us)

Bidder's Name \_\_\_\_\_

**AMERICANS WITH DISABILITIES ACT**  
EQUAL OPPORTUNITY FOR INDIVIDUALS WITH DISABILITIES

The contractor and the County of Union (hereafter "Owner") do hereby agree that the provisions of Title II of the Americans With Disabilities Act of 1990 (the "Act") (42 U.S.C.S12.101 et seq.), which prohibits discrimination on the basis of disability by public entities in all services, programs and activities provided or made available by public entities, and the rules and regulations promulgated pursuant thereto, are made a part of this contract. In providing any aid, benefit, or service on behalf of the Owner pursuant to this contract, the contractor agrees that the performance shall be in strict compliance with the Act. In the event the contractor, its agents, servants, employees, or subcontractors violate or are alleged to have violated the Act during the performance of this contract, the contractor shall defend the Owner in any action or administrative proceeding commenced pursuant to this Act. The contractor shall indemnify, protect, and save harmless the Owner, its agents, servants, and employees from and against any and all suits, claims, losses, demands, or damages of whatever kind or nature arising out of or claimed to arise out of the alleged violation. The contractor shall, at its own expense, appear, defend, and pay any and all charges for legal services and any and all costs and other expenses arising from such action or administrative proceeding or incurred in connection therewith. In any and all complaints brought pursuant to the Owner's grievance procedure, the contractor agrees to abide by any decision of the Owner which is rendered pursuant to said grievance procedure. If any action or administrative proceeding results in an award of damages against the Owner, or if the Owner incurs any expense to cure a violation of the ADA which has been brought pursuant to its grievance procedure, the contractor shall satisfy and discharge the same at its own expense.

The Owner shall, as soon as practicable after a claim has been made against it, give written notice thereof to the contractor along with full and complete particulars of the claim. If any action or administrative proceeding is brought against the Owner or any of its agents, servants, and employees, the Owner shall expeditiously forward or have forwarded to the contractor every demand, complaint, notice, summons, pleading, or process received by the Owner or its representatives.

It is expressly agreed and understood that any approval by the Owner of the services provided by the contractor pursuant to this contract will not relieve the contractor of the obligation to comply with the Act and to defend, indemnify, protect, and save harmless the Owner pursuant to this paragraph.

It is further agreed and understood that the Owner assumes no obligation to indemnify or save harmless the contractor, its agents, servants, employees and subcontractors for any claim which may arise out of their performance of this Agreement. Furthermore, the contractor expressly understands and agrees that the provisions of this indemnification clause shall in no way limit the contractor's obligations assumed in this Agreement, nor shall they be construed to relieve the contractor from any liability, nor preclude the Owner from taking any other actions available to it under any other provisions of this Agreement or otherwise at law.

Name \_\_\_\_\_ (Please print or type)

Signature \_\_\_\_\_ Date \_\_\_\_\_

Bidder's Name \_\_\_\_\_

**STATEMENT OF BIDDER'S QUALIFICATIONS**

All questions must be answered and the data given must be clear and comprehensive. This statement must be notarized. Questions may be answered on separate attached sheets. The Bidder may submit any additional information it desires.

1. \_\_\_\_\_  
(Name of Bidder)

2. \_\_\_\_\_  
(Permanent Main Office Address)

3. \_\_\_\_\_  
(When Organized)

4. \_\_\_\_\_  
(If a Corporation, where incorporated)

5. Number of years your organization has been engaged in construction or contracting business under present firm or trade name? \_\_\_\_\_

6. How many years of experience in construction work has your organization had (a) as a general contractor? And/or (b) As a subcontractor? \_\_\_\_\_

7. Contracts on hand: (Attach a list or table showing gross amounts of each Contract and the appropriate dates of completion) \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

8. General character of work performed by you. \_\_\_\_\_  
\_\_\_\_\_

9. Have you ever failed to complete any work awarded to you? \_\_\_\_\_  
\_\_\_\_\_

10. Have you ever defaulted on a Contract? \_\_\_\_\_ If so, complete details, including where and why?  
\_\_\_\_\_  
\_\_\_\_\_

Bidder's Name \_\_\_\_\_

**STATEMENT OF BIDDER'S QUALIFICATIONS - (continued)**

11. Has any officer or partner of your organization ever failed to complete a construction contract handled in its own name? If so, state name of individual, name of owner, location and type of project, and reason for the failure to complete. \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

12. List your major equipment available for this Contract.  
 \_\_\_\_\_  
 \_\_\_\_\_

13. Experience in the construction work similar in importance to this Project.  
 \_\_\_\_\_  
 \_\_\_\_\_

14. Have you had any material adverse changes from the trades as listed in NJ Notice of Classification within last five (5) years? \_\_\_\_\_. If so, list prior classification.

15. Background and experience of the principal members of your organization, including the officers.

<b>Individual's Name</b>	<b>Present Position or Office</b>	<b>Yrs. of Construction Experience</b>	<b>Magnitude &amp; Type of Work</b>	<b>In What Capacity</b>

16. Bank Reference. (Name, Address, Phone, Representative) \_\_\_\_\_
17. Will you, upon request, fill out a detailed financial statement and furnish any other information that may be required by the proper agency? \_\_\_\_\_
18. The undersigned, hereby authorizes and requests any person, firm or corporation to furnish any information requested by the proper agency in verification of the responses comprising this Statement of Bidder's Qualifications.
17. Bidder's telephone number, fax number and e-mail address (if applicable).
- Phone \_\_\_\_\_
- Fax \_\_\_\_\_
- E-mail \_\_\_\_\_
- Mobile \_\_\_\_\_

Dated at \_\_\_\_\_ this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

\_\_\_\_\_  
BIDDER (Signature)

\_\_\_\_\_  
BIDDER (Print Name)

Subscribed and sworn to before me  
this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

\_\_\_\_\_  
(Seal) Notary Public of New Jersey/  
Specify Other State  
My Commission Expires \_\_\_\_\_, 20\_\_.

**NOTE: FAILURE TO COMPLETE AND SUBMIT THIS DOCUMENT WITH  
YOUR PROPOSAL MAY RESULT IN A REJECTION OF YOUR BID.**

Bidder's Name \_\_\_\_\_

**CONTRACTOR PERFORMANCE RECORD**

List all contracts completed by you below or provide separate form.

Name of Owner	Name & Location of Project: Type Of Work	Prime or Sub-Cont.	Engineer or Architect in Charge for Owner	Contract Price (Omit Cost)	Date Completed	Was Time* Extension Necessary	Were Any Penalties Imposed	Were Liens* Claims or Stop Notice Filed

\* If answer is YES, provide explanation of details in connection with non-completion of contracts, time extensions, penalties imposed, labor troubles, liens, claims and notices filed against contracts listed in preceding item "Performance Record" on an attached sheet.

**NOTE: FAILURE TO COMPLETE AND SUBMIT THIS DOCUMENT WITH YOUR PROPOSAL MAY RESULT IN A REJECTION OF YOUR BID.**

Bidder's Name \_\_\_\_\_

**CONTRACTOR PERFORMANCE RECORD**  
**CERTIFICATION**

The information above is true and complete to the best of my knowledge and belief.

\_\_\_\_\_  
(Name of Organization)

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Title)

Subscribed and sworn to before me

this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

\_\_\_\_\_  
(Seal) Notary Public of New Jersey/  
Specify Other State

My Commission Expires \_\_\_\_\_, 20\_\_.





**PRIOR NEGATIVE EXPERIENCE QUESTIONNAIRE**

(N.J.S.A. 40A:11-4)

1. Within the past ten (10) years, have you been found, through either court adjudication, arbitration, mediation, or other contractually stipulated alternate dispute resolution mechanism, to have: failed to provide or perform goods or services; or failed to complete a contract in a timely manner; or otherwise performed unsatisfactorily under a prior contract with a public entity?

\_\_\_\_\_ yes                      \_\_\_\_\_ no    If yes, please provide full, detailed explanation.

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2. Within the past ten (10) years, have you defaulted on a contract, thereby requiring a public entity to utilize the services of another contractor to provide the goods or perform the services or to correct or complete the contract?

\_\_\_\_\_ yes                      \_\_\_\_\_ no    If yes, please provide full, detailed explanation.

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3. Within the past ten (10) years, have you defaulted on a contract, thereby requiring a public entity to look to your surety for completion of the contract or tender of the costs of completion?

\_\_\_\_\_ yes                      \_\_\_\_\_ no    If yes, please provide full, detailed explanation.

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4. Within the past ten (10) years, have you been debarred or suspended from contracting with any of the agencies or department of the executive branch of the State of New Jersey at the time of the contract award, where the action was based on failure to perform a contract for goods or services with a public entity?

\_\_\_\_\_ yes                      \_\_\_\_\_ no    If yes, please provide full, detailed explanation.

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Bidder's Name \_\_\_\_\_

**PRIOR NEGATIVE EXPERIENCE CERTIFICATION**

I hereby certify that the above statements are true and accurate as of this \_\_\_\_\_  
day of \_\_\_\_\_, 20\_\_.

\_\_\_\_\_  
Name of Contractor

By \_\_\_\_\_  
(Signature of Authorized Representative)

Subscribed and sworn to before me  
this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

\_\_\_\_\_  
(Seal) Notary Public of New Jersey/  
Specify Other State

My Commission Expires \_\_\_\_\_, 20\_\_.

**NOTE: FAILURE TO COMPLETE AND SUBMIT THIS DOCUMENT WITH YOUR PROPOSAL MAY RESULT IN A REJECTION OF YOUR BID.**

Bidder's Name \_\_\_\_\_

**TO BE COMPLETED ONLY WHEN FINAL PAYMENT IS REQUESTED**

**CONTRACTOR'S CERTIFICATION OF COMPLIANCE - NEW JERSEY PREVAILING WAGE ACT**

**TO:** County of Union  
Division of Engineering  
2325 South Avenue  
Scotch Plains, New Jersey 07076

**CONTRACT:**

**PROJECT:** \_\_\_\_\_

In accordance with the requirements of the New Jersey Prevailing Wage Act, N.J.S.A. 34:11-56 et al \*, the undersigned contractor on the public work being performed for:

**COUNTY OF UNION**

hereby certifies that he/she has complied with the contract requirements regarding the payment of the minimum prevailing wages established under "The New Jersey Prevailing Wage Act" N.J.S.A. 34:11-56 et al.

**CONTRACTOR:** \_\_\_\_\_  
**ADDRESS:** \_\_\_\_\_

**BY:** \_\_\_\_\_  
**ORIGINAL SIGNATURE ONLY**

**STATE OF NEW JERSEY**  
**COUNTY OF** \_\_\_\_\_

Being by me duly sworn according to law, on his oath deposes and says that \_\_\_\_\_ is \_\_\_\_\_ of \_\_\_\_\_ the above named contractor, and that the facts set forth in the above statement are true.

Subscribed and sworn before me  
this \_\_\_\_ day of \_\_\_\_\_, 200\_\_.

\_\_\_\_\_

Notary Public: \_\_\_\_\_  
My Commission Expires: \_\_\_\_\_

\* N.J.S.A. 34:11-56.33 requires the contractor and subcontractor to file written statements with the public body in form satisfactory to the Commissioner certifying to the amounts then due and owing from such contractor and subcontractor filing such statement to any and all workmen for wages due on account of the public work, setting forth therein the names of the persons whose wages are unpaid and the amount due to each respectively. Union County will withhold the amount so deducted for the benefit of the workmen whose wages are unpaid as shown by the verified statement filed, and will pay directly to any workman the amount shown by such statement to be due to him for such wages. Such payment shall thereby discharge the obligation of the contractor to the person receiving such payment to the extent of the amount thereof.

Bidder's Name \_\_\_\_\_

**UNCOMPLETED CONTRACTS AFFIDAVIT**  
(To be Submitted with DPMC Form 701)

**PURSUANT TO N.J.A.C. 17:19-2.13, BIDDER DECLARES THE FOLLOWING WITH RESPECT TO ITS UNCOMPLETED CONTRACTS, ON ALL WORK, FROM WHATEVER SOURCE (PUBLIC AND PRIVATE), BOTH IN NEW JERSEY AND FROM OTHER GOVERNMENTAL JURISDICTIONS**

ENTITY	PROJECT TITLE	ORIGINAL CONTRACT AMOUNT	UNCOMPLETED AMOUNT AS OF BID OPENING DATE	NAME AND TELEPHONE NUMBER OF PARTY TO BE CONTACTED FROM ENTITY FOR VERIFICATION

**TOTAL AMOUNT OF UNCOMPLETED CONTRACTS \$** \_\_\_\_\_

Sworn and Subscribed to Before me

This \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_

\_\_\_\_\_  
Notary Public

**BIDDER:**

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Print Name)

**NOTE: FAILURE TO COMPLETE AND SUBMIT THIS DOCUMENT WITH YOUR PROPOSAL MAY RESULT IN A REJECTION OF YOUR BID.**

Bidder's Name \_\_\_\_\_

**CERTIFICATE OF INSURANCE STATEMENT**

The Bidder fully understands the County of Union insurance requirements as stated in the Instructions to Bidders as well as the Owner/Contractor Agreement and agrees to provide all insurance required by these documents prior to the issuance of the Notice to Proceed.

\_\_\_\_\_  
BIDDER (Signature)

\_\_\_\_\_  
BIDDER (Print Name)

**NOTE: FAILURE TO COMPLETE AND SUBMIT THIS DOCUMENT WITH YOUR PROPOSAL MAY RESULT IN A REJECTION OF YOUR BID.**

Bidder's Name \_\_\_\_\_

**COLLECTION OF USE TAX ON SALES TO LOCAL GOVERNMENTS STATEMENT**

The Bidder fully understands the requirements of the use tax on sales to local governments as stated in the General Conditions to the Contract for Construction and the Instructions to Bidders, and agrees at all times to comply with the "Contractor Use Tax Collection Legislation", as defined therein, and the terms relating thereto contained in the Contract Documents.

\_\_\_\_\_  
BIDDER (Signature)

\_\_\_\_\_  
BIDDER (Print Name)

**NOTE: FAILURE TO COMPLETE AND SUBMIT THIS DOCUMENT WITH YOUR PROPOSAL MAY RESULT IN A REJECTION OF YOUR BID.**

Bidder's Name \_\_\_\_\_

**TIME OF COMPLETION**

The undersigned proposed that if awarded the Contract, the scope of work will be started within ten (10) calendar days and will be substantially completed within **One Hundred Fifty (150) calendar days** from the date of the notice to proceed.

I, \_\_\_\_\_ of \_\_\_\_\_  
NAME (Print or type) COMPANY

Agree to complete work in the time frame specified \_\_\_\_\_  
SIGNATURE

**SITE VISIT – GENERAL CONTRACTOR**

I, \_\_\_\_\_ of \_\_\_\_\_  
NAME (Print or type) COMPANY

Visited the site of the work on \_\_\_\_\_  
SIGNATURE

**COUNTY OF UNION NEW JERSEY  
Division of Purchasing**

**DISCLOSURE OF INVESTMENT ACTIVITIES IN IRAN**

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Solicitation Number: \_\_\_\_\_ Bidder/Offeror: \_\_\_\_\_

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Pursuant to Public law 2012, c. 25, any person or entity that submits a bid or proposal or otherwise proposes to enter into or renew a contract must complete the certification below to attest, under penalty of perjury, that the person or entity, or one of the person or entity's parents, subsidiaries, or affiliates, is not identified on a list created and maintained by the Department of the Treasury as a person or entity engaging in investment activities in Iran. If the Director finds a person or entity to be in violation of the principles which are the subject of the law, s/he shall take action as may be appropriate and provided by law, rule or contract, including but not limited to, imposing sanctions, seeking compliance, recovering damages, declaring the party in default and seeking debarment or suspension of the person or entity.

**I certify, pursuant to Public Law 2012, c. 25, that the person or entity listed above for which I am authorized to bid/renew:**

is not providing goods or services of \$20,000,000 or more in the energy sector of Iran, including a person or entity that provides oil or liquefied natural gas tankers, or products used to construct or maintain pipe lines used to transport oil or liquefied natural gas, for the energy sector of Iran,  
AND

is not a financial institution that extends \$20,000,000 or more in credit to another person or entity, for 45 days or more, if that person or entity will use the credit to provide goods or services in the energy sector in Iran.

In the event that a person or entity is unable to make the above certification because it or one of its parents, subsidiaries, or affiliates has engaged in the above-referenced activities, a detailed, accurate and precise description of the activities must be provided in part 2 below to the Division of Purchase under penalty of perjury. Failure to provide such will result in the proposal being rendered as non-responsive and appropriate penalties, fines and/or sanctions will be assessed as provided by law.

---

**PART 2: PLEASE PROVIDE FURTHER INFORMATION RELATED TO INVESTMENT ACTIVITIES IN IRAN.** You must provide, accurate and precise description of the activities of the bidding person/entity, or one of its parents, subsidiaries or affiliates, engaging in the investment activities in Iran outlined above by completing the boxes below.

Name \_\_\_\_\_ Relationship to Bidder/Offeror \_\_\_\_\_

Description of Activities \_\_\_\_\_

Duration of Engagement \_\_\_\_\_ Anticipated Cessation Date \_\_\_\_\_



**DISCLOSURE OF INVESTMENT ACTIVITIES IN IRAN – (Continued)**

Bidder/Offeror  
Contact Name \_\_\_\_\_ Contact Phone Number \_\_\_\_\_

Certification: I, being duly sworn upon my oath, hereby represent and state that the foregoing information and any attachments thereto to the best of my knowledge are true and complete. I attest that I am authorized to execute this certification on behalf of the above referenced person or entity. I acknowledge that Union County is relying on the information contained herein and hereby acknowledge that I am under a continuing obligation from the date of this certification through the completion of any contracts with the County to notify the County in writing of any changes to the answers of information contained herein. I acknowledge that I am aware that it is a criminal offense to make a false statement or misrepresentation in this certification, and if I do so, I recognize that I am subject to criminal prosecution under the law and that it will also constitute a material breach of my agreement(s) with Union County, New Jersey and that the County at its option may declare any contract(s) resulting from this certification void and unenforceable.

Full Name (Print) \_\_\_\_\_ Signature \_\_\_\_\_

Title \_\_\_\_\_ Date \_\_\_\_\_

## STANDARD SPECIFICATIONS

The Standard Specifications for Road and Bridge Construction of New Jersey Department of Transportation, 2007 Edition; is added to and/or amended elsewhere herein by the Notice to Contractors (Advertisement), Proposal, Information for Bidders, General Conditions, Special Provisions, Project Plans, and Supplementary Specifications; shall, insofar as technical requirements are involved, govern in the execution of this project.

Such Standard Specifications are made a part of these Specifications by this reference and will not be repeated herein. It is the responsibility of prospective bidders to familiarize themselves with these Standard Specifications, copies of which may be examined at the office of the Engineer and may be obtained, upon payment of the cost thereof, from:

Department of Transportation  
State of New Jersey  
1035 Parkway Avenue  
Trenton, New Jersey 08625

The Notice to Bidders (Advertisement), Proposal, General Conditions, Instructions to Bidders, Special Provisions, Project Plans and/or Technical Specifications shall govern and prevail in the case of conflict between them and the Standard Specifications.

In these Standard Specifications the words "COMMISSIONER" or "DEPARTMENT" shall refer to and mean the person, persons, body, board or agent legally empowered to enter into contracts and otherwise legally act for the Owner. The words "RESIDENT ENGINEER (RE)", "ENGINEER" or "STATE" shall refer to and mean the professional engineering representative of the Owner as hereinbefore defined and the word "INSPECTOR" shall mean the authorized project representative of the Engineer with the authority as hereinbefore defined. The word "LABORATORY" shall mean and refer to the Engineer who may, at his discretion, and with the consent of the Owner, employ qualified technical personnel or testing laboratories to assist him in fulfilling the duties normally assigned to the "LABORATORY" in these Standard Specifications.

When reference is made herein to the bulletins, standards, specifications, publications or requirements of the Manual on Uniform Traffic Control Devices (MUTCD), Institute of Traffic Engineers (ITE), Federal Highway Administration (FHWA), American Association of State Highway Officials (AASHTO), the American Concrete Institute (ACI), the American Society of Civil Engineers (ASCE) or similar national or regional societies, associations, institutes or organizations; the requirements of the bulletins, specifications, publications or requirements referred to shall be considered a part of these Specifications by such reference and shall not be repeated herein but shall have the same import and be as binding as if herein set forth in full.



STATE OF NEW JERSEY  
Department of Labor and Workforce Development  
Division of Wage and Hour Compliance - Public Contracts Section  
PO Box 389  
Trenton, NJ 08625-0389

**PREVAILING WAGE RATE DETERMINATION**

The New Jersey Prevailing Wage Act (N.J.S.A. 34:11-56.25 et seq.) requires that the Department of Labor and Workforce Development establish and enforce a prevailing wage level for workers engaged in public works in order to safeguard their efficiency and general well being and to protect them as well as their employers from the effects of serious and unfair competition.

Prevailing wage rates are wage and fringe benefit rates based on the collective bargaining agreements established for a particular craft or trade in the locality in which the public work is performed. In New Jersey, these rates vary by county and by the type of work performed.

Applicable prevailing wage rates are those wages and fringe benefits in effect on the date the contract is awarded. All pre-determined rate increases listed at the time the contract is awarded must also be paid, beginning on the dates specified. Rates that have expired will remain in effect until new rates are posted.

**Prevailing Wage Rate**

The prevailing wage rate for each craft will list the effective date of the rate and the following information:

**W** = Wage Rate per Hour                      **B** = Fringe Benefit Rate per Hour\*                      **T** = Total Rate per Hour

\* Fringe benefits are an integral part of the prevailing wage rate. Employers not providing such benefits must pay the fringe benefit amount directly to the employee each payday. Employers providing benefits worth less than the fringe benefit amount must pay the balance directly to the employee each payday.

Unless otherwise stated in the Prevailing Wage Rate Determination, the fringe benefit rate for overtime hours remains at the straight time rate.

When the Overtime Notes in the Prevailing Wage Rate Determination state that the overtime rates are "inclusive of benefits," the benefit rate is increased by the same factor as the wage rate (i.e. multiplied by 1.5 for time and one-half, multiplied by 2 for double time, etc.).

**Apprentice Rate Schedule**

An "apprentice" is an individual who is registered with the United States Department of Labor - Office of Apprenticeship and enrolled in a certified apprenticeship program during the period in which they are working on the public works project.

The apprentice wage rate is a percentage of the journeyman wage rate, unless otherwise indicated. The apprentice benefit rate is the full journeyman benefit rate, unless otherwise indicated.

If there is no apprentice rate schedule listed, the individual must be paid at least the journeyman rate even if that individual is in a certified apprentice program for that trade.

If there is no ratio of apprentices to journeymen listed for a particular craft, then the ratio shall be one (1) apprentice to every four (4) journeymen.

## **Comments/Notes**

For each craft listed there will be comments/notes that cover the definition of the regular workday, shift differentials, overtime, recognized holidays, and any other relevant information.

## **Public Works Contractor Registration**

The Public Works Contractor Registration Act (N.J.S.A. 34:11-56.48, et seq.) requires that **all** contractors, subcontractors, or lower tier subcontractors who are working on or who bid on public works projects register with the Department of Labor and Workforce Development. Applications are available at [www.nj.gov/labor](http://www.nj.gov/labor) (click on Wage & Hour and then go to Registration & Permits).

Pursuant to N.J.S.A. 34:11-56.51:

*No contractor shall bid on any contract for public work as defined in section 2 of P.L.1963, c. 150 (C.34:11-56.26) unless the contractor is registered pursuant to this act. No contractor shall list a subcontractor in a bid proposal for the contract unless the subcontractor is registered pursuant to P.L.1999, c.238 (C.34:11-56.48 et seq.) at the time the bid is made. No contractor or subcontractor, including a subcontractor not listed in the bid proposal, shall engage in the performance of any public work subject to the contract, unless the contractor or subcontractor is registered pursuant to that act.*

## **Snow Plowing**

Snow plowing contracts are not subject to the New Jersey Prevailing Wage Act or the Public Works Contractor Registration Act.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

County - UNION

**Craft: Air Conditioning & Refrigeration - Service and Repair**

**PREVAILING WAGE RATE**

	03/14/16
Journeyman (Mechanic)	W37.18 B21.68 T58.86

**Craft: Air Conditioning & Refrigeration - Service and Repair**

**APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
	Mo. 1-3	Mo. 4-12	2nd Year	3rd Year	4th Year	5th Year		Wage = %	of Jnymn	Wage
As Shown										
Wage and Bene	50%	55%	60%	65%	75%	85%		Bene = %	of Jnymn	Bene

**Ratio of Apprentices to Journeymen - 1:4**

APPRENTICE RATE SCHEDULE FOR THOSE APPRENTICES ENTERING PROGRAM AFTER 3-1-13:

INTERVAL	PERIOD AND RATES							
As Shown	1st Year	2nd Year	3rd Year	4th Year	5th Year		Wage =% of Jnymn Wage	
Wage and Benefit	40%	50%	60%	70%	80%		Bene. =% of Jnymn Wage	

**Craft: Air Conditioning & Refrigeration - Service and Repair**

**COMMENTS/NOTES**

THESE RATES MAY BE USED FOR THE FOLLOWING:

- Service/Repair/Maintenance Work to EXISTING facilities.
- Replacement or Installation of air conditioning and refrigeration equipment when the combined tonnage does not exceed 15 tons for refrigeration, or 25 tons for air conditioning.
- Replacement or Installation of "packaged" or "unitary" rooftop-type units when the combined tonnage of the units does not exceed 75 tons.

NOTE: These rates may NOT be used for any work in new construction (including work on new additions).

The regular workday shall consist of 8 hours, starting between 6:00 AM and 10:00 AM, Monday through Friday.

SHIFT DIFFERENTIALS:

- The second and third shifts shall be paid an additional 15% of the hourly rate.
- All shifts must run for a minimum of 5 consecutive days.

OVERTIME:

Hours worked in excess of 8 per day or before or after the regular workday, that are not shift work, and all hours on Saturday shall be paid at time and one-half the hourly rate, inclusive of benefits. All hours on Sunday and holidays shall be paid at double the hourly rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Veterans' Day, Thanksgiving Day, Christmas Day.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Boilermaker                      PREVAILING WAGE RATE**

	01/01/16
Foreman	W47.00 B41.02 T88.02
General Foreman	W49.00 B42.00 T91.00
Journeyman	W42.00 B39.42 T81.42

**Craft: Boilermaker                      APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
	65%	70%	75%	80%	85%	90%	95%			
1000 Hours										
Benefit =	33.33	34.20	35.08	35.94	36.82	37.69	38.55			

**Ratio of Apprentices to Journeymen - \***

\* 1 apprentice will be allowed for the first 5 journeymen, 1 apprentice for the next 10 journeymen and 1 apprentice for each succeeding 20 journeymen up to a maximum of 5 apprentices per contractor on any one job.

**Craft: Boilermaker                      COMMENTS/NOTES**

HIGH WORK: All apprentices working on the erection, repair, or dismantling of smoke stacks, standpipes, or water towers shall be paid the Journeyman rate.

The regular workday shall consist of 8 hours, between 8:00 AM and 4:30 PM.

**SHIFT DIFFERENTIALS:**

- The second shift shall work 7½ hours and receive 8 hours pay, at a rate equal to the regular hourly rate plus 10%.
- The third shift shall work 7 hours and receive 8 hours pay, at a rate equal to the regular hourly rate plus 20%.
- For "Municipal Water Works" projects only, the following shall apply: Two, four day, 10 hour shifts may be worked at straight time Monday through Thursday. The day shift shall work four days, at 10 hours, for 10 hours pay. The second shift shall work four days, at nine and a half hours, for 10 hours pay, plus 10% the hourly rate for new work and .25 cents on repair work. Friday may be used as a make-up day at straight time, due to weather conditions, holiday or any other circumstances beyond the employer's control.

**OVERTIME:**

- Hours in excess of 8 per day, Monday through Friday, and all hours on Saturdays shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays (except Labor Day) shall be paid at double the hourly rate. All hours on Labor Day shall be paid at four times the hourly rate.
- If any other craft employed by the same contractor, or a subcontractor thereof, receives double time in lieu of time and one-half, then the Boilermaker shall receive double time in lieu of time and one-half.
- For "Municipal Water Works" projects only, the following shall apply: Four 10 hour days may be worked Monday through Thursday at straight time. Friday may be used as a make-up day for a day lost to inclement weather, holiday or other conditions beyond the control of the employer. Overtime shall be paid for any hours that exceed 10 hours per day or 40

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

hours per week.

RECOGNIZED HOLIDAYS: New Year's Day, Washington's Birthday, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Boilermaker - Minor Repairs**

**PREVAILING WAGE RATE**

	02/26/16
Foreman	W31.54 B16.17 T47.71
General Foreman	W32.04 B16.17 T48.21
Mechanic	W30.04 B16.17 T46.21

**Craft: Boilermaker - Minor Repairs**

**COMMENTS/NOTES**

NOTE: These rates apply to MINOR REPAIR WORK ONLY (repair work in the field for which the contract amount does not exceed \$125,000.00).

**OVERTIME:**

Hours in excess of 8 per day, Monday through Friday, and all hours on Saturdays shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays (except Labor Day) shall be paid at double the hourly rate. All hours on Labor Day shall be paid at four times the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Washington's Birthday, Good Friday, Memorial Day, July 4th, Labor Day, Presidential Election Day, Thanksgiving Day, day after Thanksgiving, Christmas Day. Saturday holidays observed the preceding Friday, Sunday holidays observed the following Monday.



**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Bricklayer, Stone Mason**

**PREVAILING WAGE RATE**

	05/01/16	11/01/16	05/01/17	05/01/18
Deputy Foreman	W42.25 B30.68 T72.93	W43.00 B30.91 T73.91	W0.00 B0.00 T76.04	W0.00 B0.00 T78.23
Foreman	W45.25 B30.68 T75.93	W46.00 B30.91 T76.91	W0.00 B0.00 T79.04	W0.00 B0.00 T81.23
Journeyman	W39.25 B30.68 T69.93	W40.00 B30.91 T70.91	W0.00 B0.00 T73.04	W0.00 B0.00 T75.23

**Craft: Bricklayer, Stone Mason**

**APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
	40%	50%	55%	60%	65%	70%	75%	80%		
6 Months										
Benefits	3.72	4.65	5.12	5.58	20.48	21.83	23.18	24.52		

**Ratio of Apprentices to Journeymen - 1:5**

**Craft: Bricklayer, Stone Mason**

**COMMENTS/NOTES**

The regular workday shall consist of 8 hours, between 6:00 AM and 4:30 PM.

**SHIFT DIFFERENTIALS:**

- When a 2 shift schedule (including a day shift) is established, the first, or day shift, shall be established on an 8 hour basis. The second shift shall be established on an 8 hour basis, and receive the regular rate plus 10%, inclusive of benefits.
- When a three shift schedule is established, the first shift shall be established on an 8 hour basis, the second shift on a 7.5 hour basis, and the third shift on a 7 hour basis. The first shift shall receive the regular hourly rate, the second shift shall receive the regular rate plus 10%, inclusive of benefits, and the third shift shall receive the regular rate plus 15%, inclusive of benefits.
- When there is no day shift, and a second or third shift is established, it shall be established on an 8 hour basis. The second shift shall receive the regular rate plus 10%, inclusive of benefits, and the third shift shall receive the regular rate plus 15%, inclusive of benefits.
- When an irregular shift must be established, this shift shall receive the regular rate plus 10%, inclusive of benefits.

**OVERTIME:**

- The first 2 hours in excess of 8 per day, or before or after the regular workday that are not shift work, Monday through Friday, shall be paid at time and one-half the regular rate, inclusive of benefits. Any additional overtime shall be paid at double the regular rate, inclusive of benefits. The first 10 hours on Saturday shall be paid at time and one-half the regular rate, inclusive of benefits. Any additional overtime shall be paid at double the regular rate, inclusive of benefits. All hours on Sundays and holidays shall be paid at double the regular rate, inclusive of benefits.
- Saturday may be used as a make-up day for hours lost to inclement weather.
- When Bricklayers/Stone Masons work on Saturday with Laborers, and no other crafts are working on the project for the day, benefits may be paid at straight time. If other crafts are present, the applicable overtime rate for benefits shall be paid.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays will be observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Carpenter**

**PREVAILING WAGE RATE**

	05/06/16	11/01/16	05/01/17	11/01/17	05/01/18	11/01/18
Foreman	W52.83 B30.11 T82.94	W53.42 B30.44 T83.86	W0.00 B0.00 T85.04	W0.00 B0.00 T86.04	W0.00 B0.00 T87.29	W0.00 B0.00 T88.54
Journeyman	W45.94 B26.19 T72.13	W46.45 B26.48 T72.93	W0.00 B0.00 T74.23	W0.00 B0.00 T75.23	W0.00 B0.00 T76.48	W0.00 B0.00 T77.73

**Craft: Carpenter**

**APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
	Yearly	40%	55%	65%	80%	90%				
Benefit	57% of	Appren	tice	Wage	for all	intervals				

**Ratio of Apprentices to Journeymen - 1:3**

**Craft: Carpenter**

**COMMENTS/NOTES**

**FOREMAN REQUIREMENTS:**

- When there are 2 or more Carpenters on a job, 1 shall be designated as a Foreman.
- When there are 21 or more Carpenters on a job, 2 shall be designated as Foremen.

The regular workday shall consist of 8 hours, starting between 7:00 AM and 9:00 AM.

**SHIFT DIFFERENTIALS:**

- When a 2 shift schedule (including a day shift) is established, the day shift shall be established on an 8 hour basis. The second shift shall be established on an 8 hour basis, and receive the regular rate plus 15%, inclusive of benefits.
- When a three shift schedule is established, the first shift shall be established on an 8 hour basis, the second shift on a 7.5 hour basis, and the third shift on a 7 hour basis. The first shift shall receive the regular hourly rate, the second shift shall receive the regular rate plus 15% and the third shift shall receive the regular rate plus 20%, inclusive of benefits.
- When there is no day shift, and a second or third shift is established, it shall be established on an 8 hour basis. The second shift shall receive the regular rate plus 15% and the third shift shall receive the regular rate plus 20%, inclusive of benefits.

**OVERTIME:**

- All hours in excess of 8 per day, or before or after an established shift that are not shift work, and all hours on Saturdays shall be paid at time and one-half the hourly rate, inclusive of benefits. All hours on Sundays and holidays shall be paid at double the hourly rate, inclusive of benefits.
- Four 10-hour days may be worked, Monday to Thursday, at straight time. Friday may be used as a make-up day for a day lost due to inclement weather. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the hourly rate, inclusive of benefits.

**RECOGNIZED HOLIDAYS:** New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Carpenter - Resilient Flooring**

**PREVAILING WAGE RATE**

	05/06/16	11/01/16	05/01/17	11/01/17	05/01/18	11/01/18
Foreman	W52.83 B30.11 T82.94	W53.42 B30.44 T83.86	W0.00 B0.00 T85.04	W0.00 B0.00 T86.04	W0.00 B0.00 T87.29	W0.00 B0.00 T88.54
Journeyman	W45.94 B26.19 T72.13	W46.45 B26.48 T72.93	W0.00 B0.00 T74.23	W0.00 B0.00 T75.23	W0.00 B0.00 T76.48	W0.00 B0.00 T77.73

**Craft: Carpenter - Resilient Flooring**

**APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
	Yearly	40%	55%	65%	80%	90%				
Benefit	57%	of	Appren	tice	Wage	for all	intervals			

**Ratio of Apprentices to Journeymen - \***

\* 1 apprentice shall be allowed to every 2 journeymen or major fraction thereof. No more than 3 apprentices on any one job or project.

**Craft: Carpenter - Resilient Flooring**

**COMMENTS/NOTES**

**FOREMAN REQUIREMENTS:**

- On any job where there are 4 or more Carpenters of Resilient Flooring, 1 must be designated a Foreman.

**FOR SYNTHETIC TURF INSTALLATION ONLY:**

- The rate shall be 90% of the wage and benefit rate.

The regular workday consists of 8 hours, starting between 6:00 AM and 9:00 AM.

**SHIFT DIFFERENTIALS:**

- When a 2 shift schedule (including a day shift) is established, the day shift, shall be established on an 8 hour basis. The second shift shall be established on an 8 hour basis, and receive the regular wage rate plus 15%.
- When a three shift schedule is established, the first shift shall be established on an 8 hour basis, the second shift on a 7.5 hour basis, and the third shift on a 7 hour basis. The first shift shall receive the regular wage rate, the second shift shall receive the regular wage rate plus 15% and the third shift shall receive the regular wage rate plus 20%.
- When there is no day shift, and a second or third shift is established, it shall be established on an 8 hour basis. The second shift shall receive the regular wage rate plus 15% and the third shift shall receive the regular wage rate plus 20%.

**OVERTIME:**

- Hours in excess of 8 per day or 40 per week, or before or after the regular workday, Monday through Friday, shall be paid at time and one-half the wage rate. Saturday may be used as a make-up day, at straight time, up to 8 hours, for hours lost to reasons beyond the control of the employer, up to a total of 40 hours per week; hours in excess of 8 on Saturday shall then be paid at time and one-half the wage rate. If Saturday is not a make-up day, all hours on Saturday shall be paid at time and one-half the wage rate. All hours on Sundays and holidays shall be paid at double the wage rate.
- Four 10-hour days may be worked, Monday to Thursday, at straight time. Friday may be used as a make-up day for hours lost to reasons beyond the control of the employer. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the wage rate.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays will be observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Cement Mason**

**PREVAILING WAGE RATE**

See "Bricklayer, Stone Mason" Rates

**Craft: Cement Mason**

**APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									

**Ratio of Apprentices to Journeymen - 1:4**

**Craft: Cement Mason**

**COMMENTS/NOTES**

\*\*\*See "Bricklayer, Stone Mason" Rates\*\*\*

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Diver                      PREVAILING WAGE RATE**

	09/09/16	11/01/16	05/01/17	11/01/17	05/01/18	11/01/18
Diver	W55.84	W0.00	W0.00	W0.00	W0.00	W0.00
	B43.72	B0.00	B0.00	B0.00	B0.00	B0.00
	T99.56	T100.71	T101.91	T103.11	T104.36	T105.61
Tender	W44.10	W0.00	W0.00	W0.00	W0.00	W0.00
	B43.72	B0.00	B0.00	B0.00	B0.00	B0.00
	T87.82	T88.97	T90.17	T91.37	T92.62	T93.87

**Craft: Diver                      COMMENTS/NOTES**

NOTE: All dive crews must consist of a Tender, a Diver, and a standby Diver (standby Diver is the same rate as a Diver).

DEPTH & PENETRATION RATES: Divers shall be paid the following depth and penetration rates, in addition to the regular hourly rate, when applicable:

**AIR DIVES:**

0-59 feet: No additional wage  
60-74 feet: + \$0.25 per foot  
75-125 feet: + \$0.78 per foot

**MIXED GAS DIVES:**

0-74 feet: No additional wage  
75-125 feet: + \$1.00 per foot  
126-200 feet: + \$2.00 per foot

**PENETRATION DIVES:**

126-200 feet: + \$1.50 per foot  
201-275 feet: + \$1.75 per foot  
276-350 feet: + \$2.00 per foot  
351-425 feet: + \$2.50 per foot

**OVERTIME:**

Hours in excess of 8 per day, Monday through Friday, and all hours on Saturdays shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays shall be paid at double the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Veterans' Day, Presidential Election Day, Thanksgiving Day, Christmas Day. Veterans' Day may be switched with the day after Thanksgiving.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

County - UNION

**Craft: Dockbuilder                      PREVAILING WAGE RATE**

	09/09/16	11/01/16	05/01/17	11/01/17	05/01/18	11/01/18
Foreman	W50.72 B43.72 T94.44	W0.00 B0.00 T95.59	W0.00 B0.00 T96.79	W0.00 B0.00 T97.99	W0.00 B0.00 T99.24	W0.00 B0.00 T100.49
Foreman (Concrete Form Work)	W50.14 B31.56 T81.70	W0.00 B0.00 T81.70	W0.00 B0.00 T82.90	W0.00 B0.00 T84.10	W0.00 B0.00 T85.35	W0.00 B0.00 T86.60
Journeyman	W44.10 B43.72 T87.82	W0.00 B0.00 T88.97	W0.00 B0.00 T90.17	W0.00 B0.00 T91.37	W0.00 B0.00 T92.62	W0.00 B0.00 T93.87
Journeyman (Concrete Form Work)	W43.60 B31.56 T75.16	W0.00 B0.00 T75.16	W0.00 B0.00 T76.36	W0.00 B0.00 T77.56	W0.00 B0.00 T78.81	W0.00 B0.00 T80.06

**Craft: Dockbuilder                      APPRENTICE RATE SCHEDULE**

<u>INTERVAL</u>	<u>PERIOD AND RATES</u>									
Yearly	17.64	22.05	28.67	35.28						
Benefit	29.61	for all	intervals		Concrete	Form Work	Only Ben.	= 21.81	for all	intervals

**Ratio of Apprentices to Journeymen - \***

\* When there are 4 or fewer Dockbuilders on a job, no more than 1 may be an apprentice. When there are 5 or more Dockbuilders, there may be 1 apprentice for every 5 Dockbuilders.

**Craft: Dockbuilder                      COMMENTS/NOTES**

**CREOSOTE HANDLING:**

When handling creosote products on land piledriving, floating marine construction, and construction of wharves, the worker shall receive an additional \$0.25 per hour.

**HAZARDOUS WASTE WORK:**

- Hazardous waste removal work on a state or federally designated hazardous waste site where Level A, B, or C personal protection is required: an additional 20% of the hourly rate, per hour.
- Hazardous waste removal work in Level D, or where personal protection is not required: an additional \$1.00 per hour.

**CERTIFIED WELDER:** When required on the job by the project owner, a Certified Welder shall receive an additional \$1.00 per hour.

**FOREMAN REQUIREMENTS:**

The first Dockbuilder on the job shall be designated a Foreman.

**OVERTIME:**

Hours in excess of 8 per day, Monday through Friday, and all hours on Saturdays shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays shall be paid at double the hourly rate.



**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Veterans' Day, Presidential Election Day, Thanksgiving Day, Christmas Day. Veterans' Day may be switched with the day after Thanksgiving.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Drywall Finisher**

**PREVAILING WAGE RATE**

	05/01/16	05/01/17
Foreman	W42.55 B23.10 T65.65	W44.30 B22.60 T66.90
General Foreman	W44.45 B23.10 T67.55	W46.20 B22.60 T68.80
Journeyman	W38.75 B23.10 T61.85	W40.50 B22.60 T63.10

**Craft: Drywall Finisher**

**APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
	30%	40%	50%	60%	70%	75%	80%	85%	90%	
4 Months										
Benefits	Intervals	1 to 3 =	9.85	Intervals	4 to 6 =	12.28	Intervals	7 to 9 =	14.95	

**Ratio of Apprentices to Journeymen - 1:4**

**Craft: Drywall Finisher**

**COMMENTS/NOTES**

The regular workday shall consist of 8 hours between 7:00 AM and 5:30 PM.

**SHIFT DIFFERENTIALS:**

- The second shift shall receive an additional 10% of the hourly rate, per hour, and the third shift shall receive an additional 15% of the hourly rate, per hour.
- When 3 shifts are worked, the second shift shall receive 8 hours pay for 7.5 hours of work, and the third shift shall receive 8 hours pay for 7 hours of work.
- Shift work must run for a minimum of 5 consecutive workdays.

**OVERTIME:**

- Hours in excess of 8 per day, Monday through Friday, and all hours on Saturdays shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on Sundays and holidays shall be paid at double the regular rate, inclusive of benefits.
- Saturday or Sunday may be used to make up a day lost to inclement weather, at straight time.

**RECOGNIZED HOLIDAYS:** New Year's Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Saturday holiday observed the preceding Friday. Sunday holiday observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Electrician**

**PREVAILING WAGE RATE**

	05/30/16	05/29/17	05/28/18
Cable Splicer	W58.71 B33.74 T92.45	W60.08 B34.53 T94.61	W61.52 B35.35 T96.87
Foreman	W59.77 B34.34 T94.11	W61.17 B35.15 T96.32	W62.64 B35.98 T98.62
Journeyman	W53.37 B30.67 T84.04	W54.62 B31.39 T86.01	W55.93 B32.13 T88.06

**Craft: Electrician**

**APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
	Yearly	40%	49%	58%	68%	80%		of Jour	neyman	Wage
Benefit	40%	49%	58%	68%	80%		of Jour	neyman	Benefit	Rate

**Ratio of Apprentices to Journeymen - 2:3**

**Craft: Electrician**

**COMMENTS/NOTES**

THESE RATES ALSO APPLY TO THE FOLLOWING:

- All burglar and fire alarm work.
- All fiber optic work.
- Teledata work in new construction.
- Teledata work involving 16 Voice/Data Lines or more.

The regular workday shall be 8 hours, between 8:00 AM and 4:30 PM.

**FOREMAN REQUIREMENTS:**

- On any job where there are 1 to 10 Journeymen electricians, 1 shall be designated a Foreman.

**SHIFT DIFFERENTIALS:**

- Shift work must run for a minimum of 5 consecutive workdays.
- 2nd Shift (4:30 PM to 12:30 AM) shall receive 8 hours pay for 7.5 hours work + an additional 10% of the regular rate, per hour, inclusive of benefits.
- 3rd Shift (12:30 AM to 8:00 AM) shall receive 8 hours pay for 7 hours work + an additional 15% of the regular rate, per hour, inclusive of benefits.

**OVERTIME:**

Hours in excess of 8 per day, or outside of the regular workday, Monday through Friday, and all hours on Saturdays, shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on Sundays and holidays shall be paid at double the regular rate, inclusive of benefits.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Electrician - Teledata (15 Voice/Data Lines & Less)**

**PREVAILING WAGE RATE**

	11/06/15
Master Technician/General Foreman	W51.01 B29.16 T80.17
Senior Technician/Lead Foreman (21-30 Workers on Job)	W46.70 B26.69 T73.39
Technician A/Foreman (11-20 Workers on Job)	W44.73 B25.57 T70.30
Technician B/Working Foreman (4-10 Workers on Job)	W42.77 B24.45 T67.22
Technician C/Journeyman (1-3 Workers on Job)	W39.24 B22.43 T61.67

**Craft: Electrician - Teledata (15 Voice/Data Lines & Less)**

**APPRENTICE RATE SCHEDULE**

<u>INTERVAL</u>	<u>PERIOD AND RATES</u>									
6 Months	19.66	20.97	23.15	25.77	28.83	31.45	34.51	37.56		
Benefits	8.15	8.70	9.60	10.69	11.96	13.04	14.31	15.57		

**Ratio of Apprentices to Journeymen - 2:3**

**Craft: Electrician - Teledata (15 Voice/Data Lines & Less)**

**COMMENTS/NOTES**

APPRENTICE RATE SCHEDULE FOR THOSE APPRENTICES ENTERING PROGRAM AFTER 10-31-14:

INTERVAL	PERIOD AND RATES								
6 Months	17.47	18.78	20.97	23.59	26.64	29.27	32.32	35.38	
Benefits	7.25	7.79	8.70	9.78	11.05	12.14	13.40	14.67	

NOTES:

- These rates are for service, maintenance, moves, and/or changes affecting 15 Voice/Data (teledata) lines or less. These rates may NOT be used for any teledata work in new construction (including additions) or any fiber optic work.
- The number of Teledata workers on the jobsite is the determining factor for which Foreman category applies .

The regular workday shall be 8 hours, between 8:00 AM and 4:30 PM.

SHIFT DIFFERENTIALS:

- Shift work must run for a minimum of 5 consecutive workdays.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

- 2nd Shift (4:30 PM to 12:30 AM) shall receive 8 hours pay for 7.5 hours work + an additional 10% of the regular rate, per hour, inclusive of benefits.
- 3rd Shift (12:30 AM to 8:00 AM) shall receive 8 hours pay for 7 hours work + an additional 15% of the regular rate, per hour, inclusive of benefits.

**OVERTIME:**

Hours in excess of 8 per day, or outside of the regular workday, Monday through Friday, and all hours on Saturdays, shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on Sundays and holidays shall be paid at double the regular rate, inclusive of benefits.

**RECOGNIZED HOLIDAYS:** New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Electrician - Teledata (16 Instruments & More)**

**PREVAILING WAGE RATE**

See "Electrician" Rates

**Craft: Electrician - Teledata (16 Instruments & More)**

**COMMENTS/NOTES**

\*\*\*See ELECTRICIAN Rates\*\*\*

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Electrician- Outside Commercial**

**PREVAILING WAGE RATE**

	05/30/16	05/29/17	05/28/18
Cable Splicer	W58.99 B33.46 T92.45	W60.37 B34.24 T94.61	W61.82 B35.06 T96.88
Certified Welder	W56.31 B31.94 T88.25	W57.62 B32.68 T90.30	W59.01 B33.47 T92.48
Equipment Operator	W53.63 B30.42 T84.05	W54.88 B31.13 T86.01	W56.20 B31.88 T88.08
Foreman (1-10 Journeyman workers on job)	W60.07 B34.07 T94.14	W61.47 B34.86 T96.33	W62.94 B35.70 T98.64
Foreman (11-20 Journeyman workers on job)	W61.67 B34.98 T96.65	W63.11 B35.79 T98.90	W64.63 B36.66 T101.29
General Foreman (21-30 Journeyman workers on job)	W63.28 B35.89 T99.17	W64.76 B36.73 T101.49	W66.32 B37.61 T103.93
General Foreman (31-60 Journeyman workers on job)	W68.65 B38.94 T107.59	W70.25 B39.84 T110.09	W71.94 B40.80 T112.74
General Foreman (61+ Journeyman workers on job)	W69.72 B39.54 T109.26	W71.34 B40.46 T111.80	W73.06 B41.44 T114.50
Groundman	W32.18 B18.26 T50.44	W32.93 B18.68 T51.61	W33.72 B19.13 T52.85
Journeyman Lineman/Technician	W53.63 B30.42 T84.05	W54.88 B31.13 T86.01	W56.20 B31.88 T88.08
Sub-Foreman	W60.07 B34.07 T94.14	W61.47 B34.86 T96.33	W62.94 B35.70 T98.64



**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Electrician- Outside Commercial**

**APPRENTICE RATE SCHEDULE**

<b>INTERVAL</b>	<b>PERIOD AND RATES</b>									
1000 Hours	60%	65%	70%	75%	80%	85%	90%			
Benefits	56.4% of	Journey	man	wage	+	\$.01				

**Craft: Electrician- Outside Commercial**

**COMMENTS/NOTES**

EFFECTIVE 5-30-16- The apprentice benefit rate shall be 56.7% + \$.01.  
 EFFECTIVE 5-29-17- The apprentice benefit rate shall be 56.7% + \$.01.  
 EFFECTIVE 5-28-18- The apprentice benefit rate shall be 56.7% + \$.01.

\* FOR UTILITY WORK PLEASE SEE STATEWIDE RATES

The regular worday shall be 8 hours, between 8:00 AM and 4:30 PM.

**FOREMAN REQUIREMENTS:**

On jobs where there are 2 Journeymen, one shall be a Foreman. The following number of Foreman, General Foreman, Assistant General Foreman and Sub-Foreman shall be required with respect to number of Journeymen on site:

- 2-10 Journeymen ( 1 Foreman)
- 11-20 Journeymen (1 Foreman and 1 Sub-Foreman)
- 21-30 Journeymen (1 Foreman and 2 Sub-Foremen)

**SHIFT DIFFERENTIALS:**

- Shift work must run for a minimum of 5 consecutive workdays.
- 2nd Shift (4:30 PM to 12:30 AM): 8 hrs. pay for 7.5 hrs. work + an additional 10% of the regular rate, inclusive of benefits.
- 3rd Shift (12:30 AM to 8:00 AM): 8 hrs. pay for 7 hrs. work + an additional 15% of the regular rate per hour, inclusive benefits.

**OVERTIME:**

Hours in excess of 8 per day, or outside of the regular workday, Monday through Friday, and all hours on Saturdays, shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on Sundays and holidays shall be paid at double the regular rate, inclusive of benefits.

**RECOGNIZED HOLIDAYS:**

New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day and Christmas Day.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Electrician-Utility Work (North)**

**PREVAILING WAGE RATE**

Rates are located in the "Statewide" rate package

**Craft: Electrician-Utility Work (North)**

**APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
6 Months	60%	65%	70%	75%	80%	85%	90%			
Benefits	62.5% of	Appren	tice	Wage	Rate	for all	intervals			

**Craft: Electrician-Utility Work (North)**

**COMMENTS/NOTES**

Electrician-Utility Work (North) rates are located in the "Statewide" rate package.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Electrician-Utility Work (South)**

**PREVAILING WAGE RATE**

Rates are located in the "Statewide" rate package

**Craft: Electrician-Utility Work (South)**

**APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
6 Months	26.72	28.95	31.18	33.41	35.63	37.86	40.09			
Benefits	23.08	24.40	25.72	27.02	28.33	29.64	30.94			

**Craft: Electrician-Utility Work (South)**

**COMMENTS/NOTES**

Electrician-Utility Work (South) rates are located in the "Statewide" rate package.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Elevator Constructor**

**PREVAILING WAGE RATE**

	03/17/16	03/17/17	03/17/18
Journeyman	W60.96	W62.64	W64.48
	B39.77	B41.56	B43.36
	T100.73	T104.20	T107.84

**Craft: Elevator Constructor**

**APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
	Yearly	27.22	33.53	39.62	45.72					
Benefits	31.75	32.88	34.41	35.93						

**Ratio of Apprentices to Journeymen - 1:1**

**Craft: Elevator Constructor**

**COMMENTS/NOTES**

The regular workday shall consist of either 7 or 8 hours to be established at the beginning of the project, between 7:00 AM and 4:30 PM.

**OVERTIME:**

For all hours worked before or after the regular workday, Monday through Friday, and all hours on Saturday and Sunday, shall be paid at double the hourly rate. Holiday pay is one days wages (8 hours) plus double the hourly rate for all hours worked.

**RECOGNIZED HOLIDAYS:** New Year's Day, Presidents' Day, Good Friday, Memorial Day, July 4th, Labor Day, Columbus Day, Veterans' Day, Thanksgiving Day and the day after, Christmas Day. Saturday holidays shall be observed on the previous Friday and Sunday holidays shall be observed on the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Elevator Modernization & Service**

**PREVAILING WAGE RATE**

	03/17/16	03/17/17	03/17/18
Journeyman	W47.91 B38.17 T86.08	W49.14 B39.91 T89.05	W50.49 B41.66 T92.15

**Craft: Elevator Modernization & Service**

**APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
Yearly	27.22	26.35	31.14	35.93						
Benefits	31.68	31.99	33.37	34.74						

**Ratio of Apprentices to Journeymen - 1:1**

**Craft: Elevator Modernization & Service**

**COMMENTS/NOTES**

MODERNIZATION (addition, replacement, refurbishing, relocation, or changes in design or appearance, of elevator equipment in existing buildings):

- The regular workday consists of 8 hours, between 7:00 AM and 4:30 PM.

- Overtime:

Hours in excess of 8 per day, or before or after the regular workday, Monday through Friday, and all hours on Saturday and Sunday shall be paid at time and one-half the hourly rate. Holiday pay is one days wages (8 hours) plus time and one-half the hourly rate for all hours worked.

SERVICE (repair or replacement of parts for the purpose of maintaining elevator equipment in good operating condition):

- The regular workday consists of 8 hours, between 6:00 AM and 6:00 PM.

- Overtime:

Hours in excess of 8 per day, or before or after the regular workday, Monday through Friday, and all hours on Saturday shall be paid at time and one-half the hourly rate. All hours on Sunday and holidays shall be paid at double the hourly rate.

RECOGNIZED HOLIDAYS (Modernization and Service): New Year's Day, Presidents' Day, Good Friday, Memorial Day, July 4th, Labor Day, Columbus Day, Veterans' Day, Thanksgiving Day and the day after, Christmas Day. Saturday holidays shall be observed on the previous Friday and Sunday holidays shall be observed on the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Glazier                      PREVAILING WAGE RATE**

	06/20/16
Foreman	W47.39 B23.26 T70.65
General Foreman	W49.39 B23.50 T72.89
Journeyman	W43.39 B22.78 T66.17

**Craft: Glazier                      APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
	30%	40%	50%	60%	70%	75%	80%	85%	90%	
4 Months										
Benefits	Intervals	1 to 3 =	6.51	Intervals	4 to 6 =	9.33	Intervals	7 to 9 =	11.67	

**Ratio of Apprentices to Journeymen - 1:4**

**Craft: Glazier                      COMMENTS/NOTES**

APPRENTICE RATE SCHEDULE FOR THOSE APPRENTICES ENTERING PROGRAM AS OF 5-1-14:

INTERVAL	PERIOD AND RATES							
6 Months	50%	55%	60%	65%	70%	75%	80%	90%
Benefits	8.10	8.10	10.34	10.34	11.51	11.51	14.62	14.62

Hazard/Height Pay: +\$1.00 per hour

**FOREMAN REQUIREMENTS:**

- When there are 4 or more Glaziers on a job, 1 must be designated a Foreman.
- When there are 15 or more Glaziers on a job, 1 must be designated a General Foreman.

The regular workday shall consist of 8 hours, between 7:00 AM and 5:30 PM, Monday to Friday.

**SHIFT DIFFERENTIALS:**

- The second shift shall receive an additional 10% of the hourly rate, per hour, and the third shift shall receive an additional 15% of the hourly rate, per hour.
- When 3 shifts are worked, the second shift shall receive 8 hours pay for 7.5 hours of work, and the third shift shall receive 8 hours pay for 7 hours of work.

**OVERTIME:**

Hours in excess of 8 per day, or before or after the regular workday Monday through Friday, and all hours on Saturdays shall be paid at time and one-half the regular rate. All hours on Sundays and holidays shall be paid at double the regular rate.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

RECOGNIZED HOLIDAYS: New Year's Day, Memorial Day, July 4th, Labor Day, General Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Saturday holiday observed the preceding Friday. Sunday holiday observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Heat & Frost Insulator**

**PREVAILING WAGE RATE**

	10/17/16
Foreman	W52.52 B30.17 T82.69
General Foreman	W55.07 B31.28 T86.35
Journeyman	W51.24 B29.61 T80.85

**Craft: Heat & Frost Insulator**

**APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
Yearly	23.77	28.19	34.05	39.96						
Benefits	17.83	21.08	23.21	25.16						

**Ratio of Apprentices to Journeymen - 1:3**

**Craft: Heat & Frost Insulator**

**COMMENTS/NOTES**

NOTE: These rates apply to the installing of insulation on hot and cold mechanical systems.

The regular workday shall be 8 hours between 8:00 AM and 4:30 PM.

**SHIFT DIFFERENTIAL:**

- Shift work must run for a minimum of 5 consecutive workdays.
- Second Shift shall work 7.5 hours and receive 8 hours pay, at the regular rate, plus 25% per hour.
- Third Shift shall work 7 hours and receive 8 hours pay, at the regular rate, plus 30% per hour.

**OVERTIME:**

The first 2 hours in excess of 8 per day, hours outside of the regular workday Monday through Friday that are not shift work, and the first 10 hours on Saturday, shall be paid at time and one-half the regular rate, inclusive of benefits. All hours in excess of 10 per day, and all hours on Sunday and holidays (except Labor Day) shall be paid at double the regular rate, inclusive of benefits. All hours on Labor Day shall be paid at triple the regular rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, President's Day, Memorial Day, July 4th, Labor Day, Veterans' Day, Presidential Election Day, Thanksgiving Day and Christmas Day. Sunday holidays observed the following Monday.



**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

County - UNION

**Craft: Heat & Frost Insulator - Asbestos Worker**

**PREVAILING WAGE RATE**

	10/17/16
Asbestos Helper Abatement	W33.52 B22.69 T56.21
Firestop/Hazmat	W26.93 B9.25 T36.18
Foreman	W52.52 B30.17 T82.69

**Craft: Heat & Frost Insulator - Asbestos Worker**

**APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
	SEE	HEAT &	FROST	INSULAT OR						

**Ratio of Apprentices to Journeymen - 1:3**

**Craft: Heat & Frost Insulator - Asbestos Worker**

**COMMENTS/NOTES**

NOTE: These rates apply only to the removal of insulation materials/asbestos from mechanical systems, including containment erection and demolition, and placing material in appropriate containers.

The regular workday shall be 8 hours between 8:00 AM and 4:30 PM.

**SHIFT DIFFERENTIALS:**

- Shift work must run for a minimum of 5 consecutive workdays.
- The second shift shall work 7.5 hours and receive 8 hours pay at the regular rate, plus 25% per hour.
- The third shift shall work 7 hours and receive 8 hours pay at the regular rate, plus 30% per hour.

**OVERTIME:** The first 2 hours in excess of 8 per day, hours outside of the regular workday Monday through Friday that are not shift work, and the first 10 hours on Saturday, shall be paid at time and one-half the regular rate, inclusive of benefits. All hours in excess of 10 per day, and all hours on Sunday and holidays (except Labor Day) shall be paid at double the regular rate, inclusive of benefits. All hours on Labor Day shall be paid at triple the regular rate, inclusive of benefits.

**RECOGNIZED HOLIDAYS:** New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Veterans' Day, Presidential Election Day, Thanksgiving Day and Christmas Day. Sunday holidays observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Ironworker                      PREVAILING WAGE RATE**

	08/02/16	07/01/17
Rod /Fence Foreman	W42.24 B44.27 T86.51	W0.00 B0.00 T88.51
Rod/Fence Journeyman	W39.24 B44.27 T83.51	W0.00 B0.00 T85.51
Structural Foreman	W44.54 B44.27 T88.81	W0.00 B0.00 T90.56
Structural Journeyman	W41.54 B44.27 T85.81	W0.00 B0.00 T87.56

**Craft: Ironworker                      APPRENTICE RATE SCHEDULE**

<u>INTERVAL</u>	<u>PERIOD AND RATES</u>									
6 Months	50%	60%		Yearly	70%	80%	90%			

**Ratio of Apprentices to Journeymen - 1:4**

**Craft: Ironworker                      COMMENTS/NOTES**

**HAZARDOUS WASTE WORK:** On hazardous waste removal work on a state or federally designated hazardous waste site where the Ironworker is required to wear Level A,B, or C personal protection: + \$3.00 per hour

The regular workday consists of 8 hours between 6:00 AM and 4:30 PM.

**FOREMAN REQUIREMENTS:**

When there are 2 or more Ironworkers on a job, 1 shall be designated a Foreman.

**SHIFT DIFFERENTIALS:**

- When a 2 shift schedule is established, the first, or day shift , shall be established on an 8 hour basis .The second shift shall be established on an 8 hour basis, and receive the regular rate plus 15%.
- When a three shift schedule is established, the first shift shall be established on an 8 hour basis, the second shift on a 7.5 hour basis, and the third shift on a 7 hour basis. The first shift shall receive the regular hourly rate, the second shift shall receive the regular rate plus 15%, and the third shift shall receive the regular rate plus 20%.
- When there is no day shift, and a second or third shift is established, it shall be established on an 8 hour basis.
- When an irregular shift is established for the Ironworker (Structural) classification, the rate shall be paid at time and one-half the regular rate, inclusive of benefits. When an irregular shift is established for the Rod/Fence classification, the shift shall be established on an 8 hour basis and receive the regular rate, plus 20%.

**OVERTIME:**

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

- All hours in excess of 8 per day, or before or after an established shift that are not shift work, and all hours on Saturday, shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on Sunday and holidays shall be paid at double the hourly rate, inclusive of benefits. Saturday may be used as a make-up day for a day lost to inclement weather. If Saturday is not a make-up day, all hours on Saturday shall be paid at time and one-half the hourly rate, inclusive of benefits.

- Four 10-hour days may be worked, Monday to Thursday, at straight time. Friday may be used as a make-up day for a day lost to inclement weather. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the hourly rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans Day, Thanksgiving Day, Christmas Day.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

County - UNION

**Craft: Laborer - Asbestos & Hazardous Waste Removal**

**PREVAILING WAGE RATE**

	04/07/16
Journeyman (Handler)	W29.87 B22.92 T52.79

**Craft: Laborer - Asbestos & Hazardous Waste Removal**

**APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
Yearly	17.92	20.91	23.90	26.88						
Benefits	21.27	for	all	intervals						

**Ratio of Apprentices to Journeymen - \***

\* Ratio of apprentices to journeymen shall not be more than one apprentice for the first journeyman and no more than (1) apprentice for each additional three (3) journeymen.

**Craft: Laborer - Asbestos & Hazardous Waste Removal**

**COMMENTS/NOTES**

NOTE: These rates apply to work in connection with Asbestos, Radiation, Hazardous Waste, Lead, Chemical, Biological, Mold Remediation and Abatement.

The regular workday shall be 8 hours between 6:00 AM and 6:00 PM.

**OVERTIME:**

- Hours in excess of 8 per day, Monday through Saturday, and all hours on Sunday and holidays shall be paid at time and one-half the regular rate.
- When the owner (Public Body) mandates that work is to be performed on Sunday, those hours may be worked at straight time, up to 8 hours per day, up to 40 hours per week.
- Benefits on ALL overtime hours shall be paid at straight time.

RECOGNIZED HOLIDAYS: New Year's Day, President's Day, Good Friday, Easter, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Laborer - Building**

**PREVAILING WAGE RATE**

	05/04/16	11/01/16	05/01/17	11/01/17	05/01/18
Class A Journeyman	W31.30 B26.57 T57.87	W31.55 B27.22 T58.77	W0.00 B0.00 T59.67	W0.00 B0.00 T60.72	W0.00 B0.00 T62.57
Class B Journeyman	W30.80 B26.57 T57.37	W31.05 B27.22 T58.27	W0.00 B0.00 T59.17	W0.00 B0.00 T60.22	W0.00 B0.00 T62.07
Class C Journeyman	W26.18 B26.57 T52.75	W26.43 B27.22 T53.65	W0.00 B0.00 T54.55	W0.00 B0.00 T55.60	W0.00 B0.00 T57.45
Foreman	W35.21 B26.57 T61.78	W35.46 B27.22 T62.68	W0.00 B0.00 T63.58	W0.00 B0.00 T64.63	W0.00 B0.00 T66.48
General Foreman	W39.13 B26.57 T65.70	W39.38 B27.22 T66.60	W0.00 B0.00 T67.50	W0.00 B0.00 T68.55	W0.00 B0.00 T70.40

**Craft: Laborer - Building**

**APPRENTICE RATE SCHEDULE**

<b>INTERVAL</b>	<b>PERIOD AND RATES</b>									
	60%	70%	80%	90%						
6 Months										
Benefit	23.97	23.97	23.97	23.97						

**Ratio of Apprentices to Journeymen - \***

\* Ratio of apprentices to journeymen shall not be more than one apprentice for the first journeyman and no more than (1) apprentice for each additional three (3) journeymen.

**Craft: Laborer - Building**

**COMMENTS/NOTES**

CLASS A: Specialist laborer including mason tender or concrete pour crew; scaffold builder (scaffolds up to 14 feet in height); operator of forklifts, Bobcats (or equivalent machinery), jack hammers, tampers, motorized tampers and compactors, vibrators, street cleaning machines, hydro demolition equipment, riding motor buggies, conveyors, burners; and nozzle men on gunite work.

CLASS B: Basic laborer - includes all laborer work not listed in Class A or Class C.

CLASS C: Janitorial-type light clean-up work associated with the TURNOVER of a project, or part of a project, to the owner. All other clean-up work is Class B.

The regular workday shall be 8 hours between 6:00 AM and 6:00 PM.

**SHIFT DIFFERENTIALS:**

- Shift work must run for a minimum of 5 consecutive workdays.
- When a 2-shift schedule is worked, including a day shift, both shifts shall be established on the basis of 8 hours pay for 8 hours worked. The second shift shall receive the regular rate plus an additional 10%.
- When a 3-shift schedule is worked, the day shift shall be established on the basis of 8 hours pay for 8 hours worked, the second shift shall be established on the basis of 8 hours pay for 7.5 hours worked, and the third shift shall be established

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

on the basis of 8 hours pay for 7 hours worked. The day shift shall receive the regular rate, the second shift shall receive the regular rate plus an additional 10%, and the third shift shall receive the regular rate plus an additional 15%.

- When a second or third shift is worked with no day shift, the second or third shift shall be established on the basis of 8 hours pay for 8 hours worked. The second shift shall receive the regular rate plus an additional 10%, and the third shift shall receive the regular rate plus an additional 15%.

**OVERTIME:**

- Hours in excess of 8 per day, or outside the regular workday that are not shift work, Monday through Friday, and all hours on Saturdays shall be paid at time and one-half the regular rate. Saturday may be used as a make-up day (paid at straight time) for a day lost to inclement weather, or for a holiday that is observed during the work week, Monday through Friday. All hours on Sundays and holidays shall be paid at double the regular rate.

- Four 10-hour days may be worked Monday to Thursday, at straight time, with Friday used a make-up day for a day lost to inclement weather. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the regular rate.

- Benefits on ALL overtime hours shall be paid at time and one-half.

**RECOGNIZED HOLIDAYS:** New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Laborer - Heavy & General**

**PREVAILING WAGE RATE**

Rates are located in the  
"Statewide" rate package

**Craft: Laborer - Heavy & General**

**APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
1000 Hours	60%	70%	80%	90%						
Benefit	18.78	for	all	intervals						

**Ratio of Apprentices to Journeymen - \***

\* No more than 1 apprentice for the first journeyman and no more than 1 apprentice for each additional 3 journeymen.

**Craft: Laborer - Heavy & General**

**COMMENTS/NOTES**

Heavy & General Laborer rates are located in the "Statewide" rate package.

With respect to the APPRENTICE RATE SCHEDULE, the following shall apply:

- On 9-1-16- benefits shall be \$18.78.
- On 3-1-17- benefits shall be \$19.53.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

County - UNION

**Craft: Millwright                      PREVAILING WAGE RATE**

	05/01/16	11/01/16
Foreman	W52.96 B31.31 T84.27	W53.53 B31.65 T85.18
Journeyman	W46.05 B27.30 T73.35	W46.55 B27.60 T74.15

**Craft: Millwright                      APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
6 Months	40%	45%	50%	55%	60%	65%	70%	75%	85%	95%
Benefits	58% of	Appren	tice	Wage	Rate	for all	intervals	+ \$.60		

**Ratio of Apprentices to Journeymen - 1:3**

**Craft: Millwright                      COMMENTS/NOTES**

**FOREMAN REQUIREMENTS:**

- When there are 2 or more Millwrights on a job, 1 shall be designated as a Foreman.
- When there are 21 or more Millwrights on a job, 2 shall be designated as Foremen.

The regular workday shall consist of 8 hours, starting between 7:00 AM and 9:00 AM.

**SHIFT DIFFERENTIALS:**

- When a 2 shift schedule (including a day shift) is established, the day shift shall be established on an 8 hour basis. The second shift shall be established on an 8 hour basis, and receive the regular rate plus 15%, inclusive of benefits.
- When a three shift schedule is established, the first shift shall be established on an 8 hour basis, the second shift on a 7.5 hour basis, and the third shift on a 7 hour basis. The first shift shall receive the regular hourly rate, the second shift shall receive the regular rate plus 15% and the third shift shall receive the regular rate plus 20%, inclusive of benefits.
- When there is no day shift, and a second or third shift is established, it shall be established on an 8 hour basis. The second shift shall receive the regular rate plus 15% and the third shift shall receive the regular rate plus 20%, inclusive of benefits.

**OVERTIME:**

- All hours in excess of 8 per day, or before or after an established shift that are not shift work, and all hours on Saturdays shall be paid at time and one-half the hourly rate, inclusive of benefits. All hours on Sundays and holidays shall be paid at double the hourly rate, inclusive of benefits.
- Four 10-hour days may be worked, Monday to Thursday, at straight time. Friday may be used as a make-up day for a day lost due to inclement weather. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the hourly rate, inclusive of benefits.

**RECOGNIZED HOLIDAYS:** New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays will be observed the following Monday.



**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Operating Engineer                      PREVAILING WAGE RATE**

Rates are located in the  
"Statewide" rate package

**Craft: Operating Engineer                      APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
Yearly	60%	70%	80%	90%						

**Ratio of Apprentices to Journeymen - \***

\* 1 apprentice for each piece of heavy equipment. At least 10 pieces of heavy equipment or a minimum of 5 Operating Engineers must be on site.

**Craft: Operating Engineer                      COMMENTS/NOTES**

Operating Engineer rates are located in the "Statewide" rate package.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Operating Engineer - Field Engineer**

**PREVAILING WAGE RATE**

Rates are located in the  
"Statewide" rate package

**Craft: Operating Engineer - Field Engineer**

**APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
Yearly	70%	75%	of Rod/	Chainman	Wage					
Yearly			80%	90%	Transit/	Instrument	man	Wage		

**Ratio of Apprentices to Journeymen - \***

\* No more than 1 Field Engineer Apprentice per Survey Crew.

**Craft: Operating Engineer - Field Engineer**

**COMMENTS/NOTES**

Operating Engineer - Field Engineer rates are located in the "Statewide" rate package.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Painter - Bridges**

**PREVAILING WAGE RATE**

	05/01/16	05/01/17
Foreman	W57.38 B26.92 T84.30	W61.13 B25.67 T86.80
General Foreman	W59.38 B26.92 T86.30	W63.13 B25.67 T88.80
Journeyman	W52.38 B26.92 T79.30	W56.13 B25.67 T81.80

**Craft: Painter - Bridges**

**APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
	40%	50%			60%	70%		80%	90%	
6 Months										
Benefits	Intervals	1 to 2 =	8.88	Intervals	3 to 4 =	10.81	Intervals	5 to 6 =	13.48	

**Ratio of Apprentices to Journeymen - 1:4**

**Craft: Painter - Bridges**

**COMMENTS/NOTES**

These rates apply to: All bridges that span waterways, roadways, railways and canyons. All tunnels, overpasses, viaducts and all appurtenances.

**FOREMEN REQUIREMENTS:**

- When there are 4 or more Painters on a job, 1 shall be designated a Foreman.
- When there are 15 or more Painters on a job, 1 shall be designated a General Foreman.

The regular workday shall consist of 8 hours between 7:00 AM and 5:30 PM.

**SHIFT DIFFERENTIALS:**

- The second shift shall receive an additional 10% of the hourly rate, per hour, and the third shift shall receive an additional 15% of the hourly rate, per hour.

**OVERTIME:**

- Hours in excess of 8 per day, Monday through Friday, and all hours on Saturdays and Sundays shall be paid at time and one-half the regular rate. All hours on holidays shall be paid at double the regular rate.
- Saturday or Sunday may be used to make up a day lost to inclement weather, at straight time.
- Four 10-hour days may be worked, at straight time, Monday through Friday.

**RECOGNIZED HOLIDAYS:** New Year's Day, President's Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Saturday holiday observed the preceding Friday. Sunday holiday observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Painter - Line Striping**

**PREVAILING WAGE RATE**

	12/01/15	12/01/16	12/01/17
Foreman (Charge Person)	W35.80 B16.10 T51.90	W36.80 B16.90 T53.70	W38.05 B17.74 T55.79
Helper (1st Year)	W28.05 B16.10 T44.15	W29.05 B16.90 T45.95	W30.30 B17.74 T48.04
Helper (2nd Year)	W29.38 B16.10 T45.48	W30.38 B16.90 T47.28	W31.63 B17.74 T49.37
Helper (3rd Year)	W31.53 B16.10 T47.63	W32.53 B16.90 T49.43	W33.78 B17.74 T51.52
Journeyman	W35.30 B16.10 T51.40	W36.30 B16.90 T53.20	W37.55 B17.74 T55.29

**Craft: Painter - Line Striping**

**COMMENTS/NOTES**

**OVERTIME:**

Hours in excess of 8 per day, Monday through Saturday, and all hours on Sundays and holidays shall be paid at time and one-half the hourly rate.

**RECOGNIZED HOLIDAYS:** New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Veterans Day, Thanksgiving Day and Christmas Day. Veterans Day may be substituted for the day after Thanksgiving.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Painter - New Construction**

**PREVAILING WAGE RATE**

	05/01/16	05/01/17
Foreman	W42.26 B22.94 T65.20	W44.39 B22.35 T66.74
General Foreman	W46.10 B23.40 T69.50	W48.43 B22.81 T71.24
Journeyman	W38.42 B22.49 T60.91	W40.36 B21.90 T62.26

**Craft: Painter - New Construction**

**APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
	30%	40%	50%	60%	70%	75%	80%	85%	90%	
4 Months										
Benefits	Intervals	1 to 3 =	8.00	Intervals	4 to 6 =	10.00	Intervals	7 to 9 =	11.00	

**Ratio of Apprentices to Journeymen - 1:4**

**Craft: Painter - New Construction**

**COMMENTS/NOTES**

APPRENTICE RATE SCHEDULE FOR THOSE APPRENTICES ENTERING PROGRAM ON 5-1-14:

INTERVAL	PERIOD AND RATES							
6 Months	40%	45%	55%	65%	70%	75%	80%	90%
Benefits	8.00	8.00	10.00	10.00	11.00	11.00	14.00	14.00

Spraying, sandblasting, lead abatement, work on tanks or stacks, work performed above 3 stories or 30 feet in height, or using swing scaffolds requires an additional 10% of the wage rate.

**FOREMEN REQUIREMENTS:**

- When there are 4 or more Painters on a job, 1 shall be designated a Foreman.
- When there are 15 or more Painters on a job, 1 shall be designated a General Foreman.

The regular workday shall consist of 8 hours between 7:00 AM and 5:30 PM.

**SHIFT DIFFERENTIALS:**

- The second shift shall receive an additional 10% of the hourly rate, per hour, and the third shift shall receive an additional 15% of the hourly rate, per hour.

**OVERTIME:**

- Hours in excess of 8 per day, or before or after the regular workday, Monday through Friday, and all hours on Saturdays shall be paid at time and one-half the regular rate. All hours on Sundays and holidays shall be paid at double the regular rate.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

- Saturday or Sunday may be used to make up a day lost to inclement weather, at straight time.
- Four 10-hour days may be worked, at straight time, Monday through Friday.

RECOGNIZED HOLIDAYS: New Year's Day, President's Day, Memorial Day, July 4th, Labor Day, General Election Day, Veterans' Day, Thanksgiving Day, Christmas Day.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Painter - Repainting**

**PREVAILING WAGE RATE**

	05/01/16	05/01/17
Foreman	W31.59 B18.45 T50.04	W34.17 B18.45 T52.62
General Foreman	W34.45 B18.87 T53.32	W37.39 B18.45 T55.84
Journeyman	W28.74 B18.87 T47.61	W31.16 B18.45 T49.61

**Craft: Painter - Repainting**

**APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
	SEE	PAINTER	NEW	CONSTR	TION					
				UC						

**Ratio of Apprentices to Journeymen - 1:4**

**Craft: Painter - Repainting**

**COMMENTS/NOTES**

NOTE: These rates may only be used on jobs where no major alterations occur, and where not more than 3 other trades are present on the job, but may NOT, under any circumstances, be used for work on bridges, stacks, elevated tank, or generating stations.

Spraying, sandblasting, lead abatement, work on tanks or stacks, work performed above 3 stories or 30 feet in height, or using swing scaffolds requires an additional 10% of the wage rate.

**FOREMEN REQUIREMENTS:**

- When there are 4 or more Painters on a job, 1 shall be designated a Foreman.
- When there are 15 or more Painters on a job, 1 shall be designated a General Foreman.

**OVERTIME:**

- Hours in excess of 8 per day and 40 per week shall be paid at time and one-half the regular rate. All hours on Sundays and holidays shall be paid at double the regular rate.
- Four 10-hour days may be worked, at straight time, Monday through Sunday.

**RECOGNIZED HOLIDAYS:** New Year's Day, President's Day, Memorial Day, July 4th, Labor Day, General Election Day, Veterans' Day, Thanksgiving Day, Christmas Day.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Painter- Containment**

**PREVAILING WAGE RATE**

	05/01/16	05/01/17
Journeyman	W33.43 B23.92 T57.35	W37.68 B22.92 T60.60

**Craft: Painter- Containment**

**COMMENTS/NOTES**

NOTE: These rates shall require no painting, but used in a supporting capacity only, such as wrapping, boxing, fencing, etc. on tanks.

The regular workday shall consist of 8 hours between 7:00 AM and 5:30 PM.

**SHIFT DIFFERENTIALS:**

- The second shift shall receive an additional 10% of the hourly rate, per hour, and the third shift shall receive an additional 15% of the hourly rate, per hour.

**OVERTIME:**

- Hours in excess of 8 per day, Monday through Friday, and all hours on Saturdays and Sundays shall be paid at time and one-half the regular rate. All hours on holidays shall be paid at double the regular rate..

- Four 10-hour days may be worked, at straight time, Monday through Friday.

**RECOGNIZED HOLIDAYS:** New Year's Day President's Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Saturday holiday observed the preceding Friday. Sunday holiday observed the following Monday.



**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

County - UNION

**Craft: Painter-Elevated Water Tanks**

**PREVAILING WAGE RATE**

	05/01/16	05/01/17
Foreman	W47.17 B24.17 T71.34	W50.92 B22.92 T73.84
General Foreman	W49.17 B24.17 T73.34	W52.92 B22.92 T75.84
Journeyman	W42.17 B24.17 T66.34	W45.92 B22.92 T68.84

**Craft: Painter-Elevated Water Tanks**

**APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
	SEE	PAINTER	BRIDGES							

**Craft: Painter-Elevated Water Tanks**

**COMMENTS/NOTES**

These rates apply to: All new and repaint elevated water tanks (interior and exterior).

**FOREMEN REQUIREMENTS:**

- When there are 4 or more Painters on a job, 1 shall be designated a Foreman.
- When there are 15 or more Painters on a job, 1 shall be designated a General Foreman.

The regular workday shall consist of 8 hours between 7:00 AM and 5:30 PM.

**SHIFT DIFFERENTIALS:**

- The second shift shall receive an additional 10% of the hourly rate, per hour, and the third shift shall receive an additional 15% of the hourly rate, per hour.

**OVERTIME:**

- Hours in excess of 8 per day, Monday through Friday, and all hours on Saturdays and Sundays shall be paid at time and one-half the regular rate. All hours on holidays shall be paid at double the regular rate.
- Saturday or Sunday may be used to make up a day lost to inclement weather, at straight time.
- Four 10-hour days may be worked, at straight time, Monday through Friday.

**RECOGNIZED HOLIDAYS:** New Year's Day, President's Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Saturday holiday observed the preceding Friday. Sunday holiday observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Painter-Structural Steel**

**PREVAILING WAGE RATE**

	05/01/16	05/01/17
Foreman	W46.12 B24.51 T70.63	W49.87 B23.26 T73.13
General Foreman	W48.12 B24.51 T72.63	W51.87 B23.26 T75.13
Journeyman	W41.12 B24.51 T65.63	W44.87 B23.26 T68.13

**Craft: Painter-Structural Steel**

**APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
	SEE	PAINTER	BRIDGES							

**Craft: Painter-Structural Steel**

**COMMENTS/NOTES**

These rates apply to: All work in power plants (any aspect). On steeples, on dams, on hangers, transformers, substations, etc. and on open steel, whether new or repaint. All new work (excluding traditional commercial painting work) in refineries, tank farms, water/sewerage treatment facilities and on pipelines.

**FOREMEN REQUIREMENTS:**

- When there are 4 or more Painters on a job, 1 shall be designated a Foreman.
- When there are 15 or more Painters on a job, 1 shall be designated a General Foreman.

The regular workday shall consist of 8 hours between 7:00 AM and 5:30 PM.

**SHIFT DIFFERENTIALS:**

- The second shift shall receive an additional 10% of the hourly rate, per hour, and the third shift shall receive an additional 15% of the hourly rate, per hour.

**OVERTIME:**

- Hours in excess of 8 per day, Monday through Friday, and all hours on Saturdays and Sundays shall be paid at time and one-half the regular rate. All hours on holidays shall be paid at double the regular rate.
- Saturday or Sunday may be used to make up a day lost to inclement weather, at straight time.
- Four 10-hour days may be worked, at straight time, Monday through Friday.

**RECOGNIZED HOLIDAYS:** New Year's Day, President's Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Saturday holiday observed the preceding Friday. Sunday holiday observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

County - UNION

**Craft: Paperhanger - New Construction**

**PREVAILING WAGE RATE**

	05/01/16	05/01/17
Foreman	W43.25 B22.59 T65.84	W45.32 B21.44 T66.76
Journeyman	W39.32 B22.59 T61.91	W41.20 B22.01 T63.21

**Craft: Paperhanger - New Construction**

**APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
	30%	40%	50%	60%	70%	75%	80%	85%	90%	
4 Months										
Benefits	Intervals	1 to 3 =	8.00	Intervals	4 to 6 =	10.00	Intervals	7 to 9 =	11.00	

**Ratio of Apprentices to Journeymen - 1:4**

**Craft: Paperhanger - New Construction**

**COMMENTS/NOTES**

APPRENTICE RATE SCHEDULE FOR THOSE APPRENTICES ENTERING PROGRAM ON 5-1-14:

INTERVAL	PERIOD AND RATES								
6 Months	40%	45%	55%	65%	70%	75%	80%	90%	
Benefits	8.00	8.00	10.00	10.00	11.00	11.00	14.00	14.00	

**FOREMEN REQUIREMENTS:**

- When there are 4 or more Paperhangers on a job, 1 shall be designated a Foreman.

The regular workday shall consist of 8 hours between 7:00 AM and 5:30 PM.

**SHIFT DIFFERENTIALS:**

- The second shift shall receive an additional 10% of the hourly rate, per hour, and the third shift shall receive an additional 15% of the hourly rate, per hour.

**OVERTIME:**

- Hours in excess of 8 per day, Monday through Friday, and all hours on Saturdays shall be paid at time and one-half the regular rate. All hours on Sundays and holidays shall be paid at double the regular rate.
- Saturday or Sunday may be used to make up a day lost to inclement weather, at straight time.
- Four 10-hour days may be worked, at straight time, Monday through Friday.

**RECOGNIZED HOLIDAYS:** New Year's Day, President's Day, Memorial Day, July 4th, Labor Day, General Election Day, Veterans' Day, Thanksgiving Day, Christmas Day.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

County - UNION

**Craft: Paperhanger - Renovation**

**PREVAILING WAGE RATE**

	05/01/16	05/01/17
Foreman	W32.39 B18.96 T51.35	W35.06 B18.53 T53.59
Journeyman	W29.45 B18.96 T48.41	W31.88 B18.53 T50.41

**Craft: Paperhanger - Renovation**

**APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
	SEE	PAPER-	HANGER	NEW	CONSTR	TION				
					UC					

**Ratio of Apprentices to Journeymen - 1:4**

**Craft: Paperhanger - Renovation**

**COMMENTS/NOTES**

NOTE: These rates may only be used on jobs where no major alterations occur, and where not more than 3 other trades are present on the job, but may NOT, under any circumstances, be used for work on bridges, stacks, elevated tanks, or generating stations.

**FOREMEN REQUIREMENTS:**

- When there are 4 or more Paperhangers on a job, 1 shall be designated a Foreman.

**OVERTIME:**

- Hours in excess of 8 per day and 40 per week shall be paid at time and one-half the regular rate.

- Four 10-hour days may be worked, at straight time, Monday through Sunday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT**  
**PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Pipefitter** **PREVAILING WAGE RATE**

	05/04/16	05/01/17	05/01/18	05/01/19
Foreman	W51.07	W0.00	W0.00	W0.00
	B40.18	B0.00	B0.00	B0.00
	T91.25	T93.35	T95.57	T97.79
Journeyman	W47.32	W0.00	W0.00	W0.00
	B37.25	B0.00	B0.00	B0.00
	T84.57	T86.67	T88.89	T91.11

**Craft: Pipefitter** **APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES										
	Yearly	35%	45%	55%	65%	75%					
Benefit	14.46	18.16	21.89	25.48	27.82						

**Ratio of Apprentices to Journeymen - 1:5**

**Craft: Pipefitter** **COMMENTS/NOTES**

**FOREMAN REQUIREMENTS:**

- When there are 2 or more Journeyman Pipefitters on a job, 1 shall be designated a Foreman.
- There shall be a Foreman for every 8 Journeyman Pipefitters on a job.

The regular workday shall be 8 hours between 7:00 AM and 3:30 PM.

**SHIFT DIFFERENTIAL:**

- 2nd Shift (3:30 PM-11:30 PM) shall work 7.5 hours and receive 8 hours pay at the regular rate, plus 25% per hour.
- 3rd Shift (11:30 PM-7:00 AM) shall work 7 hours and receive 8 hours pay at the regular rate, plus 30% per hour.

**OVERTIME:**

- All hours worked in excess of 8 per day, Monday through Friday, and all hours worked on Saturday, shall be paid at time and one-half, inclusive of benefits. All hours on Sunday and holidays shall be paid at double time, inclusive of benefits.
- By mutual agreement, employees may work four 10-hour days, Monday to Thursday, at straight time rate. Friday may be used as a make-up day for a day lost to inclement weather, and may be paid at straight time. If Friday is not a make-up day, the first 8 hours shall be paid at time and one-half, inclusive of benefits; hours in excess of 8 shall be paid at double time, inclusive of benefits.

**SHIFT DIFFERENTIAL (Maintenance Work Only):**

- 2nd Shift (3:30 PM-11:30 PM) shall work 7.5 hours and receive 8 hours pay at the regular rate, plus 10% per hour.
- 3rd Shift (11:30 PM-7:00 AM) shall work 7 hours and receive 8 hours pay at the regular rate, plus 15% per hour.

**OVERTIME (Maintenance Work Only):**

- All hours in excess of 8 per day, Monday through Saturday, shall be paid at time and one-half, inclusive of benefits. All hours on Sundays and holidays shall be paid at double time, inclusive of benefits.

**NOTE:** Maintenance work is work to repair, restore, or improve the efficiency of existing facilities. This does NOT apply to

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

ANY new construction.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays are observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Plasterer**

**PREVAILING WAGE RATE**

See Bricklayer, Stone Mason Rates

**Craft: Plasterer**

**COMMENTS/NOTES**

\*\*\*See BRICKLAYER, STONE MASON Rates\*\*\*

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Plumber                      PREVAILING WAGE RATE**

	05/04/16
Foreman	W55.52 B32.99 T88.51
General Foreman	W59.12 B32.99 T92.11
Journeyman	W51.41 B32.99 T84.40

**Craft: Plumber                      APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
Yearly	30%	45%	55%	65%	75%					
Benefits	12.77	18.77	20.44	22.13	23.80					

**Ratio of Apprentices to Journeymen - \***

\* Employers may employ 1 apprentice on any job where 1 or 2 journeymen are employed. Thereafter, 1 apprentice may be employed for every 4 journeymen.

**Craft: Plumber                      COMMENTS/NOTES**

**FOREMAN REQUIREMENTS:**

- On any job having 2 or more Plumbers, 1 must be designated a Foreman.
- On any job having 9 or more Plumbers, 2 shall be designated as Foremen.

The regular workday shall consist of 8 hours between 7:00 AM and 4:30 PM.

**SHIFT DIFFERENTIALS:**

- Shift work must continue for a minimum of 5 consecutive workdays.
- When two shifts are worked, the second shift shall work 7.5 hours and receive 8 hours pay, at a rate equal to the hourly rate plus 10%, inclusive of benefits.
- When a third shift is worked, the third shift shall work 7 hours and receive 8 hours pay, at a rate equal to the hourly rate plus 15%, inclusive of benefits.

**OVERTIME:**

- All hours in excess of 8 per day, or before or after the regular workday that are not shift work, Monday through Friday, and all hours on Saturday, shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on Sunday and holidays, shall be paid at double the hourly rate, inclusive of benefits.
- Four 10-hour days may be worked, Monday to Thursday, at straight time. Friday may be used as a make-up day for a day lost due to inclement weather. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half, inclusive of benefits.

**RECOGNIZED HOLIDAYS:** New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays will be observed the following Monday.



**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

County - UNION

**Craft: Roofer                      PREVAILING WAGE RATE**

	06/06/16
Foreman	W36.52 B25.03 T61.55
Journeyman	W35.52 B25.03 T60.55

**Craft: Roofer                      APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
6 Months	14.21	17.76	21.31	24.86	28.42	31.97				
Benefits	2.10	2.10	22.28	22.28	22.28	22.28				

**Ratio of Apprentices to Journeymen - \***

- \* A) For roofing jobs that are of the 1 or single ply nature: 1:2 or fraction thereof
- B) For roofing jobs on new built up roofs: 1:3 or fraction thereof
- C) For roofing jobs that are of a tear-off nature: 1:2 or fraction thereof
- D) For roofing jobs {not requiring complete removal of existing systems, installation done over existing roof}: 1:3 or fraction thereof

**Craft: Roofer                      COMMENTS/NOTES**

Pitch: +.50 per hour

Mop Man: +.30 per hour

The regular workday consists of 8 hours between 8:00 AM and 4:30 PM.

**OVERTIME:**

Hours in excess of 8 per day, or before or after the regular workday, Monday through Friday, and all hours on Saturdays, Sundays, and holidays shall be paid at time and one-half the regular rate.

**RECOGNIZED HOLIDAYS:** New Year's Day, Good Friday, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

County - UNION

**Craft: Sheet Metal Sign Installation    PREVAILING WAGE RATE**

	04/01/16	10/31/16
Foreman	W33.79 B30.60 T64.39	W33.79 B31.82 T65.61
Journeyman	W32.54 B30.60 T63.14	W32.54 B31.82 T64.36

**Craft: Sheet Metal Sign Installation    APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
	35%	40%	45%	50%	55%	60%	65%	70%	75%	80%
1000 hours										
Benefits	10.28	11.73	13.18	14.65	16.47	17.96	19.44	20.93	22.40	23.89

**Ratio of Apprentices to Journeymen - 1:3**

**Craft: Sheet Metal Sign Installation    COMMENTS/NOTES**

**FOREMAN REQUIREMENT:**  
When there are 6 or more Sheet Metal Sign Installers on a job, 1 shall be designated a Foreman.

The regular workday consists of 8 hours, between 7:00 AM and 3:30 PM.

**OVERTIME:**  
Hours before or after the regular workday, Monday through Friday, and all hours worked on Saturday shall be paid at time and one-half the hourly rate. All hours on Sunday and holidays shall be paid at double the hourly rate.

Four(4) 10 hour days may be worked, Monday through Friday, at straight time, for projects lasting at least one week in duration. The fifth day may be used as a make-up day at straight time for a day lost due to inclement weather. However, if the fifth day is not a make-up day, all hours worked will be paid at time and one-half the hourly rate.

**RECOGNIZED HOLIDAYS:** New Year's Day, Presidents' Day, Good Friday, Memorial Day, July 4th, Labor Day, Veterans' Day, Thanksgiving Day and the day after, Christmas Day. Saturday holidays observed the preceding Friday, Sunday holidays observed the following Monday.



**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Sprinkler Fitter**

**PREVAILING WAGE RATE**

	07/01/16	01/01/17	07/01/17	01/01/18	07/01/18	01/01/19
Foreman	W63.33 B25.72 T89.05	W62.93 B26.12 T89.05	W64.93 B26.12 T91.05	W64.38 B26.67 T91.05	W66.63 B26.67 T93.30	W66.08 B27.22 T93.30
General Foreman	W66.33 B25.72 T92.05	W65.93 B26.12 T92.05	W67.93 B26.12 T94.05	W67.38 B26.67 T94.05	W69.63 B26.67 T96.30	W69.08 B27.22 T96.30
Journeyman	W59.23 B25.72 T84.95	W58.83 B26.12 T84.95	W60.83 B26.12 T86.95	W60.28 B26.67 T86.95	W62.53 B26.67 T89.20	W61.98 B27.22 T89.20

**Craft: Sprinkler Fitter**

**APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
	9.50	11.25	50%	55%	60%	65%	70%	75%	80%	85%
1000 Hours	9.50	11.25	50%	55%	60%	65%	70%	75%	80%	85%
Benefits	10.67	10.67	21.22	21.22	21.22	21.22	Intervals	7 to 10	Jourymn	Ben.

APPRENTICE RATE SCHEDULE FOR THOSE APPRENTICES REGISTERED AS OF 7-1-13:

INTERVAL	PERIOD AND RATES									
1000 hours	25%	30%	40%	45%	55%	60%	70%	75%	85%	90%
Benefits	10.67	10.67	21.22	21.22	21.22	21.22	Intervals	7 to 10	receive	Journeyman Ben.

**Craft: Sprinkler Fitter**

**COMMENTS/NOTES**

The regular workday consists of 8 consecutive hours between 6:00 AM and 4:30 PM.

**FOREMAN REQUIREMENTS:**

- The first Sprinkler Fitter on the job must be designated a Foreman.
- On any job having 12 or more Sprinkler Fitters, one must be designated a General Foreman.

**SHIFT DIFFERENTIALS:**

- Shift work must run for a minimum of 2 consecutive workdays.
- 2nd and 3rd shift shall receive an additional 15% of the regular rate, per hour.
- Any "off hours" shift starting at 8:00 PM or later shall receive an additional 25% of the regular rate, per hour.

**OVERTIME:**

The first 2 hours in excess of 8 per day, after the regular workday that are not shift work, Monday through Friday, shall be paid at time and one-half the regular rate. Hours worked in excess of 10 per day, Monday through Friday, and all hours on Saturday, Sunday and holidays, shall be paid double the regular rate.  
Four 10 hour days may be worked, Monday through Thursday, at straight-time.

**RECOGNIZED HOLIDAYS:** New Year's Day, Presidents' Day, Good Friday, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans Day, Thanksgiving Day, Christmas Day.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Tile Finisher-Marble**

**PREVAILING WAGE RATE**

	07/01/16	01/01/17	07/01/17	01/01/18
Finisher	W45.66 B31.95 T77.61	W46.01 B32.68 T78.69	W46.32 B33.44 T79.76	W46.66 B34.18 T80.84

**Craft: Tile Finisher-Marble**

**APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
	50%	55%	65%	70%	75%	85%	90%	95%		
750 Hours										

**Ratio of Apprentices to Journeymen - 1:4**

**Craft: Tile Finisher-Marble**

**COMMENTS/NOTES**

**OVERTIME:**

Hours in excess of 7 per day, Monday through Friday, and the first 7 hours on Saturdays shall be paid at time and one half the regular rate, inclusive of benefits. Hours in excess of 7 on Saturdays and all hours on Sundays and holidays shall be paid at double the regular rate, inclusive of benefits.

**RECOGNIZED HOLIDAYS:** New Year's Day, Presidents' Day, Good Friday, Memorial Day, July 4th, Labor Day, Columbus Day, Veterans' Day, Thanksgiving Day and the day after, Christmas Day. Sunday holidays observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Tile Setter - Ceramic                      PREVAILING WAGE RATE**

	06/30/16	12/05/16
Finisher	W42.89	W0.00
	B28.74	B0.00
	T71.63	T72.45
Setter	W55.38	W0.00
	B32.01	B0.00
	T87.39	T88.52

**Craft: Tile Setter - Ceramic                      APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
	50%	55%	60%	65%	70%	75%	85%	95%	100%	
750 Hours										

**Ratio of Apprentices to Journeymen - 1:4**

**Craft: Tile Setter - Ceramic                      COMMENTS/NOTES**

**OVERTIME:**

Hours in excess of 7 per day, and the first 10 hours on Saturdays shall be paid at time and one-half the hourly rate. All hours on Saturdays after 10 hours shall be paid double the hourly rate. All hours on Sundays and holidays shall be paid at double the hourly rate.

**RECOGNIZED HOLIDAYS:** New Year's Day, Memorial Day, July 4th, Labor Day, Thanksgiving Day, Christmas Day.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Tile Setter - Marble**

**PREVAILING WAGE RATE**

	07/01/16	01/01/17	07/01/17	01/01/18
Tile Setter	W57.32	W57.74	W58.18	W58.53
	B33.23	B34.26	B35.27	B36.37
	T90.55	T92.00	T93.45	T94.90

**Craft: Tile Setter - Marble**

**APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
	50%	55%	65%	70%	75%	85%	90%	95%		
750 Hours										

**Ratio of Apprentices to Journeymen - 1:4**

**Craft: Tile Setter - Marble**

**COMMENTS/NOTES**

**OVERTIME:**

Hours in excess of 7 per day, Monday through Friday, and the first 7 hours on Saturdays shall be paid at time and one-half the regular rate, inclusive of benefits. Hours in excess of 7 on Saturdays, and all hours on Sundays and holidays shall be paid at double the regular rate, inclusive of benefits.

**RECOGNIZED HOLIDAYS:** New Year's Day, Presidents' Day, Good Friday, Memorial Day, July 4th, Labor Day, Columbus Day, Veterans' Day, Thanksgiving Day and the day after, Christmas Day. Sunday holidays observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Tile Setter - Mosaic & Terrazzo**

**PREVAILING WAGE RATE**

	07/01/16	01/01/17
Grinder or Assistant	W50.21	W0.00
	B33.64	B0.00
	T83.85	T85.00
Mechanic	W51.82	W0.00
	B33.65	B0.00
	T85.47	T86.62

**Craft: Tile Setter - Mosaic & Terrazzo**

**APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
750 Hours	50%	55%	65%	70%	75%	85%	90%	95%		

**Ratio of Apprentices to Journeymen - 1:5**

**Craft: Tile Setter - Mosaic & Terrazzo**

**COMMENTS/NOTES**

The regular workday consists of 7 hours, between 8:00 AM and 3:30 PM.

**OVERTIME:**

- Hours in excess of 7 per day, or before or after the regular workday, Monday through Friday, and all hours on Saturdays shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays shall be paid at double the hourly rate.

**RECOGNIZED HOLIDAYS:** New Year's Day, Presidents' Day, Good Friday, Monday after Easter, Memorial Day, July 4th, Labor Day, Columbus Day, Veterans' Day, Thanksgiving Day and the day after, Christmas Day. Sunday holidays observed the following Monday.



**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Truck Driver**

**PREVAILING WAGE RATE**

	09/30/16	11/01/16	05/01/17	11/01/17	05/01/18	11/01/18
Bucket, Utility, Pick-up, Fuel Delivery trucks	W35.60 B33.01 T68.61	W36.40 B33.01 T69.41	W36.83 B33.78 T70.61	W36.83 B34.58 T71.41	W37.26 B35.40 T72.66	W37.66 B35.80 T73.46
Dump truck, Asphalt Distributor, Tack Spreader	W35.60 B33.01 T68.61	W36.40 B33.01 T69.41	W36.83 B33.78 T70.61	W36.83 B34.58 T71.41	W37.26 B35.40 T72.66	W37.66 B35.80 T73.46
Euclid-type vehicles (large, off-road equipment)	W35.75 B33.01 T68.76	W36.55 B33.01 T69.56	W36.98 B33.78 T70.76	W36.98 B34.58 T71.56	W37.41 B35.40 T72.81	W37.81 B35.80 T73.61
Helper on Asphalt Distributor truck	W35.60 B33.01 T68.61	W36.40 B33.01 T69.41	W36.83 B33.78 T70.61	W36.83 B34.58 T71.41	W37.26 B35.40 T72.66	W37.66 B35.80 T73.46
Slurry Seal, Seeding/Fertilizing/ Mulching truck	W35.60 B33.01 T68.61	W36.40 B33.01 T69.41	W36.83 B33.78 T70.61	W36.83 B34.58 T71.41	W37.26 B35.40 T72.66	W37.66 B35.80 T73.46
Straight 3-axle truck	W35.65 B33.01 T68.66	W36.45 B33.01 T69.46	W36.88 B33.78 T70.66	W36.88 B34.58 T71.46	W37.31 B35.40 T72.71	W37.71 B35.80 T73.51
Tractor Trailer (all types)	W35.75 B33.01 T68.76	W36.55 B33.01 T69.56	W36.98 B33.78 T70.76	W36.98 B34.58 T71.56	W37.41 B35.40 T72.81	W37.81 B35.80 T73.61
Vacuum or Vac-All truck (entire unit)	W35.60 B33.01 T68.61	W36.40 B33.01 T69.41	W36.83 B33.78 T70.61	W36.83 B34.58 T71.41	W37.26 B35.40 T72.66	W37.66 B35.80 T73.46
Winch Trailer	W35.85 B33.01 T68.86	W36.65 B33.01 T69.66	W37.08 B33.78 T70.86	W37.08 B34.58 T71.66	W37.51 B35.40 T72.91	W37.91 B35.80 T73.71

**Craft: Truck Driver**

**COMMENTS/NOTES**

**BLENDED RATE:**

When a truck driver is performing work on the site and also serving as a material delivery driver, the driver shall be paid a "blended rate" which shall be 80% of the above-listed wage rates, plus the full benefit rate. This rate shall be used when the driver "round robins" for a minimum of 6 hours during the work day.

**HAZARDOUS WASTE REMOVAL:**

- On hazardous waste removal work on a State designated hazardous waste site where the driver is in direct contact with hazardous materials and when personal protective equipment is required for respiratory, skin, and eye protection, the driver shall receive an additional \$3.00 per hour (with or without protective gear).
- A hazardous waste related certified worker at a designated hazardous waste site who is not working in a zone requiring level A, B or C personal protection shall receive an additional \$1.00 per hour.

**TRUCK FOREMAN:** \$.75 cents per hour above regular rate. Overtime shall be increased accordingly.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

The regular workday shall be 8 hours, starting between 6:00 AM and 8:00 AM.

**SHIFT DIFFERENTIAL:**

- Shifts starting at 4:00 PM (2nd Shift): + \$2.50 per hour.
- Shifts starting at 12:00 AM (midnight/3rd Shift): time and one-half the hourly rate.
- Shifts starting at a time other than from 6:00 AM to 8:00 AM, when such hours are mandated by the project owner: + \$2.50 per hour.

**OVERTIME:**

- Hours in excess of 8 per day, or before or after the regular workday, Monday through Friday, that are not shift work, and all hours on Saturdays shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays shall be paid at double the hourly rate.
- Employees may work four 10-hour days at straight time, Monday through Thursday, with Friday used as a make-up day for a lost day. If Friday is not a make-up day, then all hours on Friday shall be paid at time and one-half the hourly rate.

**RECOGNIZED HOLIDAYS:** New Year's Day, Presidents' Day, Memorial Day (Decoration Day), July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays will be observed the following Monday. The day after Thanksgiving may be substituted for Veterans' Day.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Truck Driver-Material Delivery Driver**

**PREVAILING WAGE RATE**

	05/01/12
Driver	W22.90 B10.17 T33.07

**Craft: Truck Driver-Material Delivery Driver**

**COMMENTS/NOTES**

**BLENDED RATE:**

When a truck driver is performing work on the site and also serving as a material delivery driver, the driver shall be paid a "blended rate". See the "Truck Driver" craft for the blended rates.

Truck Foreman/Shop Steward: +\$0.25 per hour

**SHIFT DIFFERENTIALS:**

- 2nd Shift shall receive an additional \$0.50 per hour
- 3rd Shift shall receive time and one-half the hourly rate.

**OVERTIME:**

- Hours in excess of 8 per day, or before or after the regular workday that are not shift work, Monday through Friday, and all hours on Saturday shall be paid at time and one-half the hourly rate. All hours on Sunday and holidays shall be paid at double the hourly rate.

**RECOGNIZED HOLIDAYS:** New Year's Day, President's Day, Memorial Day (Decoration Day), July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays will be observed the following Monday. The day after Thanksgiving may be substituted for Veterans' Day.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Welder**

**PREVAILING WAGE RATE**

Welder

**Craft: Welder**

**COMMENTS/NOTES**

Welders rate is the same as the craft to which the welding is incidental .

# STATEWIDE RATES

OPERATING ENGINEERS    Rates Expiration Date : 06/30/2017

{For apprentice rates refer to "Operating Engineers" apprentice rates in any county rate package}

On all machines, including pile drivers with booms of 100 feet and over (including jib) the Operating Engineer shall receive the regular hourly rate plus: \$1.00 per hour on rigs with 100 foot Boom (including jib) up to 139 feet, and \$2.00 per hour on rigs with 140 foot Boom (including jib) and over. On all hoists where "Cat Head" or "Sheave Point" is 100 feet or more above ground level, the same differential pay shall apply as applicable to booms 100 feet and over.

The regular workday consists of 8 hours, Monday to Friday, between 6:00 AM and 4:30 PM.

**SHIFT DIFFERENTIALS:**

- Shift work must run for 5 consecutive workdays.
- When 2 shifts are worked, the second shift shall receive an additional 10% of the regular rate inclusive of benefits, per hour.
- When 3 shifts are worked, the second shift shall receive 8 hours pay for 7.5 hours of work, plus an additional 10% of the regular rate inclusive of benefits, per hour. The third shift shall receive 8 hours pay for 7 hours of work, plus an additional 15% of the regular rate inclusive of benefits, per hour.
- When such hours are mandated by the project owner, a shift that starts between 8:00 PM and midnight and ends by 6:00 AM Saturday, or that starts after 8:00 PM on Sunday, provided there are consecutive hours of work within the shift, shall receive an additional 15% of the regular rate, inclusive of benefits.
- On Highway, Road, Street, and Sewer projects irregular shifts starting between 5:00 PM and 12:00 AM may be worked Monday through Friday, and shall receive an additional 15% of the regular rate, inclusive of benefits. When working with other trades that receive a higher irregular shift rate, the Operating Engineer shall also receive the higher irregular shift rate.

**OVERTIME:**

- Hours in excess of 8 per day, or outside of the regular workday, Monday through Friday, that are not shift work, and all hours on Saturdays shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on Sundays and holidays shall be paid at double the regular rate, inclusive of benefits.
- Four 10-hour days may be worked, Monday through Thursday, at straight time, with all hours on Friday paid at time and one-half the regular rate, inclusive of benefits.

**RECOGNIZED HOLIDAYS:** New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday.

On hazardous waste removal work or asbestos removal work, on a state or federally designated hazardous waste site, where the operating engineer is in direct contact with hazardous material and when personal protective equipment is required for respiratory, skin, and eye protection, the operating engineer shall receive an additional 20% of the hourly wage, per hour.

**OPERATING ENGINEERS**    **Rates Expiration Date : 06/30/2017**

**Effective Dates:**

<b>07/01/2016</b>		<b>01/01/2017</b>	
Rate	Fringe	Total	Total
46.48	30.63	77.11	78.26

**CLASSIFICATIONS:**

- A-Frame
- Backhoe (combination)
- Boom Attachment on loaders (Except pipehook)
- Boring & Drilling Machine
- Brush Chopper, Brush Shredder, Tree Shredder
- Bulldozer, finish grade
- Cableway
- Carryall
- Concrete Pump
- Concrete Pumping System (Pumpcrete & similar types)
- Conveyor, 125 feet or longer
- Drill Doctor (Duties include dust collector and maintenance)
- Front End Loader (2 cu. yds. but less than 5 cu. yds.)
- Grader, finish
- Groove Cutting Machine (ride-on type)
- Heater Planer
- Hoist (all types including steam, gas, diesel, electric, air hydraulic, single and double drum, concrete, brick shaft caisson, snorkle roof, and other similar types, Except Chicago-boom type)
- Hydraulic Crane (10 tons & under)
- Hydro-Axe
- Hydro-Blaster
- Jack (screw, air hydraulic, power-operated unit, or console type, Except hand jack or pile load test type)
- Log Skidder

**OPERATING ENGINEERS**    **Rates Expiration Date : 06/30/2017**

**Effective Dates:**

<b>07/01/2016</b>			<b>01/01/2017</b>
Rate	Fringe	Total	Total
46.48	30.63	77.11	78.26

**CLASSIFICATIONS:**

- Pan
- Paver, concrete
- Plate & Frame Filter Press
- Pumpcrete (unit type)
- Pumpcrete, Squeezecrete, or Concrete Pumping machine (regardless of size)
- Scraper
- Side Boom
- Straddle Carrier (Ross and similar types)
- Vacuum Truck
- Whiphammer
- Winch Truck (hoisting)



**OPERATING ENGINEERS**    **Rates Expiration Date : 06/30/2017**

**Effective Dates:**

07/01/2016			01/01/2017
Rate	Fringe	Total	Total
44.57	30.63	75.20	76.35

**CLASSIFICATIONS:**

- Asphalt Curbing Machine
- Asphalt Plant Engineer
- Asphalt Spreader
- Autograde Curb Trimmer & Sidewalk Shoulder Slipform (CMI & similar types)
- Autograde Curecrete Machine (CMI & similar types)
- Autograde Tube Finisher & Texturing Machine (CMI & similar types)
- Bar Bending Machines (Power)
- Batcher, Batching Plant, & Crusher [On Site]
- Belt Conveyor System
- Boom-Type Skimmer Machine
- Bridge Deck Finisher
- Bulldozer (all sizes)
- Captain (Power Boats)
- Car Dumper (railroad)
- Compressor & Blower unit for loading/unloading of concrete, cement, fly ash, or similar type materials (used independently or truck-mounted)
- Compressor (2 or 3 battery)
- Concrete Breaking Machine
- Concrete Cleaning/Decontamination Machine
- Concrete Finishing Machine
- Concrete Saw or Cutter (ride-on type)
- Concrete Spreader (Hetzl, Rexomatic & similar types)
- Concrete Vibrator

**OPERATING ENGINEERS**     **Rates Expiration Date : 06/30/2017**

**Effective Dates:**

<b>07/01/2016</b>			<b>01/01/2017</b>
Rate	Fringe	Total	Total
44.57	30.63	75.20	76.35

**CLASSIFICATIONS:**

- Conveyors - under 125 feet
- Crane Signalman
- Crushing Machine
- Directional Boring Machine
- Ditching Machine - Small (Ditchwitch, Vermeer or similar types)
- Dope Pot - Mechanical (with or without pump)
- Dumpster
- Elevator
- Fireman
- Fork Lift (Economobile, Lull & similar types)
- Front End Loader (1 cu. yd. and over but less than 2 cu. yds.)
- Generator (2 or 3 battery)
- Giraffe Grinder
- Grader & Motor Patrols
- Grout Pump
- Gunnite Machine (Excluding nozzle)
- Hammer - Vibratory (in conjunction with generator)
- Heavy Equipment Robotics - Operator/Technician
- Hoist (roof, tugger, aerial platform hoist, house car)
- Hopper
- Hopper Doors (power operated)
- Ladder (motorized)
- Laddervator

**OPERATING ENGINEERS**    **Rates Expiration Date : 06/30/2017**

**Effective Dates:**

07/01/2016			01/01/2017
Rate	Fringe	Total	Total
44.57	30.63	75.20	76.35

**CLASSIFICATIONS:**

Locomotive (Dinky-type)

Maintenance Utility Man

Master Environmental Maintenance Technician

Mechanic

Mixer (Except paving mixers)

Pavement Breaker (truck-mounted or small self-propelled ride-on type)

Pavement Breaker - maintenance of compressor or hydraulic unit

Pipe Bending Machine (power)

Pitch Pump

Plaster Pump (regardless of size)

Post Hole Digger (post pounder, auger)

Roller (black top)

Scale (power)

Seamen Pulverizing Mixer

Shoulder Widener

Silo

Skimmer Machine (boom type)

Steel Cutting Machine (service & maintenance)

Tamrock Drill

Tractor

Transfer Machines

Tug Captains

Tug Master (Power Boats)

**OPERATING ENGINEERS**    **Rates Expiration Date : 06/30/2017**

**Effective Dates:**

<b>07/01/2016</b>			<b>01/01/2017</b>
Rate	Fringe	Total	Total
44.57	30.63	75.20	76.35

**CLASSIFICATIONS:**

Ultra High Pressure Waterjet Cutting Tool System -  
Operator/Maintenance Technician

Vacuum Blasting Machine - Operator/Maintenance Technician

Vibrating Plant (used with unloading)

Welder & Repair Mechanic

**Effective Dates:**

<b>07/01/2016</b>			<b>01/01/2017</b>
Rate	Fringe	Total	Total
41.23	30.63	71.86	73.01

**CLASSIFICATIONS:**

Assistant Engineer/Oiler

Driller's Helper

Field Engineer - Transit man or Instrument man

Maintenance Apprentice (Deckhand)

Maintenance Apprentice (Oiler)

Mechanic's Helper

Off Road Back Dump

**Effective Dates:**

<b>07/01/2016</b>			<b>01/01/2017</b>
Rate	Fringe	Total	Total
38.65	30.63	69.28	70.43

**CLASSIFICATIONS:**

Field Engineer - Rodman or Chainman

TERRITORY  
ENTIRE STATE

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION

OPERATING ENGINEERS    Rates Expiration Date : 06/30/2017

Effective Dates:

	07/01/2016		01/01/2017
Rate	Fringe	Total	Total
48.81	30.63	79.44	80.59

**CLASSIFICATIONS:**

Lead Engineer, Foreman Engineer, Safety Engineer (minimum)

**OPERATING ENGINEERS**    **Rates Expiration Date : 06/30/2017**

**Effective Dates:**

<b>07/01/2016</b>		<b>01/01/2017</b>	
Rate	Fringe	Total	Total
48.07	30.63	78.70	79.85

**CLASSIFICATIONS:**

- Autograde Pavement Profiler (CMI & similar types)
- Autograde Pavement Profiler - Recycle Type (CMI & similar types)
- Autograde Placer/Trimmer/Spreader Combination (CMI & similar types)
- Autograde Slipform Paver (CMI & similar types)
- Backhoe (Excavator)
- Central Power Plant
- Concrete Paving Machine
- Draglines
- Drill, Bauer, AMI and similar types
- Drillmaster, Quarrymaster
- Drillmaster/Quarrymaster (down-the-hole drill), rotary drill, self-propelled hydraulic drill, self-powered drill
- Elevator Grader
- Field Engineer-Chief of Party
- Front End Loader (5 cu. yards or larger)
- Gradall
- Grader, Rago
- Helicopter Co-Pilot
- Helicopter Communications Engineer
- Juntann Pile Driver
- Locomotive (large)
- Mucking Machine
- Pavement & Concrete Breaker (Superhammer & Hoe Ram)

**OPERATING ENGINEERS**     **Rates Expiration Date : 06/30/2017**

**Effective Dates:**

<b>07/01/2016</b>			<b>01/01/2017</b>
Rate	Fringe	Total	Total
48.07	30.63	78.70	79.85

**CLASSIFICATIONS:**

Pile Driver

Prentice Truck

Roadway Surface Grinder

Scooper (loader & shovel)

Shovel (Excavator)

Trackhoe (Excavator)

Tree Chopper with boom

Trenching Machine (cable plow)

Tunnel Boring Machine

**OPERATING ENGINEERS**    **Rates Expiration Date : 06/30/2017**

**Effective Dates:**

<b>07/01/2016</b>			<b>01/01/2017</b>
Rate	Fringe	Total	Total
42.94	30.63	73.57	74.72

**CLASSIFICATIONS:**

- Chipper
- Compressor (single)
- Concrete Spreader (small type)
- Conveyor Loader (Except elevator graders)
- Engines, Large Diesel (1620 HP) & Staging Pump
- Farm Tractor
- Fertilizing Equipment (operation & maintenance)
- Fine Grade Machine (small type)
- Form Line Grader (small type)
- Front End Loader (under 1 cubic yard)
- Generator (single)
- Grease, Gas, Fuel, & Oil Supply Trucks
- Heaters (Nelson or other type)
- Lights - portable generating light plant
- Mixer, Concrete (small)
- Mulching Equipment (operation & maintenance)
- Power Broom or Sweeper
- Pump (diesel engine & hydraulic - regardless of power)
- Pump (larger than 2 inch suction, including submersible pumps)
- Road Finishing Machine (small type)
- Roller - grade, fill, or stone base
- Seeding Equipment (operation & maintenance)
- Sprinkler & Water Pump Trucks



**OPERATING ENGINEERS**    Rates Expiration Date : 06/30/2017

**Effective Dates:**

<b>07/01/2016</b>			<b>01/01/2017</b>
Rate	Fringe	Total	Total
42.94	30.63	73.57	74.72

**CLASSIFICATIONS:**

Steam Generator or Boiler

Stone Spreader

Tamping Machine (vibrating ride-on type)

Temporary Heating Plant (Nelson or other type, including propane, natural gas, and flow-type units)

Water or Sprinkler Truck

Welding Machine (gas, diesel, or electric convertor, of any type)

Welding System - Multiple (rectifier transformer type)

Wellpoint Systems (including installation by bull gang and maintenance)

**Effective Dates:**

<b>07/01/2016</b>			<b>01/01/2017</b>
Rate	Fringe	Total	Total
49.89	30.63	80.52	81.67

**CLASSIFICATIONS:**

Helicopter Pilot/Engineer

**Effective Dates:**

<b>07/01/2016</b>			<b>01/01/2017</b>
Rate	Fringe	Total	Total
53.82	30.63	84.45	86.35

**CLASSIFICATIONS:**

Cranes, Derricks, Pile Driver (all types), over 100 tons and TOWER CRANE with boom (including jib and/or leads) 140 ft. and over

**Effective Dates:**

<b>07/01/2016</b>			<b>01/01/2017</b>
Rate	Fringe	Total	Total
52.82	30.63	83.45	85.35

**CLASSIFICATIONS:**

Cranes, Derricks, Pile Driver (all types), over 100 tons and TOWER CRANE with boom (including jib and/or leads) from 100 ft. to 139 ft.

**OPERATING ENGINEERS**     **Rates Expiration Date : 06/30/2017**

**Effective Dates:**

<b>07/01/2016</b>			<b>01/01/2017</b>
Rate	Fringe	Total	Total
50.07	30.63	80.70	81.85

**CLASSIFICATIONS:**

Cranes, Derricks, Pile Driver (all types) , under 100 tons with a boom (including jib and/or leads) 140 ft. and over

**Effective Dates:**

<b>07/01/2016</b>			<b>01/01/2017</b>
Rate	Fringe	Total	Total
51.82	30.63	82.45	84.35

**CLASSIFICATIONS:**

Cranes, Derricks, Pile Driver (all types), over 100 tons and TOWER CRANE with a boom (including jib and/or leads) under 100 ft.

**Effective Dates:**

<b>07/01/2016</b>			<b>01/01/2017</b>
Rate	Fringe	Total	Total
49.07	30.63	79.70	80.85

**CLASSIFICATIONS:**

Cranes, Derricks, Pile Driver (all types), under 100 tons with a boom (including jib and/or leads) from 100 ft. to 139 ft.

**STRUCTURAL STEEL ERECTION**     **Rates Expiration Date : 06/30/2017**

{For apprentice rates refer to "Operating Engineers" apprentice rates in any county rate package}

The regular workday consists of 8 hours, Monday to Friday, between 6:00 AM and 4:30 PM.

**SHIFT DIFFERENTIALS:**

- Shift work must run for 5 consecutive workdays.
- When 2 shifts are worked, the second shift shall receive an additional 10% of the regular rate inclusive of benefits, per hour.
- When 3 shifts are worked, the second shift shall receive 8 hours pay for 7.5 hours of work, plus an additional 10% of the regular rate inclusive of benefits, per hour. The third shift shall receive 8 hours pay for 7 hours of work, plus an additional 15% of the regular rate inclusive of benefits, per hour.
- When such hours are mandated by the project owner, a shift that starts between 8:00 PM and midnight and ends by 6:00 AM Saturday, or that starts after 8:00 PM on Sunday, provided there are consecutive hours of work within the shift, shall receive an additional 15% of the regular rate, inclusive of benefits.
- On Highway, Road, Street, and Sewer projects irregular shifts starting between 5:00 PM and 12:00 AM may be worked Monday through Friday, and shall receive an additional 15% of the regular rate, inclusive of benefits. When working with other trades that receive a higher irregular shift rate, the Operating Engineer shall also receive the higher irregular shift rate.

**OVERTIME:**

- Hours in excess of 8 per day, or outside of the regular workday, Monday through Friday, that are not shift work, and all hours on Saturdays shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on Sundays and holidays shall be paid at double the regular rate, inclusive of benefits.
- Four 10-hour days may be worked, Monday through Thursday, at straight time, with all hours on Friday paid at time and one-half the regular rate, inclusive of benefits.

**RECOGNIZED HOLIDAYS:** New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday.

On hazardous waste removal work or asbestos removal work, on a state or federally designated hazardous waste site, where the operating engineer is in direct contact with hazardous material and when personal protective equipment is required for respiratory, skin, and eye protection, the operating engineer shall receive an additional 20% of the hourly wage, per hour.

**Effective Dates:**

<b>07/01/2016</b>			<b>01/01/2017</b>
Rate	Fringe	Total	Total
51.70	30.63	82.33	83.48

**CLASSIFICATIONS:**

Helicopter Pilot or Engineer

**STRUCTURAL STEEL ERECTION**      **Rates Expiration Date : 06/30/2017**

**Effective Dates:**

<b>07/01/2016</b>			<b>01/01/2017</b>
Rate	Fringe	Total	Total
47.64	30.63	78.27	79.42

**CLASSIFICATIONS:**

A-Frame

Cherry Picker -10 tons or less (Over 10 tons use crane rate)

Hoist (all types Except Chicago-boom)

Jack (screw, air hydraulic, power-operated unit or console type, Except hand jack or pile load test type)

Side Boom

Straddle Carrier

**Effective Dates:**

<b>07/01/2016</b>			<b>01/01/2017</b>
Rate	Fringe	Total	Total
44.98	30.63	75.61	76.76

**CLASSIFICATIONS:**

Aerial Platform Used On Hoists

Apprentice Engineer/Oiler with Compressor or Welding Machine

Captain (Power Boats)

Compressor (2 or 3 in battery)

Conveyor or Tugger Hoist

Elevator or House Car

Fireman

Forklift

Generator (2 or 3)

Maintenance Utility Man

Tug Master (Power Boats)

Welding Machines, Gas or Electric Converters on any type-2 or 3 in battery including diesels

**STRUCTURAL STEEL ERECTION**      **Rates Expiration Date : 06/30/2017**

**Effective Dates:**

<b>07/01/2016</b>			<b>01/01/2017</b>
Rate	Fringe	Total	Total
43.45	30.63	74.08	75.23

**CLASSIFICATIONS:**

Compressor (Single)

Generators

Welding Machines, Gas, Diesel, Or Electric Converters of any type-single

Welding System, Multiple (Rectifier Transformer Type)

**Effective Dates:**

<b>07/01/2016</b>			<b>01/01/2017</b>
Rate	Fringe	Total	Total
41.69	30.63	72.32	73.47

**CLASSIFICATIONS:**

Assistant Engineer/Oiler

Drillers Helper

Field Engineer - Transit/Instrument Man

Maintenance Apprentice (Deckhand)

Maintenance Apprentice (Oiler)

**Effective Dates:**

<b>07/01/2016</b>			<b>01/01/2017</b>
Rate	Fringe	Total	Total
49.26	30.63	79.89	81.04

**CLASSIFICATIONS:**

Lead Engineer, Foreman Engineer, Safety Engineer (Minimum)

**Effective Dates:**

<b>07/01/2016</b>			<b>01/01/2017</b>
Rate	Fringe	Total	Total
38.65	30.63	69.28	70.43

**CLASSIFICATIONS:**

Field Engineer - Rodman or Chainman

**STRUCTURAL STEEL ERECTION**      **Rates Expiration Date : 06/30/2017**

**Effective Dates:**

<b>07/01/2016</b>			<b>01/01/2017</b>
Rate	Fringe	Total	Total
48.40	30.63	79.03	80.18

**CLASSIFICATIONS:**

Field Engineer-Chief of Party

**Effective Dates:**

<b>07/01/2016</b>			<b>01/01/2017</b>
Rate	Fringe	Total	Total
55.84	30.63	86.47	88.37

**CLASSIFICATIONS:**

Cranes (all cranes, land or floating with booms, including jib, 140 ft. and over, above ground). Derricks (all derricks, land, floating or Chicago Boom type with booms including jib, 140 ft. and over, above ground), and Pile Drivers (all types) over 100 tons and Tower Cranes.

**Effective Dates:**

<b>07/01/2016</b>			<b>01/01/2017</b>
Rate	Fringe	Total	Total
54.18	30.63	84.81	86.71

**CLASSIFICATIONS:**

Cranes (all cranes, land or floating with booms including jib, less than 140 ft. above ground), Derricks (all derricks, land, floating or Chicago Boom type with booms including jib, less than 140 ft. above ground), Pile Drivers (all types), over 100 tons and Tower Crane.

**Effective Dates:**

<b>07/01/2016</b>			<b>01/01/2017</b>
Rate	Fringe	Total	Total
52.09	30.63	82.72	83.87

**CLASSIFICATIONS:**

Cranes (all cranes, land or floating with booms including jib, 140 ft. and over, above ground), Derricks (all derricks, land, floating or Chicago Boom type with booms including jib, 140 ft. and over, above ground), Pile Drivers (all types), under 100 tons.

**Effective Dates:**

<b>07/01/2016</b>			<b>01/01/2017</b>
Rate	Fringe	Total	Total
50.43	30.63	81.06	82.21

**CLASSIFICATIONS:**

Cranes (all cranes, land or floating with booms including jib, less than 140 ft. above ground), Derricks (all derricks, land, floating or Chicago Boom type with booms including jib, less than 140 ft. above ground), Pile Drivers (all types), under 100 tons.

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NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
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STRUCTURAL STEEL ERECTION      Rates Expiration Date : 06/30/2017

**Effective Dates:**

<b>07/01/2016</b>			<b>01/01/2017</b>
Rate	Fringe	Total	Total
52.09	30.63	82.72	83.87

**CLASSIFICATIONS:**

Helicopter Co-Pilot

Helicopter Communications Engineer

**TEST BORING PRELIMINARY TO CONSTRUCTION-SOUTH/WEST**      **Rates Expiration Date : 06/30/2017**

THESE RATES APPLY IN THE FOLLOWING COUNTIES ONLY:

Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, Hunterdon, Mercer, Monmouth, Ocean, Salem, Sussex, Warren

On all machines, including pile drivers with booms of 100 feet and over (including jib) the Operating Engineer shall receive the regular hourly rate plus: \$1.00 per hour on rigs with 100 foot Boom (including jib) up to 139 feet, and \$2.00 per hour on rigs with 140 foot Boom (including jib) and over. On all hoists where "Cat Head" or "Sheave Point" is 100 feet or more above ground level, the same differential pay shall apply as applicable to booms 100 feet and over.

The regular workday consists of 8 hours, Monday to Friday, between 6:00 AM and 4:30 PM.

SHIFT DIFFERENTIALS:

- Shift work must run for 5 consecutive workdays.
- When 2 shifts are worked, the second shift shall receive an additional 10% of the regular rate inclusive of benefits, per hour.
- When 3 shifts are worked, the second shift shall receive 8 hours pay for 7.5 hours of work, plus an additional 10% of the regular rate inclusive of benefits, per hour. The third shift shall receive 8 hours pay for 7 hours of work, plus an additional 15% of the regular rate inclusive of benefits, per hour.
- When such hours are mandated by the project owner, a shift that starts between 8:00 PM and midnight and ends by 6:00 AM Saturday, or that starts after 8:00 PM on Sunday, provided there are consecutive hours of work within the shift, shall receive an additional 15% of the regular rate, inclusive of benefits.
- On Highway, Road, Street, and Sewer projects irregular shifts starting between 5:00 PM and 12:00 AM may be worked Monday through Friday, and shall receive an additional 15% of the regular rate, inclusive of benefits. When working with other trades that receive a higher irregular shift rate, the Operating Engineer shall also receive the higher irregular shift rate.

OVERTIME:

- Hours in excess of 8 per day, or outside of the regular workday, Monday through Friday, that are not shift work, and all hours on Saturdays shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on Sundays and holidays shall be paid at double the regular rate, inclusive of benefits.
- Four 10-hour days may be worked, Monday through Thursday, at straight time, with all hours on Friday paid at time and one-half the regular rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday.

On hazardous waste removal work or asbestos removal work, on a state or federally designated hazardous waste site, where the operating engineer is in direct contact with hazardous material and when personal protective equipment is required for respiratory, skin, and eye protection, the operating engineer shall receive an additional 20% of the hourly wage, per hour.

**Effective Dates:**

	<b>07/01/2016</b>		<b>01/01/2017</b>
Rate	Fringe	Total	Total
48.07	30.63	78.70	79.85

**CLASSIFICATIONS:**

Driller



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ENTIRE STATE

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
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TEST BORING PRELIMINARY TO CONSTRUCTION-SOUTH/WEST      Rates Expiration Date : 06/30/2017

**Effective Dates:**

<b>07/01/2016</b>			<b>01/01/2017</b>
Rate	Fringe	Total	Total
41.23	30.63	71.86	73.01

**CLASSIFICATIONS:**

Driller's Helper

**FREE AIR TUNNEL JOBS**     **Rates Expiration Date : 08/31/2017**

{For apprentice rates refer to "Heavy & General" apprentice rates in any county rate package}

The regular workday consists of 8 hours, starting at 7:00 AM or 8:00 AM.

**SHIFT DIFFERENTIALS:**

- Shifts must start at 3:00 PM, 4:00 PM, 12:00 AM, or 1:00 AM, to be considered shift work, except when the project owner mandates special hours of work in the job specifications, in which case those hours may be considered shift work.
- When such hours are mandated by the project owner, a shift that begins before midnight on Friday and ends on Saturday morning, or that begins at or after 8:00 PM on Sunday and ends on Monday morning may be paid at the shift differential rate.
- Shifts shall receive an additional \$2.50 per hour.

**OVERTIME:**

- Hours in excess of 8 per day, Monday through Friday, or outside of the regular workday that are not shift work, and all hours on Saturdays, shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays shall be paid at double the hourly rate.
- Four 10-hour days may be worked, Monday through Thursday, at straight time, with Friday used as a make-up day for a day lost to inclement weather. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the hourly rate.

**RECOGNIZED HOLIDAYS:** New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday. Veterans Day may be substituted for the day after Thanksgiving. However, in the trading of Veterans Day for the day after Thanksgiving, if overtime is worked on Veterans Day, it shall be paid at double the hourly rate.

**Hazardous Waste Work:**

- where Level A, B, or C protection is required: + \$3.00/hr
- other Hazardous Waste site: + \$1.00/hr

**Effective Dates:**

<b>09/01/2016</b>			<b>03/01/2017</b>
Rate	Fringe	Total	Total
40.35	27.78	68.13	70.53

**CLASSIFICATIONS:**

Walking Boss & Superintendent

**Effective Dates:**

<b>09/01/2016</b>			<b>03/01/2017</b>
Rate	Fringe	Total	Total
40.05	27.78	67.83	70.23

**CLASSIFICATIONS:**

Heading Foreman, Shaft Foreman, Rod Foreman, Electrician Foreman, Rigging Foreman

**FREE AIR TUNNEL JOBS**      **Rates Expiration Date : 08/31/2017**

**Effective Dates:**

<b>09/01/2016</b>			<b>03/01/2017</b>
Rate	Fringe	Total	Total
39.55	27.78	67.33	69.73

**CLASSIFICATIONS:**

Iron Foreman, Caulking Foreman, Form Foreman, Cement Finishing Foreman, Concrete Foreman, Track Foreman, Cleanup Foreman, Grout Foreman

**Effective Dates:**

<b>09/01/2016</b>			<b>03/01/2017</b>
Rate	Fringe	Total	Total
42.05	27.78	69.83	72.23

**CLASSIFICATIONS:**

Blaster

**Effective Dates:**

<b>09/01/2016</b>			<b>03/01/2017</b>
Rate	Fringe	Total	Total
39.00	27.78	66.78	69.18

**CLASSIFICATIONS:**

Top Labor Foreman

**Effective Dates:**

<b>09/01/2016</b>			<b>03/01/2017</b>
Rate	Fringe	Total	Total
38.65	27.78	66.43	68.83

**CLASSIFICATIONS:**

Skilled Men (including Caulker, Powder Carrier, all other skilled men)

Skilled Men (including Miner, Drill Runner, Iron Man, Conveyor Man, Manitenance Man, Safety Miner, Rigger, Block Layer, Cement Finisher, Tod Man)

**Effective Dates:**

<b>09/01/2016</b>			<b>03/01/2017</b>
Rate	Fringe	Total	Total
38.50	27.78	66.28	68.68

**CLASSIFICATIONS:**

Semi-Skilled Men (including Bell or Signal Man Top or Bottom, Form Worker & Mover, Concrete Worker, Shaft Man, Tunnel Laborer, Caulker's Helper, all other semi-skilled)

Semi-Skilled Men (including Miner's Helper, Chuck Tender, Track Man, Nipper, Brake Man, Derail Man, Cable Man, Hose Man, Gravel Man, Form Man)

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**Effective Dates:**

<b>09/01/2016</b>			<b>03/01/2017</b>
Rate	Fringe	Total	Total
38.00	27.78	65.78	68.18

**CLASSIFICATIONS:**

All Others (including Powder Watchman, Change House Attendant, Top Laborer)

**DRILL FOR GROUND WATER SUPPLY**     **Rates Expiration Date : 06/30/2017**

The well driller and/or helper may perform all work relative to the construction, finishing, and servicing of wells, pumps and borings for ground water supply. The present methods of well drilling entailing as they do, many diverse job operations calling for drilling, pump discharge, piping, and the operation of various types of related power equipment, shall all be within the job duties and functions of the well driller and/or helper. In the event that an extension of work should occur beyond water well drilling functions, into the field of general construction work, such extension of work would come under the appropriate rates listed elsewhere in this wage determination.

- For Work Hours, Shift Differentials, Overtime Rates, and Recognized Holidays see the "Operating Engineers" section of this wage determination.

**Effective Dates:**

<b>07/01/2016</b>			<b>01/01/2017</b>
Rate	Fringe	Total	Total
46.82	30.63	77.45	78.60

**CLASSIFICATIONS:**

Driller

**Effective Dates:**

<b>07/01/2016</b>			<b>01/01/2017</b>
Rate	Fringe	Total	Total
39.98	30.63	70.61	71.76

**CLASSIFICATIONS:**

Driller's Helper

**OPERATING ENGINEERS MARINE-DREDGING**     **Rates Expiration Date : 09/30/2018**

NOTE: Boat crews carrying explosive material (dynamite, pourfex, and other similar materials) shall be paid at 120% of the hourly wage rate for hours engaged in handling of said materials. Employees required to possess a Hazardous Material Certification as a condition of employment shall be compensated at 120% of the hourly wage rate.

**OVERTIME:**

Hours in excess of 40 per week, and all hours on Saturdays and Sundays, shall be paid at time and one-half the hourly rate. All hours on holidays shall be paid at double the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Martin Luther King Day, Good Friday, Memorial Day, July 4th, Labor Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday.

**Effective Dates:**

02/16/2016			10/01/2016	10/01/2017
Rate	Fringe	Total	Total	Total
36.34	13.33	49.67	51.03	52.51

**CLASSIFICATIONS:**

Lead Dredgerman, Operator, Leverman

Licensed Tug Operator (over 1000 HP)

**Effective Dates:**

02/16/2016			10/01/2016	10/01/2017
Rate	Fringe	Total	Total	Total
31.43	12.93	44.36	45.60	46.95

**CLASSIFICATIONS:**

Derrick Operator, Spider/Spill Barge Operator

Engineer, Electrician, Chief Welder, Chief Mate

Fill Placer, Operator II

Licensed Boat Operator

Maintenance Engineer

**Effective Dates:**

02/16/2016			10/01/2016	10/01/2017
Rate	Fringe	Total	Total	Total
29.59	12.79	42.38	43.56	44.86

**CLASSIFICATIONS:**

Certified Welder

**OPERATING ENGINEERS MARINE-DREDGING**      **Rates Expiration Date : 09/30/2018**

**Effective Dates:**

<b>02/16/2016</b>			<b>10/01/2016</b>	<b>10/01/2017</b>
Rate	Fringe	Total	Total	Total
28.78	12.42	41.20	42.36	43.64

**CLASSIFICATIONS:**

Mate, Drag Barge Operator, Steward, Assistant Fill Placer

Welder

**Effective Dates:**

<b>02/16/2016</b>			<b>10/01/2016</b>	<b>10/01/2017</b>
Rate	Fringe	Total	Total	Total
27.85	12.35	40.20	41.32	42.58

**CLASSIFICATIONS:**

Boat Operator

**Effective Dates:**

<b>02/16/2016</b>			<b>10/01/2016</b>	<b>10/01/2017</b>
Rate	Fringe	Total	Total	Total
23.13	11.67	34.80	35.81	36.92

**CLASSIFICATIONS:**

Shoreman, Deckhand, Rodman, Scowman

MICROSURFACING/SLURRY SEAL      Rates Expiration Date : 02/28/2018

THESE RATES APPLY IN THE FOLLOWING COUNTIES ONLY:

Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, Mercer, Ocean, Salem

\*\*\*IN ALL OTHER COUNTIES use the Heavy and General Laborers - North "Slurry Seal Laborer" rates.\*\*\*

SHIFT DIFFERENTIALS:

Any shift starting at 3:30 PM or later shall receive an additional \$0.35/hr

OVERTIME:

Hours in excess of 8 per day or 40 per week shall be paid at time and one-half the hourly rate. All hours on holidays shall be paid at double the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Washington's Birthday, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day.

**Effective Dates:**

03/01/2016			03/01/2017
Rate	Fringe	Total	Total
35.75	20.35	56.10	57.77

**CLASSIFICATIONS:**

Foreman

**Effective Dates:**

03/01/2016			03/01/2017
Rate	Fringe	Total	Total
33.10	20.35	53.45	55.07

**CLASSIFICATIONS:**

Box man

**Effective Dates:**

03/01/2016			03/01/2017
Rate	Fringe	Total	Total
31.10	20.35	51.45	53.02

**CLASSIFICATIONS:**

Microsurface/Slurry Preparation

**Effective Dates:**

03/01/2016			03/01/2017
Rate	Fringe	Total	Total
31.10	20.35	51.45	53.02

**CLASSIFICATIONS:**

Squeegee man



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MICROSURFACING/SLURRY SEAL      Rates Expiration Date : 02/28/2018

**Effective Dates:**

03/01/2016			03/01/2017
Rate	Fringe	Total	Total
29.60	20.35	49.95	51.57

**CLASSIFICATIONS:**

Cleaner, Taper

ASPHALT LABORERS - SOUTH    Rates Expiration Date : 08/31/2017

"THESE RATES APPLY IN THE FOLLOWING COUNTIES ONLY: Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, Mercer, Ocean, Salem

{For apprentice rates refer to "Laborer - Heavy & General" apprentice rates in any county rate package}

The regular workday consists of 8 hours, starting at 7:00 AM or 8:00 AM.

**SHIFT DIFFERENTIALS:**

- Shifts must start at 3:00 PM, 4:00 PM, 12:00 AM, or 1:00 AM, to be considered shift work, except when the project owner mandates special hours of work in the job specifications, in which case those hours may be considered shift work.
- When such hours are mandated by the project owner, a shift that begins before midnight on Friday and ends on Saturday morning, or that begins at or after 8:00 PM on Sunday and ends on Monday morning may be paid at the shift differential rate.
- Shifts shall receive an additional \$2.50 per hour.

**OVERTIME:**

- Hours in excess of 8 per day, Monday through Friday, or outside of the regular workday that are not shift work, and all hours on Saturdays, shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays shall be paid at double the hourly rate.
- Four 10-hour days may be worked, Monday through Thursday, at straight time, with Friday used as a make-up day for a day lost to inclement weather. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the hourly rate.

**RECOGNIZED HOLIDAYS:** New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday. Veterans Day may be substituted for the day after Thanksgiving. However, in the trading of Veterans Day for the day after Thanksgiving, if overtime is worked on Veterans Day, it shall be paid at double the hourly rate.

**Hazardous Waste Work:**

- where Level A, B, or C protection is required: + \$3.00/hr
- other Hazardous Waste site: + \$1.00/hr

**Effective Dates:**

	<b>09/01/2016</b>		<b>03/01/2017</b>
Rate	Fringe	Total	Total
39.85	27.78	67.63	70.03

**CLASSIFICATIONS:**

Paving Foreman

**Effective Dates:**

	<b>09/01/2016</b>		<b>03/01/2017</b>
Rate	Fringe	Total	Total
38.40	27.78	66.18	68.58

**CLASSIFICATIONS:**

Head Raker

**Effective Dates:**

	<b>09/01/2016</b>		<b>03/01/2017</b>
Rate	Fringe	Total	Total
38.25	27.78	66.03	68.43

**CLASSIFICATIONS:**

Raker, Screedman, Luteman

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ASPHALT LABORERS - SOUTH    Rates Expiration Date : 08/31/2017

**Effective Dates:**

09/01/2016			03/01/2017
Rate	Fringe	Total	Total
38.00	27.78	65.78	68.18

**CLASSIFICATIONS:**

Tampers, Smoothers, Kettlemen,  
Painters, Shovelers, Roller Boys

**Effective Dates:**

09/01/2016			03/01/2017
Rate	Fringe	Total	Total
38.10	27.78	65.88	68.28

**CLASSIFICATIONS:**

Milling Controller

**Effective Dates:**

09/01/2016			03/01/2017
Rate	Fringe	Total	Total
38.30	27.78	66.08	68.48

**CLASSIFICATIONS:**

Traffic Control Coordinator

**TEST BORING PRELIMINARY TO CONSTRUCTION-NORTH**      **Rates Expiration Date : 10/16/2018**

THESE RATES APPLY IN THE FOLLOWING COUNTIES ONLY:  
Bergen, Essex, Hudson, Middlesex, Morris, Passaic, Somerset, Union

**SHIFT DIFFERENTIAL:**

Employees on a shift other than between the hours of 8:00 AM and 5:00 PM shall receive an additional \$1.00 per hour.

**OVERTIME:**

Hours in excess of 8 per day, Monday through Friday, and all hours on Saturday shall be paid at time and one-half the regular rate. All hours on Sundays and holidays shall be paid at double the regular rate.

**RECOGNIZED HOLIDAYS:** New Year's Day, Memorial Day, July 4th, Labor Day, Thanksgiving Day, and Christmas Day. Sunday holidays observed the following Monday.

Hazardous Waste Pay (for Levels A, B, and C): an additional 10% of the hourly rate, per hour.

A newly hired Helper with no experience in the industry shall be paid as follows:

- 1st year on the job - 70% of Helper wage rate
- 2nd year on the job - 80% of Helper wage rate
- 3rd year on the job - 90% of Helper wage rate
- All helpers receive full fringe benefit rate.

**Effective Dates:**

<b>11/13/2015</b>			<b>10/17/2016</b>	<b>10/17/2017</b>
Rate	Fringe	Total	Total	Total
30.17	24.10	54.27	56.21	58.15

**CLASSIFICATIONS:**

Helper (4th year helper)

**Effective Dates:**

<b>11/13/2015</b>			<b>10/17/2016</b>	<b>10/17/2017</b>
Rate	Fringe	Total	Total	Total
37.82	24.10	61.92	64.13	66.34

**CLASSIFICATIONS:**

Driller

**Effective Dates:**

<b>11/13/2015</b>			<b>10/17/2016</b>	<b>10/17/2017</b>
Rate	Fringe	Total	Total	Total
43.42	24.10	67.52	69.93	72.34

**CLASSIFICATIONS:**

Foreman

HEAVY & GENERAL LABORERS - NORTH     Rates Expiration Date : 08/31/2017

THESE RATES APPLY IN THE FOLLOWING COUNTIES ONLY:

Bergen, Essex, Hudson, Hunterdon, Middlesex, Monmouth, Morris, Passaic, Somerset, Sussex, Union, Warren

{For apprentice rates refer to "Laborer - Heavy & General" apprentice rates in any county rate package}

The regular workday consists of 8 hours, starting at 7:00 AM or 8:00 AM.

SHIFT DIFFERENTIALS:

- Shifts must start at 3:00 PM, 4:00 PM, 12:00 AM, or 1:00 AM, to be considered shift work, except when the project owner mandates special hours of work in the job specifications, in which case those hours may be considered shift work.
- When such hours are mandated by the project owner, a shift that begins before midnight on Friday and ends on Saturday morning, or that begins at or after 8:00 PM on Sunday and ends on Monday morning may be paid at the shift differential rate.
- Shifts shall receive an additional \$2.50 per hour.

OVERTIME:

- Hours in excess of 8 per day, Monday through Friday, or outside of the regular workday that are not shift work, and all hours on Saturdays, shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays shall be paid at double the hourly rate.
- Four 10-hour days may be worked, Monday through Thursday, at straight time, with Friday used as a make-up day for a day lost to inclement weather. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday. Veterans Day may be substituted for the day after Thanksgiving. However, in the trading of Veterans Day for the day after Thanksgiving, if overtime is worked on Veterans Day, it shall be paid at double the hourly rate.

Hazardous Waste Work:

- where Level A, B, or C protection is required: + \$3.00/hr
- other Hazardous Waste site: + \$1.00/hr

**Effective Dates:**

	09/01/2016		03/01/2017
Rate	Fringe	Total	Total
37.60	27.78	65.38	67.78

**CLASSIFICATIONS:**

"D" Rate:

basic, landscape, asphalt, slurry seal, or railroad track laborer; utility meter installer; traffic director/flagman; salamander tender; pitman; dumpman; rakers or tampers on cold patch work; wrappers or coaters of pipe; waterproofer; timberman; wagon drill or drill master helper; powder carrier; magazine tender; signal man; power buggy operator; tree cutter; operator of basic power tools

**Effective Dates:**

	09/01/2016		03/01/2017
Rate	Fringe	Total	Total
38.30	27.78	66.08	68.48

**CLASSIFICATIONS:**

"C" Rate:

pipe layer; laser man; conduit or duct line layer; operator of jack hammer, chipping hammer, pavement breaker, concrete cutter, asphalt cutter, sheet hammer, or walk-behind saw cutter; sandblaster; acetylene cutting or burning; wagon drill, directional drill, or hydraulic drill operator; drill master; core driller; traffic control coordinator; asphalt raker or lute man

**HEAVY & GENERAL LABORERS - NORTH**      **Rates Expiration Date : 08/31/2017**

**Effective Dates:**

<b>09/01/2016</b>			<b>03/01/2017</b>
Rate	Fringe	Total	Total
38.55	27.78	66.33	68.73

**CLASSIFICATIONS:**

"B" Rate:

concrete finisher; setter of brick or stone pavers; stone cutter; form setter; manhole, catch basin, or inlet builder; asphalt screedman; rammer; hardscaping; gunite nozzle man

**Effective Dates:**

<b>09/01/2016</b>			<b>03/01/2017</b>
Rate	Fringe	Total	Total
42.10	27.78	69.88	72.28

**CLASSIFICATIONS:**

"A" Rate:

blaster

**Effective Dates:**

<b>09/01/2016</b>			<b>03/01/2017</b>
Rate	Fringe	Total	Total
39.85	27.78	67.63	70.03

**CLASSIFICATIONS:**

"FOREMAN" Rate:

labor foreman, asphalt foreman, drill foreman, pipe foreman, grade foreman, finisher foreman, concrete foreman

**Effective Dates:**

<b>09/01/2016</b>			<b>03/01/2017</b>
Rate	Fringe	Total	Total
40.85	27.78	68.63	71.03

**CLASSIFICATIONS:**

"GENERAL FOREMAN" Rate

**HEAVY & GENERAL LABORERS - SOUTH**    **Rates Expiration Date : 08/31/2017**

THESE RATES APPLY IN THE FOLLOWING COUNTIES ONLY:

Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, Mercer, Ocean, Salem

{For apprentice rates refer to "Laborer - Heavy & General" apprentice rates in any county rate package}

The regular workday consists of 8 hours, starting at 7:00 AM or 8:00 AM.

**SHIFT DIFFERENTIALS:**

- Shifts must start at 3:00 PM, 4:00 PM, 12:00 AM, or 1:00 AM, to be considered shift work, except when the project owner mandates special hours of work in the job specifications, in which case those hours may be considered shift work.
- When such hours are mandated by the project owner, a shift that begins before midnight on Friday and ends on Saturday morning, or that begins at or after 8:00 PM on Sunday and ends on Monday morning may be paid at the shift differential rate.
- Shifts shall receive an additional \$2.50 per hour.

**OVERTIME:**

- Hours in excess of 8 per day, Monday through Friday, or outside of the regular workday that are not shift work, and all hours on Saturdays, shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays shall be paid at double the hourly rate.
- Four 10-hour days may be worked, Monday through Thursday, at straight time, with Friday used as a make-up day for a day lost to inclement weather. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the hourly rate.

**RECOGNIZED HOLIDAYS:** New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday. Veterans Day may be substituted for the day after Thanksgiving. However, in the trading of Veterans Day for the day after Thanksgiving, if overtime is worked on Veterans Day, it shall be paid at double the hourly rate.

**Hazardous Waste Work:**

- where Level A, B, or C protection is required: + \$3.00/hr
- other Hazardous Waste site: + \$1.00/hr

**Effective Dates:**

	<b>09/01/2016</b>		<b>03/01/2017</b>
Rate	Fringe	Total	Total
37.60	27.78	65.38	67.78

**CLASSIFICATIONS:**

basic, landscape, or railroad track laborer; utility meter installer; traffic director/flagman; salamander tender; pitman; dumpman; rakers or tampers on cold patch work; wrappers or coaters of pipe; waterproofers

tree cutter, timberman

**Effective Dates:**

	<b>09/01/2016</b>		<b>03/01/2017</b>
Rate	Fringe	Total	Total
38.30	27.78	66.08	68.48

**CLASSIFICATIONS:**

wagon drill or drill master helper; powder carrier; magazine tender; signal man

**HEAVY & GENERAL LABORERS - SOUTH**      **Rates Expiration Date : 08/31/2017**

**Effective Dates:**

<b>09/01/2016</b>			<b>03/01/2017</b>
Rate	Fringe	Total	Total
38.30	27.78	66.08	68.48

**CLASSIFICATIONS:**

pipe layer; laser man; conduit or duct line layer; operator of jack hammer, chipping hammer, pavement breaker, concrete cutter, asphalt cutter, sheet hammer, or walk-behind saw cutter; sandblaster; acetylene cutting or burning

**Effective Dates:**

<b>09/01/2016</b>			<b>03/01/2017</b>
Rate	Fringe	Total	Total
38.30	27.78	66.08	68.48

**CLASSIFICATIONS:**

wagon or directional drill operator; drill master

**Effective Dates:**

<b>09/01/2016</b>			<b>03/01/2017</b>
Rate	Fringe	Total	Total
42.10	27.78	69.88	72.28

**CLASSIFICATIONS:**

blaster

**Effective Dates:**

<b>09/01/2016</b>			<b>03/01/2017</b>
Rate	Fringe	Total	Total
39.85	27.78	67.63	70.03

**CLASSIFICATIONS:**

labor foreman, drill foreman, pipe foreman, grade foreman, finisher foreman, concrete foreman

**Effective Dates:**

<b>09/01/2016</b>			<b>03/01/2017</b>
Rate	Fringe	Total	Total
40.85	27.78	68.63	71.03

**CLASSIFICATIONS:**

general foreman



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**Effective Dates:**

<b>09/01/2016</b>			<b>03/01/2017</b>
Rate	Fringe	Total	Total
38.55	27.78	66.33	68.73

**CLASSIFICATIONS:**

concrete finisher; setter of brick or stone pavers; stone cutter; form setter; manhole, catch basin, or inlet builder; rammer; gunite nozzle man

PIPELINE - MAINLINE TRANSMISSION     Rates Expiration Date : 06/04/2017

These rates apply to the following: welding on Transportation Mainline pipe lines (cross-country pipe lines, or any segments thereof, transporting coal, gas, oil, water or other transportable materials, vapors or liquids, including portions of such pipe lines within private property boundaries up to the final metering station or connection - the point where a valve, consumer connection, or town border station divides mainline transmission lines or higher pressure lateral and branch lines from lower pressure distribution systems).

PER DIEM PAYMENT:

In addition to the total wage rate paid for each craft, the following per diem (per day) amounts must also be paid - Pipeline Journeyman: \$42.50; Pipeline Journeyman Welder: \$102.50; and Pipeline Helper: \$42.50. Note: in order to receive the per diem payment an employee must work a minimum of 8 hours in a 24 hour period.

NOTES:

- Journeymen employed as "stringer bead" welders and journeymen who are regularly employed as "hot-pass" welders shall receive \$1.00 per hour more than other journeymen.
- Welders running "stringer bead" or "hot-pass" on "cutouts" or "tie-ins" on a production basis shall be paid \$1.00 per hour above the journeymen rate.
- Whenever a welder helper is employed using a power buffer or power grinder immediately behind the stringer bead and/or hot-pass welders, and the pipe gang is set on a production basis, the helper shall be paid \$2.00 per hour above the helper rate.
- If back welding is performed inside a pipe under either or both of the following conditions, the welder engaged in the welding will receive \$3.00 per hour above the regular rate for the job only for the days on which such back welding is performed:
  - The employer elects, as a regular procedure, to back weld each line-up. This condition is not intended to apply to occasional back welding performed by the pipe gang to repair a bead, to rectify a "high-lo" condition or wall thickness, etc.
  - A welder is required to back weld a completed weld behind the firing line.
- If the welder helper is required to go inside the pipe for the purpose of brushing, buffing and grinding the weld, they shall receive a wage rate \$1.00 per hour above the regular helper rate for the days involved.
- Welders working on "hot work" shall be paid \$2.00 per hour above the regular rate for each day engaged in such work. "Hot work" is defined as work on lines in service where there is the danger of fire or explosion.

The regular workday shall be 8 hours, between 8:00 AM and 4:30 PM.

OVERTIME:

Hours in excess of 8 per day, and all hours on Sundays shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on holidays shall be paid at double the regular rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, July 4th, Labor Day, Thanksgiving Day, and Christmas Day. Sunday holidays observed the following Monday.

**Effective Dates:**

**06/01/2016**

Rate	Fringe	Total
54.56	26.59	81.15

**CLASSIFICATIONS:**

Pipeline Journeyman Welder

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PIPELINE - MAINLINE TRANSMISSION      Rates Expiration Date : 06/04/2017

**Effective Dates:**

**06/01/2016**

Rate	Fringe	Total
54.56	26.59	81.15

**CLASSIFICATIONS:**

Pipeline Journeyman

**Effective Dates:**

**06/01/2016**

Rate	Fringe	Total
32.99	18.73	51.72

**CLASSIFICATIONS:**

Pipeline Helper

**PIPELINE - GAS DISTRIBUTION**      **Rates Expiration Date : 10/31/2017**

These rates apply to the following: welding on gas line distribution systems (that portion of the gas distribution system placed in streets, roads, subways, tunnels, viaducts, highways and easements which serves the users of gas).

**SHIFT DIFFERENTIALS:**

An "irregular" shift may start any time from 5:00 PM to 12:00 AM, Monday through Friday, and shall receive an additional 15% of the regular rate per hour, inclusive of benefits.

**OVERTIME:**

Hours in excess of forty per week, and all hours on Saturdays shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on Sundays and holidays shall be paid at double the regular rate, inclusive of benefits.

**RECOGNIZED HOLIDAYS:** New Year's Day, Memorial Day, July 4th, Labor Day, Thanksgiving Day, and Christmas Day. Sunday holidays observed the following Monday.

**Effective Dates:**

<b>11/01/2015</b>			<b>11/01/2016</b>
Rate	Fringe	Total	Total
55.95	21.10	77.05	79.13

**CLASSIFICATIONS:**

Pipeline Journeyman Welder

**Effective Dates:**

<b>11/01/2015</b>			<b>11/01/2016</b>
Rate	Fringe	Total	Total
55.95	21.10	77.05	79.13

**CLASSIFICATIONS:**

Pipeline Journeyman

**Effective Dates:**

<b>11/01/2015</b>			<b>11/01/2016</b>
Rate	Fringe	Total	Total
36.22	15.29	51.51	52.90

**CLASSIFICATIONS:**

Pipeline Helper

**ASPHALT LABORERS- NORTH**      **Rates Expiration Date : 08/31/2017**

THESE RATES APPLY IN THE FOLLOWING COUNTIES ONLY:

Bergen, Essex, Hudson, Hunterdon, Middlesex, Monmouth, Morris, Passaic, Somerset, Sussex, Union, Warren

{For apprentice rates refer to "Laborer - Heavy & General" apprentice rates in any county rate package}

The regular workday consists of 8 hours, starting at 7:00 AM or 8:00 AM.

**SHIFT DIFFERENTIALS:**

- Shifts must start at 3:00 PM, 4:00 PM, 12:00 AM, or 1:00 AM, to be considered shift work, except when the project owner mandates special hours of work in the job specifications, in which case those hours may be considered shift work.
- When such hours are mandated by the project owner, a shift that begins before midnight on Friday and ends on Saturday morning, or that begins at or after 8:00 PM on Sunday and ends on Monday morning may be paid at the shift differential rate.
- Shifts shall receive an additional \$2.50 per hour.

**OVERTIME:**

- Hours in excess of 8 per day, Monday through Friday, or outside of the regular workday that are not shift work, and all hours on Saturdays, shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays shall be paid at double the hourly rate.
- Four 10-hour days may be worked, Monday through Thursday, at straight time, with Friday used as a make-up day for a day lost to inclement weather. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the hourly rate.

**RECOGNIZED HOLIDAYS:** New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday. Veterans Day may be substituted for the day after Thanksgiving. However, in the trading of Veterans Day for the day after Thanksgiving, if overtime is worked on Veterans Day, it shall be paid at double the hourly rate.

**Hazardous Waste Work:**

- where Level A, B, or C protection is required: + \$3.00/hr
- other Hazardous Waste site: + \$1.00/hr

**Effective Dates:**

	09/01/2016		03/01/2017
Rate	Fringe	Total	Total
39.85	27.78	67.63	70.03

**CLASSIFICATIONS:**

Asphalt Foreman

**Effective Dates:**

	09/01/2016		03/01/2017
Rate	Fringe	Total	Total
38.55	27.78	66.33	68.73

**CLASSIFICATIONS:**

Asphalt Screedman

**Effective Dates:**

	09/01/2016		03/01/2017
Rate	Fringe	Total	Total
38.30	27.78	66.08	68.48

**CLASSIFICATIONS:**

Asphalt Raker or Lute Man

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Effective Dates:

09/01/2016			03/01/2017
Rate	Fringe	Total	Total
37.60	27.78	65.38	67.78

CLASSIFICATIONS:

Asphalt Laborer

**ELECTRICIAN- UTILITY WORK (NORTH)**     **Rates Expiration Date : 12/03/2017**

Electrician-Utility Work (North)

(For apprentice rates refer to Electrician-Utility Work (North) in any county rate package).

These rates apply to work contracted for by the following utility companies:

Public Service Electric & Gas Co. of NJ, GPU Energy, Borough of Madison Electric Department, Sussex Rural Electric Cooperative, Rockland Utilities, and Butler Municipal Electric Co.

These rates do not apply to work on substations or switching stations.

For Utility work contracted for by a utility company other than those listed above or those listed under "Electrician-Utility Work (South), see the "Outside Commercial Rates" for the county in which the jobsite is located.

\* FOR OUTSIDE COMMERCIAL RATES PLEASE SEE COUNTY RATES

The regular workday is 8 hours, between 6:00 AM and 6:00 PM.

FOR EMERGENCY WORK ONLY: (emergency work is defined as work caused by storm, catastrophe, act of god, and circumstances beyond the control of the employer)-all hours of work shall be paid at double the hourly rate.

SHIFT DIFFERENTIALS:

Shift work must run for a minimum of 5 consecutive workdays.

2nd shift (between the hours of 4:30 PM and 1:00 AM): 8 hours of work + 17.3% of the regular rate, inclusive of benefits.

3rd shift (between the hours of 12:30 AM and 9:00 AM): 8 hours of work + 31.4% of the regular rate per hour, inclusive of benefits.

OVERTIME:

Hours in excess of 8 per day, or before or after the regular workday Monday through Friday, that is not shift work, and all hours on Saturday shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on Sundays and holidays shall be paid at double the hourly rate, inclusive of benefits.

Four 10-hour days may worked, at straight time, between 7:00 AM and 6:30 PM, Monday through Thursday.

RECOGNIZED HOLIDAYS:

New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day and Christmas Day, or day on which they are legally observed.

**Effective Dates:**

11/29/2015			12/04/2016
Rate	Fringe	Total	Total
50.52	33.84	84.36	87.27

**CLASSIFICATIONS:**

Chief Lineman

**Effective Dates:**

11/29/2015			12/04/2016
Rate	Fringe	Total	Total
47.66	31.93	79.59	82.34

**CLASSIFICATIONS:**

Journeyman Lineman

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ELECTRICIAN- UTILITY WORK (NORTH)      Rates Expiration Date : 12/03/2017

Effective Dates:

11/29/2015			12/04/2016
Rate	Fringe	Total	Total
47.66	31.93	79.59	82.34

**CLASSIFICATIONS:**

Special License Operator

Effective Dates:

11/29/2015			12/04/2016
Rate	Fringe	Total	Total
47.18	31.61	78.79	81.51

**CLASSIFICATIONS:**

Transit Man

Effective Dates:

11/29/2015			12/04/2016
Rate	Fringe	Total	Total
45.75	30.65	76.40	79.04

**CLASSIFICATIONS:**

Line Equipment Operator

Effective Dates:

11/29/2015			12/04/2016
Rate	Fringe	Total	Total
40.03	26.82	66.85	69.17

**CLASSIFICATIONS:**

Dynamite Man

Effective Dates:

11/29/2015			12/04/2016
Rate	Fringe	Total	Total
56.24	37.68	93.92	97.16

**CLASSIFICATIONS:**

General Foreman

Effective Dates:

11/29/2015			12/04/2016
Rate	Fringe	Total	Total
54.81	36.72	91.53	94.68

**CLASSIFICATIONS:**

Assistant General Foreman



ELECTRICIAN- UTILITY WORK (NORTH)      Rates Expiration Date : 12/03/2017

**Effective Dates:**

11/29/2015			12/04/2016
Rate	Fringe	Total	Total
53.38	35.76	89.14	92.21

**CLASSIFICATIONS:**

Line Foreman

**Effective Dates:**

11/29/2015			12/04/2016
Rate	Fringe	Total	Total
38.60	25.86	64.46	66.69

**CLASSIFICATIONS:**

Straight Light Mechanical Leader

**Effective Dates:**

11/29/2015			12/04/2016
Rate	Fringe	Total	Total
36.70	24.58	61.28	63.40

**CLASSIFICATIONS:**

Groundman Winch Operator

**Effective Dates:**

11/29/2015			12/04/2016
Rate	Fringe	Total	Total
36.70	24.58	61.28	63.40

**CLASSIFICATIONS:**

Groundman Truck Operator

**Effective Dates:**

11/29/2015			12/04/2016
Rate	Fringe	Total	Total
36.22	24.26	60.48	62.57

**CLASSIFICATIONS:**

Straight Light Mechanic

**Effective Dates:**

11/29/2015			12/04/2016
Rate	Fringe	Total	Total
36.22	24.26	60.48	62.57

**CLASSIFICATIONS:**

Line Equipment Mechanic

ELECTRICIAN- UTILITY WORK (NORTH)      Rates Expiration Date : 12/03/2017

**Effective Dates:**

<b>11/29/2015</b>			<b>12/04/2016</b>
Rate	Fringe	Total	Total
30.98	20.75	51.73	53.52

**CLASSIFICATIONS:**

Groundman 2nd Year

**Effective Dates:**

<b>11/29/2015</b>			<b>12/04/2016</b>
Rate	Fringe	Total	Total
28.60	19.16	47.76	49.39

**CLASSIFICATIONS:**

Groundman 1st Year

**Effective Dates:**

<b>11/29/2015</b>			<b>12/04/2016</b>
Rate	Fringe	Total	Total
47.18	31.61	78.79	81.51

**CLASSIFICATIONS:**

Line Equipment Foreman

**ELECTRICIAN- UTILITY WORK (SOUTH) Rates Expiration Date : 11/30/2017**

Electrician-Utility Work (South)

(For apprentice rates refer to Electrician-Utility Work (South) in any county rate package).

These rates apply to work contracted for by the following utility company:

Atlantic City Electric.

These rates do not apply to work on substations or switching stations.

For utility work contracted for by a utility company other than the one listed above or those listed under "Electrician-Utility Work (North), see the "Outside Commercial Rates" for the county in which the jobsite is located.

\* FOR OUTSIDE COMMERCIAL RATES PLEASE SEE COUNTY RATES

The regular workday is 8 hours, between 7:00 AM and 4:30 PM.

FOR EMERGENCY WORK ONLY: (emergency work is defined as work caused by storm, catastrophe, act of god, and circumstances beyond the control of the employer)- all hours of work shall be paid at double the hourly rate.

**SHIFT DIFFERENTIALS:**

Shift work must run for a minimum of 5 consecutive workdays.

When two (2) or three (3) shifts are worked the following shall apply:

1st shift (between the hours of 8:00 AM and 4:30 PM)

2nd shift (between the hours of 4:30 PM and 12:30 AM): 8 hours of work + 10% of the regular rate of pay for 7.5 hours worked.

3rd shift (between the hours of 12:30 AM and 8:00 AM): 8 hours of work + 15% of the regular rate of pay for 7 hours worked.

**OVERTIME:**

Hours in excess of 8 per day, or before or after the regular workday Monday through Friday, that is not shift work, and all hours on Saturday shall be paid at time and one-half the regular rate. All hours on Sundays and Holidays shall be paid double the hourly rate.

Four 10-hour days may be worked, at straight time, between 6:00 AM and 6:00 PM, Monday through Thursday with Friday used as a make-up day.

**RECOGNIZED HOLIDAYS:**

New Year's Day, Memorial Day, July 4th, Labor Day, Veterans' Day, Thanksgiving Day and Christmas Day or on days celebrated.

**WORKING RULES:**

There shall be a Foreman in charge of each work crew. No crews are to exceed twelve (12) men, including Foremen.

There shall be a General Foreman designated for transmission work when three (3) or more crews are on the same job and for distribution work where there are more than twenty (20) employees on site.

A small job crew shall consist of five (5) or less employees, one (1) of the Journeyman Linemen in the crew shall be designated as a Small Job Foreman.

Work performed from ladders and/or mechanical lift equipment shall be the work of Linemen and/or Apprentices.

On new construction, fitting and framing poles, towers or structures may be done by Journeymen and/or Apprentices. Groundmen may assist, but may not perform any work which would be performed by Linemen if assembled in the air.

There shall be a Journeyman Lineman in each pole setting, erection, grounding, wire and cable-pulling crew of more than three (3) men.

**Effective Dates:**

	12/01/2015		11/29/2016
Rate	Fringe	Total	Total
57.01	43.16	100.17	102.92

**CLASSIFICATIONS:**

General Foreman

**ELECTRICIAN- UTILITY WORK (SOUTH)**      **Rates Expiration Date : 11/30/2017**

**Effective Dates:**

<b>12/01/2015</b>			<b>11/29/2016</b>
Rate	Fringe	Total	Total
50.78	39.48	90.26	93.01

**CLASSIFICATIONS:**

Foreman

**Effective Dates:**

<b>12/01/2015</b>			<b>11/29/2016</b>
Rate	Fringe	Total	Total
48.10	37.90	86.00	88.75

**CLASSIFICATIONS:**

Small Job Foreman

**Effective Dates:**

<b>12/01/2015</b>			<b>11/29/2016</b>
Rate	Fringe	Total	Total
44.54	35.82	80.36	83.11

**CLASSIFICATIONS:**

Heavy Equipment Operator

**Effective Dates:**

<b>12/01/2015</b>			<b>11/29/2016</b>
Rate	Fringe	Total	Total
44.54	35.82	80.36	83.11

**CLASSIFICATIONS:**

Cable Splicer

**Effective Dates:**

<b>12/01/2015</b>			<b>11/29/2016</b>
Rate	Fringe	Total	Total
44.54	35.82	80.36	83.11

**CLASSIFICATIONS:**

Journeyman Lineman

**Effective Dates:**

<b>12/01/2015</b>			<b>11/29/2016</b>
Rate	Fringe	Total	Total
44.54	35.82	80.36	83.11

**CLASSIFICATIONS:**

Journeyman Welder

ELECTRICIAN- UTILITY WORK (SOUTH)      Rates Expiration Date : 11/30/2017

**Effective Dates:**

12/01/2015			11/29/2016
Rate	Fringe	Total	Total
44.54	35.82	80.36	83.11

**CLASSIFICATIONS:**

Journeyman Painter

**Effective Dates:**

12/01/2015			11/29/2016
Rate	Fringe	Total	Total
35.63	30.58	66.21	68.96

**CLASSIFICATIONS:**

Light Equipment Operator

**Effective Dates:**

12/01/2015			11/29/2016
Rate	Fringe	Total	Total
31.18	27.97	59.15	61.90

**CLASSIFICATIONS:**

Groundman Truck Driver

**Effective Dates:**

12/01/2015			11/29/2016
Rate	Fringe	Total	Total
28.95	26.65	55.60	58.35

**CLASSIFICATIONS:**

Groundman 3rd Year

**Effective Dates:**

12/01/2015			11/29/2016
Rate	Fringe	Total	Total
26.72	25.33	52.05	54.80

**CLASSIFICATIONS:**

Groundman 2nd Year

**Effective Dates:**

12/01/2015			11/29/2016
Rate	Fringe	Total	Total
24.50	24.04	48.54	51.29

**CLASSIFICATIONS:**

Groundman 1st Year

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Effective Dates:

12/01/2015			11/29/2016
Rate	Fringe	Total	Total
19.60	21.16	40.76	43.51

CLASSIFICATIONS:

Flagman

HEAVY & GENERAL LABORERS- NEW TRANS HUDSON TUNNELS      Rates Expiration Date : 08/31/2017

**\*\*THESE RATES APPLY TO CONSTRUCTION ON NEW TRANS HUDSON TUNNELS ONLY\*\***

{For apprentice rates refer to "Laborer - Heavy & General" apprentice rates in any county rate package}

The regular workday consists of 8 hours, starting at 7:00 AM or 8:00 AM.

**SHIFT DIFFERENTIALS:**

- Shifts must start at 3:00 PM, 4:00 PM, 12:00 AM, or 1:00 AM, to be considered shift work, except when the project owner mandates special hours of work in the job specifications, in which case those hours may be considered shift work.
- When such hours are mandated by the project owner, a shift that begins before midnight on Friday and ends on Saturday morning, or that begins at or after 8:00 PM on Sunday and ends on Monday morning may be paid at the shift differential rate.
- Shifts shall receive an additional \$2.50 per hour.

**OVERTIME:**

- Hours in excess of 8 per day, Monday through Friday, or outside of the regular workday that are not shift work, and all hours on Saturdays, shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays shall be paid at double the hourly rate.
- Four 10-hour days may be worked, Monday through Thursday, at straight time, with Friday used as a make-up day for a day lost to inclement weather. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the hourly rate.

**RECOGNIZED HOLIDAYS:** New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday. Veterans Day may be substituted for the day after Thanksgiving. However, in the trading of Veterans Day for the day after Thanksgiving, if overtime is worked on Veterans Day, it shall be paid at double the hourly rate.

**Hazardous Waste Work:**

- where Level A, B, or C protection is required: + \$3.00/hr
- other Hazardous Waste site: + \$1.00/hr

**Effective Dates:**

<b>09/01/2016</b>			<b>03/01/2017</b>
Rate	Fringe	Total	Total
60.53	27.78	88.31	91.28

**CLASSIFICATIONS:**

Walking Boss & Superintendent

**Effective Dates:**

<b>09/01/2016</b>			<b>03/01/2017</b>
Rate	Fringe	Total	Total
60.08	27.78	87.86	90.83

**CLASSIFICATIONS:**

Heading Foreman, Shaft Foreman, Rod Foreman, Electrical Foreman, Rigging Foreman

**HEAVY & GENERAL LABORERS- NEW TRANS HUDSON TUNNELS**      **Rates Expiration Date : 08/31/2017**

**Effective Dates:**

09/01/2016			03/01/2017
Rate	Fringe	Total	Total
59.33	27.78	87.11	90.08

**CLASSIFICATIONS:**

Iron Foreman, Caulking Foreman, Form Foreman, Cement Finishing Foreman, Concrete Foreman, Track Foreman, Clean-up Foreman, Grout Foreman

**Effective Dates:**

09/01/2016			03/01/2017
Rate	Fringe	Total	Total
63.08	27.78	90.86	93.83

**CLASSIFICATIONS:**

Blaster

**Effective Dates:**

09/01/2016			03/01/2017
Rate	Fringe	Total	Total
58.50	27.78	86.28	89.26

**CLASSIFICATIONS:**

Top Labor Foreman

**Effective Dates:**

09/01/2016			03/01/2017
Rate	Fringe	Total	Total
57.98	27.78	85.76	88.73

**CLASSIFICATIONS:**

Skilled Men (including Caulker, Powder Carrier, all other skilled men)

Skilled Men (including Miner, Drill Runner, Iron Man, Conveyor Man, Maintenance Man, Safety Miner, Rigger, Block Layer, Cement Finisher, Rod Man)

**Effective Dates:**

09/01/2016			03/01/2017
Rate	Fringe	Total	Total
57.75	27.78	85.53	88.51

**CLASSIFICATIONS:**

Semi-Skilled Men (including Bell or Signal Man top or bottom, Form Worker & Mover, Concrete Worker, Shaft Man, Tunnel Laborer, Caulker's Helper, all other semi-skilled)

Semi-Skilled Men (including Miner's Helper, Chuck Tender, Track Man, Nipper, Brake Man, Derail Man, Cable Man, Hose Man, Gravel Man, Form Man)



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<b>09/01/2016</b>			<b>03/01/2017</b>
Rate	Fringe	Total	Total
57.00	27.78	84.78	87.76

**CLASSIFICATIONS:**

All others (including Powder Watchman, Change House Attendant, Top Laborer, Job Steward)

SECTION HENUMERATION OF PLANS AND SPECIFICATIONS

The following are plans (also called drawings) which form part of this contract:

GENERAL TITLE

COUNTY OF UNION, NEW JERSEY

**SENSORY TRAIL IMPROVEMENTS – WATCHUNG RESERVATION**

Contract No. BA #43-2016, UNION COUNTY ENGINEERING PROJECT #2016-006

OUR FILE NUMBER H-UN-00206-01

<u>SHEET NUMBER</u>	<u>SPECIFIC TITLE</u>
1	COVER & INDEX SHEET
2	EXISTING CONDITIONS & DEMOLITION PLAN
3	OVERALL SITE PLAN
4	SITE & LANDSCAPE PLAN ENLARGEMENTS
5	GRADING & DRAINAGE PLAN
6	SOIL EROSION & SEDIMENT CONTROL PLAN & DETAILS
7	SOIL EROSION & SEDIMENT CONTROL NOTES & DETAILS
8	CONSTRUCTION DETAILS (1 OF 2)
9	CONSTRUCTION DETAILS (2 OF 2)
10	LANDSCAPE NOTES & DETAILS

## TECHNICAL SPECIFICATIONS

CONSIST OF DIVISIONS	1 -	General Requirements
	2 -	Detailed Specifications

APPENDIX A - SENSORY PLAY COMPONENTS

APPENDIX B – PRELIMINARY GAZEBO STRUCTURE DRAWINGS

COUNTY OF UNION  
UNION COUNTY, NEW JERSEY

**SENSORY TRAIL IMPROVEMENTS – WATCHUNG RESERVATION**

SPECIAL PROVISIONS

1. Existing Utilities

The contractor shall coordinate all work with the utility companies in the areas of construction. Information regarding existing utilities has been collected from various sources and the contractor is advised that underground object locations, elevations, or types are not warranted to be approximately correct. Nor can they be assumed to be the only subsurface objects, proposed or existing, which may be encountered during the excavation of the work. The contractor shall make all necessary investigations prior to bidding to satisfy himself as to the existing conditions.

Specifically for this project, the Contractor shall coordinate with the appropriate gas utility to reset the existing gas valve to meet proposed grade.

2. Somerset-Union Soil Conservation District Certification

The contractor is advised that a Soil Erosion and Sediment Control Plan Certification is pending for this project. The contractor shall provide a minimum of 72 hours notice to the Somerset-Union Soil Conservation District at (609) 267-7410, prior to the start of ground disturbance.

3. Anticipated Trail Disturbance

The intent of the installation of this sensory trail is to provide minimum disturbance to the existing wooded area. The contractor shall pay specific attention to the overall width of the trail and minimize disturbance throughout the installation. At no time shall the contractor disturb an area greater than ten (10) feet wide unless otherwise noted on the plan set. Any disturbance or damaged trees shall be the responsibility of the contractor to repair and/or remove at no additional cost to the County. Should the excess disturbance result in any fines, penalties or additional work required by any regulating agencies, this also shall be the sole responsibility of the contractor at no additional cost to the County.

4. Contractor's Progress Schedule and Schedule of Values

The contractor shall submit a proposed schedule of operation for the project prior to commencement of construction that clearly indicates how he proposes to conduct the work to bring about the completion of the projects within the Contract Time.

The contractor shall also provide a Schedule of Values detailing an itemized breakdown of all lump sum bid items for progress payment purposes. Said Schedule shall be submitted to and approved by the Engineer prior to the first request for payment submittal.

5. Construction Contingencies

The contractor's attention is specifically directed to the fact that various items and extra quantities have been included in the bid form for contingency purposes in conjunction with this project.

Accordingly, the contractor is hereby advised prior to submitting his bid that he shall take into account the fact that contingencies have been included in the items and that portions of certain items or entire items may not be utilized by the Owner, depending upon the conditions encountered during the work.

To that end, the initial contract award amount may be higher than the final contract amount, depending upon the actual conditions installed.

The contractor should satisfy himself by personal examination of location of the proposed work and surroundings thereof, and by such other means that he prefers, and shall not at any time after submission of the bid, dispute the original estimate of the work, nor assert that there was any misunderstanding in regard to the contingencies included in the quantities.

## 6. Permits

The contractor shall be responsible for applying for and obtaining all sub-code permits necessary for any/all components of construction in accordance with existing local, county and state regulations.

The appropriate Building Sub-Code Officials shall inspect the construction of any items requiring permits. The presence of the Engineer or his representative shall not relieve the Contractor of his responsibility to call for inspections and/or install the structures in accordance with plans, specifications and codes and standards having jurisdiction.

## 7. Special Site Conditions

The contractor is advised that the major components of this contract take place in a public facility operated by Union County. It is the intentions of the County to have the adjacent areas remain open and usable during construction. Accordingly, special care shall be exercised to provide adequate safety to the general public, users and county personnel at all times.

Specific details and scheduling of any facility closures due to the proposed improvements shall be coordinated with the Engineer and the County. Work on Sundays and Holidays is prohibited, work on Saturdays and after 5 pm on weekdays must be authorized by the Owner and Engineer.

The contractor shall provide, install and maintain (on a daily basis) fencing, barricades or other suitable materials to protect all active construction areas, newly installed surfaces and construction equipment/supplies from unauthorized access and/or damage during the contract time.

Methods and materials for said protection measures shall be approved by, and coordinated with, the Owner and Engineer.

Separate payment for said protection measures will not be made. Cost of same shall be included in all contract items requiring protection.

## 8. Excess Topsoil and Fill Material

Contractor to coordinate with Union County for designated areas within Watchung Reservation to deliver excess topsoil and fill material removed from the project site.

## SPECIFICATIONS

### DIVISION 1 - GENERAL REQUIREMENTS

<u>1-0.1</u>	<u>TABLE OF CONTENTS</u>
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1-2.6	PROGRESS SCHEDULE
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## **SPECIFICATIONS**

### **DIVISION 1 - GENERAL REQUIREMENTS**

#### **1-0.2 SPECIFICATIONS USED**

THE 2007 STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION OF THE NEW JERSEY DEPARTMENT OF TRANSPORTATION AND AS AMENDED HEREIN, INCLUDING ALL BDC's <http://www.state.nj.us/transportation/eng/specs/2007/Division.shtml> ISSUED UNTIL THE DATE OF THE ADVERTISEMENT OF THIS PROJECT SHALL GOVERN THE CONSTRUCTION OF THIS PROJECT AND BE SUPPLEMENTED BY DIVISION 2 OF THE TECHNICAL SPECIFICATIONS

#### **1-2.6 PROGRESS SCHEDULE**

Within ten (10) days after the award of the Contract, the Contractor shall submit in writing a proposed program of operation, showing clearly how he proposes to conduct the work so as to bring about the completion of his work within the time limit specified. This program shall outline the proposed sequence of operations, the rates of progress and the dates when each part of his work will be completed. The work under this Contract shall, in general, be so scheduled that the work will be coordinated with work by others on adjacent contracts, if any.

The Contractor shall accompany this schedule with a list of delivery dates for materials and equipment.

This plan of operation may be adjusted and revised as the work progresses, but such changes must have at all times the approval of the Engineer.

In any event it shall be the purpose of the progress schedule to guide the course of the work, and strict adherence to it will be demanded by the Engineer.

If all or part of the work of the Contract will be substantially delayed by the extremes of winter weather, the Contractor shall anticipate such delays, shall prepare his progress schedule in a manner that will minimize the overall effect of such anticipated weather delays, and shall periodically update said schedule in accordance with actual weather delays experienced to that date and anticipated for any subsequent period.

#### **1-4.1 BOUNDARIES OF THE WORK**

The Contractor shall obtain from the Owner all information regarding the areas that may be available for his operations and to what extent and for what period of time he may occupy them.

#### **1-4.4 LINES AND GRADES**

All work under this Contract shall be constructed in accordance with the lines and grades shown on the Plans or as given by the Engineer. The full responsibility for keeping alignment and grade shall rest upon the Contractor.

Primary reference points for the laying out of the work shall be provided by the Owner.

Lines and grades will be set by a N.J. Licensed Land Surveyor employed by, or retained by the Contractor as the work progresses and will be located to cause as little inconvenience to the prosecution of the work as possible.

The Contractor shall so place excavation and other materials so as to cause no inconvenience in the use of the lines and grades established. He shall remove any obstructions placed by him contrary to this provision.

The Contractor shall furnish and maintain at his own expense, stakes, and other such materials, and give such assistance, including qualified helpers, as may be required for setting line and checking grade marks.

The Contractor shall provide grade sheets at least two (2) working days in advance of the time same will be needed for review, and shall keep the Engineer informed of daily work schedules so that all necessary measurements may be made for record and payment with a minimum of inconvenience to the Engineer or of delay to the Contractor.

It is the intention not to delay the work for the giving of lines and grades, but, when necessary, working operations shall be suspended for such reasonable times as Contractor's surveyor may require for this purpose.

The Contractor shall safeguard all points, stakes, grade marks, monuments and bench marks made or established on the work, re-established them and bear the entire expense of rectifying work improperly installed due to not maintaining or protecting or for removing without authorization such established points, stakes, and marks. Replacement of disturbed or destroyed Principal reference points shall be completed by a N.J. Licensed Land Surveyor, acceptable to the Owner and Engineer, and at the Contractor's expense.

### **1-6.3 WORK IN BAD WEATHER**

During freezing, stormy or inclement weather, the Contractor shall provide heat, shelter, and other facilities as directed and necessary to maintain the progress schedule and all work shall be done in a manner to secure first class construction throughout.

### **1-6.4.2 WATER AND ELECTRICITY**

The Contractor shall unless specified, provide the necessary water supply at his own expense and shall pay for all water used.

The Contractor shall unless otherwise specified, provide, at his own expense, adequate temporary lighting and electrical power facilities if required for the proper prosecution and inspection of the work. If, in the opinion of the Engineer, these facilities are inadequate, the Contractor shall provide facilities which are satisfactory to the Engineer.

### **1-6.4.3 HEATING**

The Contractor shall provide temporary heat, whenever required on account of work being carried on during cold weather and to prevent freezing of water pipes and other damage to the work. Heat shall be furnished when and as directed and at the Contractor's own expense.

### **1-6.4.4 TRAFFIC PROTECTION AND PARKING OF CARS**

The Contractor shall protect all traffic and parked cars, when lawfully parked, and shall see to it that the cars belonging to his workmen are parked in areas permitted by the municipal authorities.

He shall take particular care to provide access to adjacent property, both for ordinary traffic and emergency vehicles. Access to fire hydrants shall be kept clear at all times. The Contractor will be required to prevent the formation and flying of dust to the satisfaction of the Engineer by the use of water or chemicals.

Unless expressly authorized in advance and in writing, the Contractor shall maintain a minimum of one lane of traffic through the project area controlled by competent Flagmen as necessary. IMMEDIATE clearance through the project area shall be furnished for Fire/Rescue/Police Vehicles and School Buses. If necessary, work shall be temporarily suspended to permit the immediate passage of Fire/Rescue/Police or other emergency vehicles and/or school buses.

Local and through traffic shall be maintained at all times unless the Owner approves a detour route for a duration of time.

Whenever it is necessary to maintain only a single line of traffic, the contractor shall furnish and employ sufficient competent traffic directors during the day and night to adequately guide and protect traffic.

The Contractor shall erect and maintain barricades, danger signals and warning signs at working sites, closed roads, intersections and other places of danger to traffic or to the completed work as directed and approved by the Engineer. Each barricade shall be provided with red flashing lights battery operated not more than five feet apart and not less than three lights shall be used.

Where specific detour routes or traffic protection signs and equipment are specified or required by the plans, the Contractor will provide same along with all other signage equipment and flagmen necessary to satisfactorily protect and safely coordinate traffic.

Vehicular and pedestrian traffic on streets shall be maintained and protected at all times, and all operations in or adjacent to streets, sidewalks, and walkways shall be conducted and controlled accordingly.

The Contractor shall, for the protection of the traveling public and his personnel, familiarize himself and adhere strictly to the requirements of these Specifications and to the requirements of Title 39, the Motor Vehicle Code of the State of New Jersey, wherever it shall pertain to necessary and required precautionary measures regarding the type of work being done.

The cost of protection of traffic as above described and in addition to uniformed traffic directors shall be as stated in the Division 2 Specifications and in the Proposal.

#### **1-6.4.5 SURFACE DRAINAGE**

The Contractor shall furnish all necessary equipment, shall take all necessary precautions, and shall assume the entire cost of handling any surface drainage occurring during the construction of the work. The manner of providing for these flows shall meet the approval of the Engineer and the entire cost of said work shall be deemed included in the unit or lump sum prices for the various items of work to be done under the Contract.

#### **1-6.5 DOMESTIC MATERIAL**

The contractor during the course of this contract agrees to use, supply or deliver only such manufactured articles, materials and supplies as have been manufactured in the United States substantially from articles, materials and supplies mined, produced or manufactured in the United States, wherever available.

#### **1-6.17.1 SANITARY-REGULATIONS**

Toilet accommodations properly secluded from observation shall be erected and maintained by the Contractor, in such a manner and in such locations as approved by the Board of Health, and their use shall be strictly enforced.

The building of shanties or other structures for housing the men, tools, machinery or supplies, will be permitted only at approved places and the sanitary conditions of the ground in and at such shanties or other structures must be at all times maintained in a satisfactory manner.

#### **1-6.17.2 FINAL CLEANING**

At the conclusion of the work, all erection plant, tools, temporary structures, and materials belonging to the Contractor shall be promptly taken away, and he shall remove and promptly dispose of all water, dirt, rubbish, or any other foreign substances.

The Contract shall thoroughly clean all equipment and materials installed by him and shall deliver over such materials and equipment undamaged in a bright, clean, polished, and new appearing condition.

#### **1-6.20.2 PROTECTION OF WORK UNTIL COMPLETION**

During performance and up to the date of final acceptance, the Contractor shall be under an absolute obligation to protect the finished and unfinished work against any damage, loss or injury. The Contractor shall take proper precautions to protect the finished work from loss or damage, pending completion and the acceptance of all the work included in the entire Contract, provided that such precaution shall not relieve the Contractor from any and all liability and responsibility for loss or damage to the work occurring before acceptance by the Owner. Such loss or damage shall be at the risk of and borne by the Contractor, whether arising from acts or omissions of the Contractor or others, or from floods, storms, high tides, or otherwise. In the event of any such loss or damage, the contractor shall forthwith repair, replace and make good the work without additional compensation or extension of time therefore, except as may be otherwise provided herein.

These provisions shall not be deemed to create any new right of action in favor of third parties against the Contractor or Owner.

The contractor shall provide for the removal of all dirt spilled from the trucks on existing pavements over which it is hauled, or which is washed or otherwise deposited thereon by reason of his work, whenever, in the opinion of the Engineer, the accumulation is sufficient to cause the formation of mud, interfere with drainage or to create a traffic hazard.

Costs incidental to the maintenance of existing roadways as herein described, shall not be paid for under any specific item but shall be included in the unit prices bid for other items scheduled in the Proposal. In the event that the contractor fails to maintain safe traffic conditions and job conditions, the Municipality may after failure of the



contractor to provide safe traffic conditions, hire guards or take such precautions to safeguard traffic, and the cost of same shall be deducted from payment due the contractor.

### **1-6.20.3.1 CARE OF PUBLIC AND PRIVATE PROPERTY**

The Contractor shall preserve from damage all property along the line of the work, or which is in the vicinity of or is in any way affected by the work, the removal or destruction of which is not called for by the Plans. This applies to the public utilities, railroads, trees, monuments, fences, pipe and underground structures, public streets (except natural wear and tear of streets resulting from legitimate use thereof by the Contractor), and wherever such property is damaged due to the activities of the Contractor, it shall be immediately restored to a first class condition by the Contractor and at his own expense.

In case of failure on the part of the Contractor to restore such property, or make good such damage or injury, the Owner may, upon forty-eight hours notice, proceed to repair, rebuild, or otherwise restore such property as may be deemed necessary, and the cost thereof will be deducted from any moneys due or which may become due the Contractor under this Contract.

Nothing in this clause shall prevent the Contractor from receiving proper compensation for his costs incurred because of the removal or replacement of any public or private property, when this is made necessary by alteration of grade or alignment, or any such work authorized by the Owner, provided that such property has not been damaged through fault of the Contractor, his employees, or agents.

### **1-6.20.3.2 PROTECTION AND REPLACEMENT OF SUBSURFACE STRUCTURES AND UTILITIES**

The plans may show certain but not all subsurface structures known to exist in the working area. The Contractor shall particularly note that the indicated locations of subsurface water, gas, electric, telephone, sewerage and drainage systems in the area may be quite different from their actual locations and that there may be some subsurface structure or utility encountered that is not shown on the plans. Therefore, it shall be his responsibility to proceed with caution in executing the work, so as to prevent undue interruptions of utility service to property owners and damage to structures or utilities, or injury to workmen or others.

The Contractor will be held responsible FOR ALL DAMAGES to all utilities or other underground or surface structures whether or not they are shown on the Contract Drawings, and he shall pay all costs for protecting them or for repairing and/or replacing them IF THEY ARE DAMAGED AS A RESULT OF OPERATIONS UNDER THIS CONTRACT.

In the event that UNDERGROUND STRUCTURE OR UTILITIES are disclosed by the Contractor's operations THAT OCCUPY THE SAME SPACE AS REQUIRED BY INSTALLATIONS UNDER THIS CONTRACT, the Contractor shall notify the Engineer and await his orders concerning the removal and replacement of said structures or utilities. The procedures regarding compensation in this event will be as follows:

- a. Where it develops that the utility company will remove and relocate the structure or utility at its own expense and with its own forces, no compensation therefore will be due the Contractor.
- b. Where the utility company will not assume the expense but exercises its right to perform the work with its own forces, the Contractor shall pay the cost incurred upon being presented with a bill for the same, and will in turn be reimbursed by the Owner for the amount paid thereon plus five percent (5%).
- c. Where the Contractor has to perform the work of removal and relocation with his own forces, he shall be reimbursed as set forth under Article G 10.1.1, entitled, "Extra Work - Increased Compensation". This provision shall likewise apply to instances under (a) and (b) above, where the contractor's forces or equipment are required for only a portion of the work.

Wherever gas mains, petro-chemical mains, electrical or heating ducts, electric, telephone, or telegraph poles or ducts, private or municipal water mains are encountered and service may be interrupted, the Contractor shall keep the Owner utility company or department fully informed in advance of any changes he desires to make. The Contractor shall cooperate with the utility company or department in the removal, relocation, and replacement of such structures, so as to avoid all unnecessary interruption of service. He shall arrange with the owners of the utilities for this work to be done.

If, in the opinion of the Engineer, it is necessary to install temporary lines, to prevent interruptions in utility service to residents, the Contractor shall install or have installed the temporary lines necessary to provide service. He shall maintain and protect such lines during the course of the work and shall remove them when permanent connections have been made unless otherwise directed by the Engineer. The costs therefore shall be assumed by the Contractor in all cases excepting only where the structure or utility requiring such temporary replacement, occupies the same space as that needed for installations under this Contract, in which event the procedures for compensation listed under (a), (b) and (c) in this Article will be followed.

Such work shall be performed to the satisfaction of the Engineer.

Where the Owner's storm drains, sewer lines, or water mains are encountered and repair, replacement, or relocation is necessary before work can proceed, the Contractor shall carry out the work promptly as directed by the Engineer.

#### **1-6.20.4 ACCIDENT PREVENTION AND FIRST AID**

Precautions shall be exercised at all times for the protection of persons and property. The safety provisions and applicable laws, building and construction codes shall be observed. Machinery and equipment shall be guarded and all hazards eliminated in accordance with safety provisions of Construction Industry OSHA Safety and Health Standards (29CFR 1926/1910), including amendments and supplements to date, published by the U.S. Department of Labor, Occupational Safety and Health Administration, to the extent that such provisions are not in contravention of applicable law. The Contractor shall provide suitable barricades, red lights, "Danger" or "Caution" signs and watchmen at all places where the work constitutes in any way a hazard to the public, or workmen.

The Contractor shall keep upon the site, at each location where work is in progress, a completely equipped first-aid kit and shall provide ready access thereto at all times when men are employed on the work.

##### **1-6.20.4.1 CONTRACTOR'S SIGNS**

The Contractor shall erect and maintain safety signs, temporary barricades, temporary fences, and take all precautions to guard against all dangers and hazards, as are necessary in the opinion of the Engineer in the interest of the public health and safety.

Signs shall be of suitable size to be readily seen and shall be black letters on orange background. Barricades, drums and like items shall be standard orange and white striped. Warning and detour signs and barricades and other safety devices shall be reflectorized painted or lighted, and maintained.

##### **1-6.20.4.2 WATCHMEN & FLAGMEN**

Watchmen and/or Flagmen shall be furnished and shall be on duty appropriate to carry out the Contractor's responsibility for safety and protection.

#### **1-6.23.1 WORKING DRAWINGS**

The Contractor shall promptly prepare and submit layout, detail, and shop drawings for such parts of the work as specified hereafter under the specifications for materials, workmanship and Contract Items. These drawings will be known as "Working Drawings."

The drawings shall be numbered to coincide with the Division and article of the specifications related to same, and consecutively numbered for all individual drawings for a particular item or items related to the particular division and article and shall accurately and distinctly present the following:

- a. All work and erection dimensions.
- b. Arrangement and sectional views.
- c. Necessary details, including complete information or making connections between work under this Contract and work under other Contracts.
- d. Kinds of materials and finishes.
- e. Parts list and description thereof.

Each drawing shall be dated and shall contain the name of the project, contract number, Contract Item and paragraph number, names of equipment or materials, and the locations at which the equipment or materials are to be installed in the work. The Engineer may decline to consider any working drawing that does not contain complete data on the work and full information on related matters.

If the working drawings show departures from the Contract requirements, the Contractor shall make specific mention thereof in his letter of submittal and on the subject drawing or drawings. Otherwise, approval of such submittals shall not constitute approval of the departures. Approval of the drawings shall constitute approval of the subject matter thereof only and not of any structure, material equipment or apparatus shown or indicated. The approval of drawings will be general and shall not relieve the Contractor of responsibility for the accuracy of such drawings, nor for the proper fitting and construction of the work, nor for the furnishing of materials or work required by the Contract and not indicated on the drawings. No work called for by working drawings shall be done until the said drawings have been approved by the Engineer.

The procedure in seeking approval of working drawings shall be as follows:

- a. The contractor shall submit for approval two prints and one reproducible sepia copy, or six prints in the case of manufacturer's catalogue "cuts" and similar items, of each of the drawings to the Engineer. The submission of drawings shall be accomplished by letter of transmittal in duplicate, containing the name of the project, the name of the Contractor, the number of drawings, titles, and other requirements.
- b. When a drawing is satisfactory to the Engineer, it will be stamped "NO EXCEPTIONS TAKEN", be dated, and two copies thereof will be returned to the Contractor by letter.
- c. Should a drawing be unsatisfactory to the Engineer, he will stamp thereon "REVISE AND RESUBMIT", or "REJECTED", and will return one copy thereof to the contractor with the necessary corrections and changes indicated. The Contractor must make such corrections and changes and again submit two prints and one reproducible sepia copy of the drawing for approval, within five (5) working days of the date of rejection.

The Contractor shall revise and resubmit the working drawings as required by the Engineer, until "NO EXCEPTIONS TAKEN" thereof is obtained.

### **1-13.2 INSPECTION**

During the progress of the work and up to the date of final acceptance, the Contractor shall, at all times afford the representatives of the Owner every reasonable, safe and proper facility for inspecting the work done or being done at the site. The inspection of any work shall not relieve the Contractor of any of his obligations to perform proper and satisfactory work as herein specified. Finished or unfinished work found not to be in strict accordance with the Contract shall be replaced as directed by the Engineer, even though such work may have been previously approved and payment made therefore.

Failure or neglect on the part of the Engineer to condemn or reject bad or inferior work or materials shall not be construed to imply an acceptance of such work or materials, if it becomes evident at any time prior to the final acceptance of the work by the Owner, neither shall it be construed as barring the Owner at any subsequent time, from the recovery of damages or of such a sum of money as may be needed to build anew any portion of the work in which fraud was practiced or improper materials hidden, or used, wherever found.

### **1-13.3 NOTICE OF INSPECTION TO BE GIVEN BY THE CONTRACTOR**

Certain items in the work will require special inspection by the Engineer and/or his inspectors. The Engineer will so specify these items to the Contractor during the course of the work; whereupon the Contractor, before proceeding with such specified items, shall give two working days written notice in advance to the Engineer, for the purpose of scheduling and providing such inspection service.

### **1-13.10 STOPPING WORK**

The Engineer, acting as the Owner's representative, may stop, by written order, or a verbal order confirmed in writing within twenty-four hours, any work or any part of the work under the Contract if in his opinion the methods or materials employed are unsafe, improper or defective. No payment for downtime will be made. When work is

so stopped, it shall not be resumed until the methods or conditions are revised to the satisfaction of the Engineer, which must be signified in writing. Work may also be stopped by the Engineer or required to be postponed for an adequate period of time if the work interferes with, or unduly interrupts the operation of existing utilities. The Contractor is required to fully inform himself as to the nature and location of existing utilities within the project area, all locations of actual or potential interference, and coordinate the activities of affected utilities regarding any necessary temporary or permanent relocations to minimize possible or actual delay to planned progress.

### **1-18.1 PROJECT PHOTOGRAPHS**

IF REQUIRED BY THE TERMS OF THE PROPOSAL and Contract Agreement, only, the Contractor shall provide three sets of acceptable, unretouched 8"x10" glossy, cloth mounted 8-1/2"x11" format, properly identified Pre-construction, Progress, and Final Construction Project Photographs comprising not less than the total number of individual prints stipulated in the proposal, with the cost of same included in the various prices bid. All project photographs shall conform with the following particulars and be delivered as required hereinafter.

### **1-19.1 ABBREVIATIONS**

Where any of the following abbreviations are used in the Specifications they shall have the meaning set forth opposite each.

ACI	American Concrete Institute
ASTM	American Society for Testing Materials
ASCE	American Society of Civil Engineers
AWWA	American Water Works Association
ASME	American Society of Mechanical Engineers
NBS	National Bureau of Standards
AIEE	American Institute of Electrical Engineers
AASHO	American Association of State Highway Officials
NEMA	National Electrical Manufacturers Association
NEC	National Electric Code, latest edition
AISC	American Institute of Steel Construction
ASA	American Standards Association
AWS	American Welding Standards

### **FEDERAL SPECIFICATIONS**

Federal Specifications issued by the Federal Supply Service of the General Services Administration, Washington, D.C.

### **125 LB. AMERICAN STANDARD**

American Standard (ASA B16.1-1948) for Cast Iron Pipe Flanges and Flanged Fittings, Class 125

USS GAUGE United States Standard Gauge

N.J.D.O.T.S.S. New Jersey Department of Transportation Standard Specifications, 2007 (as amended)

GPD	Gallons per day
MGD	Million gallons per day
GPM	Gallons per minute
CFS	Cubic feet per second

### **SPECIFICATION ABBREVIATIONS**

Omission in wording. For brevity, some sentences are incomplete and such words and phrases as "the contractor shall", in conformity therewith", "shall be", "as noted on drawing", "according to the drawings", "a", "an", "the" and "all" which clutter up most specifications are sometimes omitted. They shall be supplied by the reader.

The contractor shall provide all items, articles, materials, operating methods lists, mentioned or scheduled on drawings or in specifications, including all labor, materials, equipment, incidentals necessary and required for their completion.

Approvals, etc., wherever the words "approved", "satisfactory", "direct", "submitted", "inspected" or similar words or phrases are used, it shall be assumed that the word "Engineer" or one of their representatives follows the verb as the object of the clause, such as "approved by the Engineer" and "submitted to the Engineer".

References to the Standard Specifications or manufacturer's installation directions shall mean to the latest edition thereof, as published prior to the date of the agreement unless otherwise indicated.

Terminology: Words which have well known technical or trade meanings are used herein in accordance with such recognized meanings.

1. "Acceptable", "equal to", "proper", and other qualifying terms imply the judgment by the Architect/Engineer.
2. "Approved", or "Approval" means any equipment, item or material approved by the Architect/Engineer.
3. "Approved equal" means any equipment, item or material approved by the Architect/Engineer as equivalent to the specified equipment, item or material.
4. "Concealed" means work which is not exposed to view when the project is complete.
5. "Exposed" means work which remains exposed to view when the project is complete.
6. "Delivery" means unloading and storing at the site.
7. "Furnish" means to supply and deliver to the job.
8. "Governmental" means all Municipal, County, State and Federal government agencies.
9. "Install" means complete erection and connection of work.
10. "Piping" includes piping and all fittings, valves, hangers and other accessories related to piping.
11. "Provide" means "furnish" and "install" as defined above.
12. Words in singular form shall include as many such devices as are required to complete the work.

## **1-20 EXISTING UTILITIES**

Prior to the start of any excavation work, the contractor shall contact the various utility companies in order to obtain firsthand information of underground piping and conduits:

One recommended number to call for various private utilities is 1-800-272-1000.

## S P E C I F I C A T I O N S

## DIVISION 2 - SITE WORK

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## **SECTION 2A - CLEARING AND PREPARATION OF SITE**

### **WORK INCLUDED**

Clearing Site shall consist of removing all natural and artificial obstacles and material from the construction areas and such other areas as may be specified. The above work includes, if applicable, the removal and resetting of street and road signs, mailboxes, fences, guardrail, and any other structures as directed by the Engineer.

The Contractor will be responsible for removing and disposing of the existing park amenities, including but not limited to, the existing paver walkway and patio; flagpole; benches, picnic tables and trash receptacles; utilities; footbridges and foundations; and trees and landscaping.

Also specifically included in this item for this project is the removal and disposal of any existing trees scheduled to be removed.

Clearing and preparation of site shall also include provisions for mobilization, demobilization and general site clean-up during all phases of work *and* at the conclusion of the job.

Clearing limits or limits of disturbance shall be verified at a site meeting of the Engineer and Contractor a minimum of 48 hours prior to any disturbance is scheduled. Protection of trees to remain is to be in accordance with the details in the contract drawings. Any existing trees at or near the proposed edge of disturbance shall be evaluated and, at the discretion of the Engineer, either removed or protected and saved.

If required, existing tree pruning shall be consistent with a "Class 2, medium pruning" in accordance with ISA specifications which indicate the removal of any dead, dying, diseased, objectionable, obstructing and weak branches down to one (1) inch diameter. Field dressing of all tree trunks, limbs or roots following the cutting of same shall utilize approved tree pruning paint to the satisfaction of the Engineer.

If required, root pruning shall be completed along the perimeter of the trail to ensure a clean edge is present for the installation of trail material. Root pruning should be considered only when other options for correcting a conflict between roots and infrastructure are deemed not practical. For trees requiring excess root pruning, a tree assessment shall be conducted and a root-pruning plan shall be developed by a qualified arborist. Crown pruning prior to or following root pruning shall be done only in cases where the potential for structural failure may increase substantially because of root pruning. All root pruning shall be completed in accordance with acceptable practices and reviewed with the Engineer and Certified Tree Experts prior to proceeding.

Restoration, including filling, grading, and topsoil to meet adjacent grade shall be included in this item.

Existing improvements, adjacent properties, utilities and other facilities and trees or landscaping that are not to be removed shall be protected from injury or damage resulting from the Contractor's operations. Areas within the contract limits shall be cleared of all vegetation such as trees, logs, stumps, roots, downed trees, brush, grass, weeds and all other objectionable material as directed by the Engineer.

When or where any direct or indirect damage or injury is done to public, or private property, by or on account of any act or omission, neglect or misconduct, on the part of the Contractor in the execution of the work, such property shall be restored by the Contractor at his expense, to a condition equal to or better than existing before such damage or injury was done, or the Contractor shall provide compensation for the damage or injury in such other manner as may be acceptable to the Owner and/or Engineer.

### **MEASUREMENT AND PAYMENT**

Measurement and payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
CLEARING AND PREPARATION OF SITE, MOBILIZATION AND DEMOBILIZATION	LUMP SUM
ROOT PRUNING (IF AND WHERE REQUIRED)	ALLOWANCE

Compensation for clearing and preparation of site, mobilization and demobilization including all labor, equipment and materials for the work described above shall be included in the lump sum price bid as listed in the bid form.

Compensation for labor and materials required for tree save measures, all pruning, tree and limb removal, field dressing, removal of dead vegetation, and disposal as required by the Engineer shall be included in the bid price for clearing and preparation of site, mobilization and demobilization.

A portion of the bid amount for clearing and preparation of site, mobilization and demobilization based on the approved schedule of values will be retained until final clean-up, restoration, punch lists and demobilization are complete.

Separate payment will not be made for the items associated with clearing and preparation of site for which individual pay items have not been provided in the contract. Payment shall be included in the lump sum price bid for clearing site, and/or the prices bid for all items requiring the same.



## **SECTION 2B - SOIL EROSION AND SEDIMENT CONTROL**

### **WORK INCLUDED**

"Soil Erosion and Sediment Control" shall include the furnishing of all materials, labor, and equipment necessary for implementing proper measures to reasonably control soil erosion from construction operations and prevent excessive flow of sediment from the construction site. Such work may include the installation of water diversion structures, diversion ditches and sediment basins, seeding and mulching, and sodding critical areas to provide temporary protection. All work shall be performed in accordance with the approved soil erosion plan and detail sheets.

### **MATERIALS**

Materials shall conform to the requirements of appropriate articles of "Standard for Soil Erosion and Sediment Control in New Jersey" as revised and adopted January 2014, and the Standard Specification for Road and Bridge Construction of the New Jersey Department of Transportation, 2007 as added to and amended. Such standard specifications are made part of the specifications by this reference and will not be repeated herein. In case of conflict between the above-mentioned requirements, the standard requiring the higher in terms of quality of materials and workmanship shall prevail.

### **METHODS OF CONSTRUCTION**

The work on soil erosion and sediment controls shall include, but not be limited to the following:

1. All soil erosion and sediment control practices on this project shall be constructed in accordance with the "Standards for Soil Erosion and Sediment Control in New Jersey", or as approved for this project.
2. The smallest practicable area of land shall be exposed at any one time during the project and wherever feasible, natural vegetation shall be retained and protected. Stripping of vegetation, grading or other soil disturbance shall be done in a manner which will minimize soil erosion.
3. A schedule of construction operations shall be submitted to the Engineer for his approval.
4. A 72-hour notice shall be given to the Engineer prior to the start of construction or grading. This notice can be verbal but must be followed by a written statement not less than forty-eight (48) hours prior to start-up.
5. All soil erosion and sediment control devices shall be in place prior to any major soil disturbance or installed and removed in their proper sequence to allow for further operations on the site.
6. All sediment control structures shall be checked and maintained on a regular basis and all basins shall be cleaned periodically when storage capacity is affected by siltation.
7. During construction, any additional control measures as deemed necessary to prevent erosion or control sediment beyond those measures shown on the approved plans shall be installed or employed at the direction of the Engineer.
8. After completion of construction, soil and sediment controls shall be left in place until all disturbed areas are stabilized.
9. Disturbed areas including roadway embankments shall be maintained in a rough graded condition and temporarily seeded and/or mulched until proper weather conditions exist for the establishment of permanent vegetative cover.

10. All areas disturbed by grading on which permanent or semi-permanent seeding or temporary seeding have not been made and all slopes with a grade steeper than 2:1 shall be treated by mulching. The mulch shall be applied at a rate of 2 tons per acre or equivalent measure, according to State standards.
11. All areas disturbed by grading including soil stockpiles, which will not be used or constructed upon a period greater than thirty (30 days) shall be temporarily seeded and protected as required.
12. All areas disturbed by grading which will not be constructed upon within six (6) months are to be stabilized with a permanent type seeding and fertilizing.
13. All disturbed areas shall be topsoiled, limed and fertilized prior to both temporary and permanent seeding in conformance with charts and tables as set forth in the "Standards for Soil Erosion and Sediment Control in New Jersey".
14. Hay bales shall be deemed unacceptable filter material in areas greater than one-half (1/2) acre.
15. Access and haul roads shall be protected with stone access strips and coarse stone filters in appropriate locations.
16. Forging of streams shall be kept to a minimum and where frequent crossings are contemplated, temporary bridges or culverts shall be constructed.
17. Storm drainage inlets are to be either capped or protected by temporary filter devices to prevent the entry of sediment carried by run-off water until vegetation and/or paving is established as planned.
18. Wherever well points, pumps or other dewatering methods are used, care shall be taken to provide for the elimination of said dewatering.
19. All drainage swales shall be parabolic in shape unless otherwise noted and shall conform to SCS design and standards.
20. Drainage swales and other structures shall be located in the field so as to retain as much of the original vegetation as possible, especially large trees.
21. Soils having a pH of 4 or less or containing iron sulfide shall be covered with a minimum of 12 inches of soil having a pH of 5 or more before seed bed preparation. The added soil shall be limed as above.
22. Roadways shall be swept at the end of each working day by the Contractor. When deemed necessary by the Engineer, the Contractor shall have the roadways swept by a mechanical sweeper. Same shall be provided at no additional cost to the Owner.

#### MEASUREMENT AND PAYMENT

Separate payment for soil erosion and sediment control will not be made. Payment for Soil Erosion and Sediment Control, including all work and materials as detailed above and required by the soil erosion control plan, including the removal of such measures at completion of the construction project or at such time when all disturbed areas are stabilized, shall be included in the price bid for items requiring same.

## **SECTION 2C - ENVIRONMENTAL PROTECTION MEASURES**

### **WORK INCLUDED**

The Contractor shall install, perform and maintain all environmental protection measures as detailed herein and as shown on the drawings. This section shall apply to all areas of work requiring same and in cases of conflicts with other sections, this section shall govern.

### **SPILL PREVENTION, REPORTING AND CLEAN-UP**

The Contractor shall take precautions to prevent hazardous materials spills. Should a spill occur, the Contractor shall immediately inform the Owner and his Engineer, and shall at Contractor's cost make such reports and complete such clean-up efforts as are required by Federal, State and local regulations. In the event of a spill, the Engineer will call the New Jersey Environmental Action Hotline at (609) 292-7172.

The Contractor shall supply and have on-site at all times, a supply of absorbent booms and other approved materials to isolate and contain possible spills and divert same from catch basins and water courses.

### **EROSION CONTROL**

The Contractor shall install and maintain soil erosion and sediment control measures as indicated on the drawings and as directed by the Engineer.

### **STOCKPILING**

The Contractor shall use environmentally suitable stockpiling sites for the purpose of storing materials, equipment and suitable backfill material. Environmentally suitable sites shall be level, devoid of mature stands of natural vegetation, and be removed from drainage facilities and features, wetlands, streams and stream corridors.

Portions of the construction sites within the construction area boundaries may be utilized as environmentally suitable stockpiling areas.

The Contractor shall use silt fence barriers and shall erect temporary fencing or other barriers to mark the boundary of the stockpile areas. Where fill is to be stored in excess of 14 days, the Contractor shall employ a suitable means of protecting excavated material from wind and water erosion. Erosion control methods may include one or more of the following: mulching, sprinkling, snow fencing, burlap fencing and gravel covering.

Proposed erosion control methods shall be submitted by the Contractor to the Engineer at the Pre-Construction Conference.

### **DUST CONTROL**

The Contractor will furnish shall labor, water spray equipment and water, mechanical sweeping equipment, hand brooms, and any other equipment required for control of dust on the project streets and any adjacent streets used by the Contractor for access to the project.

As often as required during each working day and particularly prior to each working days conclusion, areas under immediate construction (including access roads and other area affected thereby) will be swept clean and wet down sufficiently to lay dust to the Engineer's satisfaction. In addition, these areas will be wet down during non-working hours (including weekends) as often as required to keep the dust under control.

The use of calcium chloride or petroleum products for dust control and soil stabilization is prohibited.

### NOISE CONTROL

The Contractor shall be responsible for maintaining noise levels to within acceptable limits. To accomplish this he shall limit the number of machinery in operation to only those required, by requiring all equipment to have adequate mufflers, and by limiting construction activities to hours between 8:00 a.m. and 5:00 p.m. except for essential operations such as dewatering.

### PROHIBITED CONSTRUCTION PROCEDURES

1. Dumping of spoil material into any stream corridor, any wetlands, any surface waters, or at unspecified locations;
2. Indiscriminate, arbitrary, or capricious operation of equipment in any stream corridors, any wetlands, or any surface waters;
3. Pumping of silt-laden water from trenches or other excavations into any surface waters, any stream corridors, or any wetlands;
4. Damaging vegetation adjacent to or outside of the access road or the right-of-way;
5. Disposal of trees, brush, and other debris in any stream corridors, any wetlands, any surface waters, or at unspecified locations;
6. Permanent or unspecified alteration of the flow line of the stream, and
7. Open burning of project debris.
8. Location of storage stockpile areas in ESA's.
9. Disposal of excess or unsuitable excavation material in wetlands or floodplains, even with permission of the property owner.

### MEASUREMENT AND PAYMENT

Separate payment for environmental protection measures will not be made. Payment for environmental protection measures shall be included in the price bid for items requiring same.

## **SECTION 2D – EXCAVATION, BACKFILL, AND GRADING**

### **WORK INCLUDED**

The work includes all topsoil stripping/removal, excavation, cuts, fills, import material (if required), backfill, grading, compaction, and associated work necessary for the construction of the sensory trail, paver patio and walkways, and appurtenances as shown on the plans or required to complete the work per intent of the specifications.

The Contractor is responsible to establish earthwork quantities to complete all cuts and fills and in order to arrive at the lump sum bid prices for earthwork items listed in the proposal. **Under no circumstances will additional payment be considered for earthwork bid items required to construct the improvements in accordance with the plans and specifications.**

Excavation, fill and backfill work includes transportation, storage in temporary stock piles, backfill, selection, placing and compaction of the various classes of fill and the disposal of unsuitable or surplus materials at approved locations provided by the Contractor. This shall include any and all excavation.

The Contractor shall transport any excess fill derived from construction activities to areas within the Reservation as designated by the Owner.

### **TOPSOIL SEPARATION**

The Contractor shall remove and stockpile all topsoil prior to commencing excavation unless he can demonstrate that he can satisfactorily separate the topsoil from other soils during the work. No topsoil shall be removed from the project site without written consent from the Owner.

All areas to be seeded shall be topsoiled with approved topsoil from onsite or imported if required, to the limits approved by the Engineer. Imported topsoil shall be inspected for approval by the Engineer prior to delivery to the site by representative samples or by visit to the material source. Separate payment for imported topsoil, if used, will not be made.

### **EXCAVATION AND CLEARANCES**

The excavations shall be made to conform with the lines of the finished structures wherever practical. The excavations shall not be carried below the required subgrades. The trench in which pipe, manholes or inlets are to be constructed shall be excavated from the surface and to such depths, and widths (not less than 12 inches nor more than 24 inches greater than the maximum external dimension of the structure) as will give suitable room for bracing and supporting, pumping and draining, and for removing from the excavation any material which the Engineer may deem inadequate for foundation. Any surplus material shall be distributed on the site or removed as directed by the Owner. All excavations shall be of sufficient width to permit work to be done competently, and safely.

The length of the trench to be opened or the area of the surface to be disturbed and restored at any time will be limited by the Owner with regard both to expeditious construction and convenience to the Owner. New trenches will not be excavated if previous trenches are in need of backfilling or labor is needed to restore the surface of the ground to a safe and proper condition.

All excavations for pipelines shall be clear of boulders, rocks, masonry or other similar material which shall be excavated to a level at least six inches below the bottom of the pipe, and shall be fully refilled with approved material mechanically compacted to provide a stable subbase. Rock or boulders shall be removed from sides of trenches to 12 inches minimum outside the wall or the pipe, unless permission to do otherwise is expressly given. Gravel or stone bedding shall be provided, placed and compacted to the minimum depths when indicated on the plans or as ordered by the Engineer. The bottom of the trench shall be excavated where the earth is suitable for good foundation to the form and size of the lower portion of the pipe or other structure, so that there shall be full and adequate support for the structure

which is to be built on it. Ample excavation shall be made under and around the pipe joints for joining and to relieve the bell of shearing forces.

#### UNAUTHORIZED EXCAVATION

Special care will be taken with the final six inches of all excavations. In no case shall the excavation be carried below the required subgrade by machine and backfill used to establish the required grade. Where the excavation has been carried below subgrade, the Contractor shall, at his own expense refill such areas with compacted 3/4 inch graded gravel or crushed stone to insure the stability of the structure or pipe. If the Contractor excavates below the required subgrade for structures, the over-excavation shall be filled with material subject to the requirements of the Engineer and may include 2000 psi concrete if so ordered by the Engineer, at no additional cost to the Owner.

#### SHEETING AND BRACING

The Contractor shall fully comply with the applicable requirements of Federal and New Jersey OSHA.

Where necessary for safety or to prevent disturbance, damage or settlement of adjacent structures, pipelines utilities, improvements or paving, excavations shall be sheeted and braced. Any damage to new or existing structures occurring through settlement, water or earth pressure, or other causes due to inadequate construction procedures of the Contractor in any manner, shall be repaired by the Contractor at his own expense.

#### DEWATERING AND PROTECTION FROM FLOODING

The Contractor shall dewater the excavations promptly and continuously throughout the progress of the work and shall keep the excavations dry at all times until the structures to be built therein, are completed. Where work is to be performed below groundwater level, the Contractor shall provide, operate and maintain dewatering facilities sufficient to maintain the excavation free from groundwater for the time required to complete the work in the proper workmanlike manner.

The Contractor shall protect uncompleted work from flooding during storms or from other causes. All pipelines or structures not stable against uplift during construction or prior to completion shall be thoroughly braced or otherwise protected.

All necessary precautions shall be taken to prevent disturbance of, and to properly drain, the areas upon which concrete is poured, and upon which pipe is to be laid. All concrete shall be kept dry for one month after pouring.

#### BACKFILLING EXCAVATIONS

The Contractor shall backfill excavations around structures, underneath paved areas, sidewalks, and other areas sensitive to settlements with on site material, if acceptable, which shall be compacted to 90 percent of its modified proctor density determined in accordance with ASTM Specifications D-1557-72T.

All lumber, braces, construction articles, and rubbish shall be carefully removed from behind walls of structures and from other excavations to be backfilled. Unless otherwise specified, all trenches or excavations shall be backfilled and compacted to the original ground surface or to such grades as shall be required. The backfilling outside building walls shall be done in accordance with good practice to prevent after-settlement around all structures and pipelines, and with appropriate equipment to protect same from damage.

The Engineer reserves the right to make such selection of the material for various portions of the backfill as may be required for the satisfactory execution of the work.

Backfill shall not be placed on ground that is frozen, nor shall backfill material be permitted to freeze during placing and compaction.

As soon as practical after the pipe or masonry has been placed and the concrete has acquired satisfactory strength, as determined by the Engineer, the backfilling shall begin and shall be expeditiously completed.

The Contractor shall utilize approved mechanical vibratory compaction equipment to thoroughly consolidate backfill. The backfill shall be installed in approved lifts and compacted to achieve maximum consolidation and minimize subsequent settlement. All backfill in embankments shall be thoroughly compacted by rollers of approved size, type and weight for the particular fill materials.

#### SITE GRADING

All fill required to provide site grading in accordance with the construction plans shall be of clean material derived from general excavation as found suitable by the Engineer or imported material approved by the Engineer. In the event fill is required to be imported to the jobsite, the Contractor shall provide the Engineer proper certifications to ensure the fill material is free from contaminants. Application of this material shall be as noted in following section entitled "Additional Excavation and Fill". Clay core material shall be furnished and installed per the plans and/or as directed by the Engineer. Representative samples and permeability test results shall be submitted and approved prior to placement of the material. No separate payment will be made for import fill.

#### ADDITIONAL EXCAVATION AND FILL

Wherever undisturbed material found at the grades shown on the plans for the footings or pipe inverts is not satisfactory in the opinion of the Engineer, the Contractor shall make any additional excavations and disposal of excavated material as directed by the Engineer, and shall refill excavations to the required grade with compacted suitable fill material. The fill material shall be as specified under other applicable sections of these specifications.

Fill material shall be spread in uniform horizontal layers that when compacted shall not exceed 8 inches in thickness. Each lift shall be compacted to 95% of its modified proctor density in accordance with ASTM D-1557-72T. The moisture content of the fill material shall be changed when necessary to attain the specified density. Changing of the moisture content of the fill material shall be accomplished by aerating the soil or by adding water to the fill as required. If wetting or drying is required, each lift shall be thoroughly mixed to insure a uniform distribution of moisture. Compaction shall be accomplished by equipment designed for compacting the type of fill being used as approved by the Engineer. The Contractor shall establish operating procedures to obtain uniform coverage of the area being compacted. During construction, the surface of the fill shall be graded to permit runoff of surface water at all times.

NOTE: All excavated material shall be evaluated by the Engineer or his representatives for the suitability of its re-use within the project for fill material. If the excavated material is found suitable, same shall be used for fill and placed in other locations of the project and compacted in accordance with current NJDOT specifications. Payment for all costs associated with the removal, replacement and compaction of this material as directed by the Engineer shall be included in the unit price bid for all items requiring same.

If the material is deemed unsuitable, it will then become property of the Contractor to dispose of in accordance with applicable Local, State and Federal regulations. Payment for the removal and disposal of unsuitable material shall be included in the prices bid for all items requiring the excavation of the material.

## BACKFILLING TRENCHES

No trench or other excavations shall be backfilled until the structure or pipeline in it has been examined and approved. Immediately after inspection and approval the trench or other excavation shall be carefully backfilled with the suitable select excavated material and/or other material as detailed or ordered. Whenever the Engineer deems the excavated material unsuitable for backfilling the Contractor shall furnish acceptable material as may be order by the Engineer. No large rock or frozen earth shall be put in the trench. Suitable material shall be used to fill evenly on both sides of the pipe and carefully tamped or rammed so as not to disturb the pipe joints, at the same time making the filled trench thoroughly compact until the filling reaches one foot above the top of the pipe. When the backfilling has been carried to one foot above the top of the pipe, it shall be thoroughly rammed with tools having faces of 25 to 36 square inches and weighing not less than 20 lbs. Rock in pieces weighing more than 50 lbs. shall not be put in the trench. All spaces between suitable pieces of rock shall be thoroughly filled by backfilling in alternative layers of rock and earth. All sheeting shall be withdrawn, unless otherwise ordered to remain in place in writing by the Engineer.

All pipelines and structures shall be maintained throughout the construction and same shall be left in an equivalent condition or improved condition after completion of construction.

Adequate precautions shall be taken to prevent settlement of existing improvements.

In case water, gas pipes, conduits, or other utilities become broken in the prosecution of the work, the Contractor shall give immediate notice to the proper authorities and shall be responsible for any damage to persons or property caused by such breaks.

If house connections or service pipes supplying water or gas are broken during construction, the Contractor shall immediately repair them at his own expense. Delays, such as would result in adjoining buildings having to do without water or gas for a needlessly long period, will not be tolerated. The municipality reserves the right to remedy such delays by ordering outside parties to make such repairs at the expense of the Contractor.

If directed in writing, the Contractor shall make permanent changes in the location of water and gas mains if they are obstructing the new structures to be built. The cost of such changes will be paid for as extra work based on the valuation made by the Engineer and depend on his decision as to whether the work done is or is not included in the work required and bid for by the Contractor under the contract. In rendering all such accounts the Contractor shall itemize both the labor and material involved and provide other information as may be required by the Engineer.

## UNDERGROUND OBJECTS AND UTILITIES

Information as to the location of existing utilities has been collected from various sources, but the result of such investigations as shown on the contract drawings are not guaranteed as to accuracy. The Contractor is particularly directed to the fact that underground objects or material location, elevation, or type is not warranted to be approximately correct (nor can they be assumed to be the only subsurface objects or materials which may be encountered in the work). The Contractor shall make all necessary investigations to satisfy himself as to the existing conditions prior to bidding work. Any deviation in location and number of subsurface utilities and objects field determined by Contractor should be brought to the attention of the Engineer in accordance with Section F4.2 et. seq. of the Standard General Conditions of this contract.



MEASUREMENT AND PAYMENT

Measurement and payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
EARTHWORK AND SUBGRADE PREPARATION, INCLUDING ALL CUTS, FILLS, IMPORT FILL (IF REQUIRED), COMPACTION, GRADING, REMOVAL OF EXCESS/UNSUITABLE SOILS, AND ALL INCIDENTAL WORK	LUMP SUM

Payment for excavation, cuts, fills, compaction and import fill (if required) to achieve proposed grades of the new improvements and removal and disposal of all material deemed excess or unsuitable including all labor, equipment and material shall be included in the lump sum price bid for earthwork and subgrade preparation as listed in the bid form. Under no circumstances will additional payment be considered for earthwork bid items required to construct the improvements in accordance with the plans and specifications. Payments will be made commensurate with the percentage of work completed and in accordance with the approved schedule of values.

## **SECTION 2E –STONE AND IMPORT FILL**

### **WORK INCLUDED**

The Contractor shall furnish and install stone and import fill, if and where required, for miscellaneous purposes to complete the desired improvements. The work includes furnishing, installation and compaction of the material as required by the specifications.

The Contractor shall furnish and install import fill as required to meet the proposed grading plan. The Contractor shall provide a calculation of the import fill required to achieve the proposed grades and deliver to the engineer at the preconstruction meeting in order to determine the number of tests required to be provided by the contractor to the engineer.

### **MATERIALS**

General import fill as required to achieve proposed grades shall consist of clean soil aggregate or soil aggregate and rock meeting the requirements of the New Jersey Department of Transportation Standard Specification for Road and Bridge Construction 2007 Subsection 203.03 for I-13 Soil Aggregate. Soil Aggregate shall conform to Subsection 901.11. Placement, lift thicknesses and compaction of all fill material shall be in accordance with current NJDOT Specifications and the construction details. The top eighteen inches (18") of fill placed shall not contain stones or similar objects larger than two inches (2") in any dimension.

The following shall also be required for import fill material to the site:

- Fill shall be compacted in 12" maximum lifts
- Each lift shall be compacted to 95% of its modified proctor density in accordance with ASTM D-1557-72T
- Delivery tickets shall be provided for all imported material
  - Tickets shall identify the source of the material and Cubic Yardage or Tonage of material provided
- Imported material shall be subject to the submission of gradation test results, priority pollutant plus forty test requirements, and material source. One set of test results shall be provided for every 10,000 cubic yards of imported material or a minimum of one per source. Further, any recycled material to be utilized must come from a state licensed recycling facility.

Gradation of I-13 soil aggregate shall conform to the following:

#### NJDOT I-13 Soil Aggregate

<u>US Standard Sieve Size</u>	<u>Percent Finer By Weight</u>
4"	100
No. 4	30-100
No. 200	0-12

Clean Stone for undercut areas, pipe bedding or surface treatment (only if ordered by the Engineer) shall be cleaned crushed trap rock (3/4") of a quality equal to that required by the New Jersey Department of Transportation "Standard Specification for Road and Bridge Construction - 2007".

Subbase shall be Dense Graded Aggregate (DGA) meeting the New Jersey Department of Transportation Standard Specifications for Road and Bridge Construction 2007, Section 901.10, installed at locations required by the plans or as ordered by the Engineer, graded and compacted to the lines and grades required.

#### MEASUREMENT AND PAYMENT

Separate payment for clearing, excavation, grading, disposal of excess material and compaction required to complete the work for the items described in this section will not be made. Compensation for said work shall be included in the prices bid for all items requiring same.

Separate payment for all materials described in this section will not be made. Payment for same shall be included in all items requiring same.

## **SECTION 2F – ACCESSIBLE SENSORY TRAIL**

### **WORK INCLUDED**

The Contractor shall provide all necessary labor, materials and equipment to construct the accessible sensory trail as shown on the Drawings or as directed by the Engineer, and as specified below and in other applicable sections of the Specification.

The intent of the installation of this sensory trail is to provide minimum disturbance to the existing wooded area. The contractor shall pay specific attention to the overall width of the trail and minimize disturbance throughout the installation. At no time shall the contractor disturb an area greater than ten (10) feet wide unless otherwise noted on the plan set. Any disturbance or damaged trees shall be the responsibility of the contractor to repair and/or remove at no additional cost to the County. Should the excess disturbance result in any fines, penalties or additional work required by any regulating agencies, this also shall be the sole responsibility of the contractor at no additional cost to the County.

### **EARTHWORK**

The accessible sensory trail is to be constructed to approximately meet existing adjacent grades by removing topsoil/organic matter and 4" of the existing trail to accommodate the thickness of the trail section. Unless otherwise noted the trail shall not exceed five (5) running slope and two (2) percent cross slope. Contractor will be responsible for ensuring final trail construction meets ADA requirements.

Any areas ordered to be over-excavated due to existing conditions shall receive additional thickness of dense graded aggregate, or imported fill (bankrun), or 1½" clean crushed stone as ordered by the Engineer. The work shall include excavation, removal and transport by the contractor of any excess material.

In grassed areas adjacent to the path, restoration shall include a minimum of 4" of topsoil, fertilizer, lime, seed and mulch shall be installed to an appropriate finish grade as directed by the Engineer. Topsoiling shall be in accordance with other applicable sections of these Specifications.

In areas where the trail is installed throughout the wooded area, leaf litter shall be spread in the clear area adjacent to the trail to blend in with the existing conditions.

### **MATERIALS**

Clean Stone for undercut areas or bedding (only if ordered by the Engineer) shall be cleaned crushed trap rock of a quality equal to that required by the New Jersey Department of Transportation "Standard Specification for Road and Bridge Construction" for 1½" crushed stone. Installation of this stone shall include full wrapping of the stone with an approved, permeable filter fabric.

Quarry process crushed stone dust conforming to NJDOT size designation No. 10, red in color, shall be used for the accessible sensory trail and installed at the thickness shown on the plan and underlain with a durable, water permeable filter fabric. Filter fabric catalog cut/specification to be submitted to the Engineer for approval prior to installation. Recycled concrete will not be accepted for this item. Quarry process crushed stone dust shall be adequately compacted ensure stability for the intended use and to meet ADA standards for an accessible trail. The contractor shall submit a physical sample for approval during the shop submittal process to ensure it meets the proper gradation.

MEASUREMENT AND PAYMENT

Measurement and payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
EXCAVATE, 4" THICK, COMPACT SUBGRADE AND CONSTRUCT STONE DUST WALKWAY, 4" THICK, INCLUDING FILTER FABRIC	SQUARE YARD

Payment for constructing the accessible sensory trail to include excavation 4" thick, compacting subgrade, quarry process stone dust surface, 4" thick and permeable filter fabric in accordance with the Contract Drawings, shall be made at the square yard price bid for the quantity actually installed for said items as listed in the bid form. Said prices shall include all materials, labor and incidentals required to complete the installation.

## **SECTION 2G – CONCRETE SITEWORK**

### **WORK INCLUDED**

The work shall consist of the construction of Portland cement concrete structures as shown on the contract drawings and all other incidental concrete work as directed by the Engineer.

The Contractor shall provide all labor, materials and equipment required to construct concrete pads, concrete sidewalks and all concrete work for the modular block walls with solid brick at the locations shown on the plans. Appropriate expansion and construction joints shall be installed under the direction of the Engineer.

### **QUALITY ASSURANCE**

Construction of concrete structures shall comply with provisions of the latest editions of the following codes, specifications and standards, except where more stringent requirements are shown or specified:

1. ACI 301 "Specifications for Structural Concrete for Buildings".
2. ACI 318 "Building Code Requirements for Reinforced Concrete".
3. Concrete Reinforcing Steel Institute, "Manual of Standard Practice".

The Contractor shall employ, at Contractor's expense, a testing laboratory acceptable to Engineer to design concrete mixes and perform material evaluation tests related to the concrete mixes. Materials and installed work may require testing and retesting, as directed by Engineer, at any time during the progress of work. The Contractor shall allow free access to material stockpiles and facilities. Tests, not specifically indicated to be done at Owner's expense, including retesting of rejected materials and installed work, shall be done at Contractor's expense, including retesting and rejected materials and installed work shall be done at contractor's expense.

### **SUBMITTALS**

The Contractor shall submit the manufacturer's product data with application and installation instructions for proprietary materials and items, including reinforcement and forming accessories, admixtures, patching compounds, joint systems, curing compounds, and others as requested by Engineer.

The Contractor shall submit shop drawings for fabrication, bending, and placement of concrete reinforcement. Comply with ACI 315 "Manual of Standard Practice for Detailing Reinforced Concrete Structures" showing bar schedules, stirrup spacing, diagrams of bent bars, arrangement of concrete reinforcement. Include special reinforcement required and openings through concrete structures.

The Contractor shall submit samples of materials as specified and as otherwise requested by Engineer, including names, sources and descriptions. Laboratory test reports for concrete materials and mix design tests shall be submitted if requested by the Engineer.

The Contractor shall provide materials certificates for cement, aggregates, admixtures, reinforcing, welded wire fabric, non-shrink grout, curing compounds and non-slip aggregates. Material certificates shall be signed by manufacturer and Contractor, certifying that each material item complies with, or exceeds, specified requirements.

### **FORM MATERIALS**

Formwork for exposed concrete surfaces shall be plywood, metal, metal-framed plywood faced or other acceptable panel-type materials, to provide continuous, straight, smooth, exposed surfaces. Furnish in

largest practicable sizes to minimize number of joints and to conform to joint system when shown on drawings. Provide form material of sufficient thickness to withstand pressure of newly-placed concrete without bow or deflection.

Formwork for unexposed concrete in finished structure shall be with plywood, lumber, metal or other acceptable material. Provide lumber dressed on at least 2 edges and one side for tight fit.

All forms shall be provided with commercial formulation form-coating compounds that will not bond with, stain nor adversely affect concrete surfaces, and will not impair subsequent treatments of concrete surfaces.

### REINFORCING MATERIALS

Reinforcing materials for all concrete structures shall comply with the following:

1. Reinforcing Bars: ANSI/ASTM A 615, Grade 60, deformed.
2. Steel Wire: ANSI/ASTM A 82, plain, cold-drawn, steel.
3. Welded Wire Fabric (WWF): ANSI/ASTM A 185, welded steel wire fabric.
4. Supports for Reinforcement: Provide supports for reinforcement including bolsters, chairs, spacers and other devices for spacing, supporting and fastening reinforcing bars and welded wire fabric in place. Use wire bar type supports complying with CRSI recommendations, unless otherwise acceptable.

### CONCRETE MATERIALS

Concrete materials for all concrete structures shall comply with the following:

1. Portland Cement: ANSI/ASTM C 150, Type I, unless otherwise acceptable to Engineer.
2. Normal Weight Aggregates: ANSI/ASTM C 33, and as herein specified. Provide aggregates from a single source for exposed concrete.
3. Water: Potable.
4. Air-Entraining Admixture: ANSI/ASTM C 260, and shall be an aqueous solution of completely neutralized vinsol resin.
5. Water-Reducing Admixture: ANSI/ASTM C 494, Type A, and contain not more than 0.05% chloride ions.
6. High-Range Water-Reducing Admixture (Super Plasticizer): ASTM C 494, Type F or Type G and contain not more than 0.05% chloride ions.
7. Non-Corrosive, Non-Chloride Accelerator Admixture: ASTM C 494, Type C or E, and contain no more chloride ions than are present in municipal drinking water. The manufacturer must have long-term test data (at least a year), from an independent testing laboratory, concerning corrosion using an acceptable accelerated corrosion test method such as that using electrical potential measures.
8. Water Reducing, Retarding Admixture: ASTM C 494, Type D, and contain not more than 0.05% chloride ions.
9. Calcium chloride, or admixtures containing more than 0.05% chloride ions are not permitted.

10. Certification of conformance to the above mentioned requirements and the chloride content of the admixture will be required from the admixture manufacturer prior to review of mix design.

11. Non-Shrink Grout: CRD-C-621-89a, Grade "C" (equipment grouting) or Grade "B" (Construction Grouting), Corps of Engineers Specification for Non-Shrink Grout, Type D, Non-metallic. In addition, the manufacturer shall furnish data from an independent laboratory indicating that the grout, when placed at a fluid consistency shall achieve 95% bearing under a 4'x4' base plate.

12. Evaporation Control: Monomolecular film-forming compound applied to exposed concrete slab surfaces for temporary protection from rapid moisture loss.

13. Liquid Membrane-Forming Curing and Sealing Compound: Water-based acrylic type, 30% solids content minimum, and have test data from an independent testing laboratory indicating a maximum moisture loss of 0.55 kg per sq m in 72 hours when applied at the coverage rate recommended by the manufacturer.

14. Patching Mortar: Free-flowing, polymer-modified cementitious coating.

15. Bonding Admixture: The compound shall be a latex, non-rewettable type.

#### PROPORTIONING AND DESIGN OF MIXES

The Contractor or Contractor's representative shall prepare design mixes for each type and strength of concrete by either laboratory, the trial batch, or field experience methods as specified in ACI 301. If trial batch method is used, use an independent testing facility acceptable to Engineer. The testing facility shall not be the same as used for field quality control testing unless otherwise acceptable to Engineer. If trial batch mixes are used, the mix design shall achieve an average compressive strength 1200 psi greater than the specified strength.

The Contractor shall submit written reports to the Engineer of each proposed mix for each class of concrete at least 15 days prior to start of work. The Contractor shall not begin concrete production until the Engineer has reviewed mixes. Design mixes shall provide normal weight concrete as indicated on contract drawings.

Mix design adjustments may be requested by the Contractor when characteristics of materials, job conditions, weather, test results, or other circumstances warrant, at no additional cost to Owner and as accepted by Engineer. Laboratory test data for revised mix design and strength results must be submitted to and accepted by Engineer before using in work.

The mix design shall use water-reducing admixture or high range water-reducing admixture (super plasticizer) in all concrete. High range water-reducing admixture shall be used in all concrete to be pumped and all concrete containing synthetic fiber additive.

Non-corrosive accelerating admixture shall be used in concrete slabs placed at ambient temperatures below 50°F (10°C). Air-entraining admixture shall be used in exterior exposed concrete, unless otherwise indicated. Add air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having air content within following limits:

Concrete structures and slabs exposed to freezing and thawing or subjected to hydraulic pressure:

1. 5.5% for 1 ½" – 2" aggregate.
2. 6% for ¾" – 1" aggregate.
3. 8% for 3/8" – ½" aggregate.

All interior slabs subject to vehicular abrasion shall have a maximum air content not greater than 3%.  
Other Concrete: 2% to 4% air.



Slump Limits: Proportion and design mixes to result in concrete slump at truck as follows:

1. Ramps and sloping surfaces: Not more than 3".
2. Reinforced foundation systems: Not less than 1" and not more than 3".
3. Concrete containing HRWR admixture (super plasticizer): Not more than 8" after addition of admixture nor more than 3" prior to addition of admixture.
4. Other concrete: Not less than 1" and not more than 4".

### CONCRETE MIXES

Ready-Mix Concrete shall comply with requirements of ANSI/ASTM C94 and as herein specified. Addition of water to the batch will not be permitted. During hot weather, or under conditions contributing to rapid setting of concrete, a shorter mixing time than specified in ANSI/ASTM C 94 may be required. When air temperature is between 85°F (30°C) and 90°F (32°C), reduce mixing and delivery time from 1-1/2 hours to 75 minutes, and when air temperature is above 90°F (32°C), reduce mixing and delivery time to 60 minutes.

### FORMS

The Contractor shall design, erect, support, brace and maintain formwork to support vertical and lateral loads that might be applied until such loads can be supported by concrete structure. Construct formwork so concrete members and structures are of correct size, shape, alignment, elevation and position. Construct forms to sizes, shapes, lines and dimensions shown, and to obtain accurate alignment, location, grades, level and plumb work in finished structures. Provide for openings, offsets, sinkages, keyways, blocking, screeds, bulkheads, anchorages and inserts, and other features required in work. Use selected materials to obtain required finishes. Solidly butt joints and provide back-up at joints to prevent leakage of cement paste.

Forms shall be fabricated for easy removal without hammering or prying against concrete surfaces. Provide crush plates or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces where slope is too steep to place concrete with bottom forms only. Kerf wood inserts for forming keyways, reglets, recesses, and the like, to prevent swelling and for easy removal.

Temporary openings shall be provided where interior area of formwork is inaccessible for cleanout, for inspection before concrete placement, and for placement of concrete. Securely brace temporary openings and set tightly to forms to prevent loss of concrete mortar. Locate temporary openings if forms at inconspicuous locations.

Chamfer exposed corners and edges, using wood, metal, PVC or rubber chamfer strips fabricated to produce uniform smooth lines and tight edge joints.

Form Ties shall be factory-fabricated, adjustable-length, removable or snapoff metal form ties, designed to prevent form deflection, and to prevent spalling concrete surfaces upon removal. Unless otherwise indicated, provide ties so portion remaining within concrete after removal is at least 1-1/2" inside concrete and will not leave holes larger than 1" diameter in concrete surface.

Thoroughly clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt or other debris just before concrete is placed. Retighten forms and bracing after concrete placement is required to eliminate mortar leaks and maintain proper alignment.

### PLACING REINFORCEMENT

Comply with Concrete Reinforcing Steel Institute's recommended practice for "Placing Reinforcing Bars", for details and methods of reinforcement placement and supports, and as herein specified.

Clean reinforcement of loose rust and mill scale, earth, ice, and other materials which reduce or destroy bond with concrete. Accurately position, support and secure reinforcement (including welded wire fabric) against placement by formwork, construction, or concrete placement operations. Locate and support reinforcing by metal chairs, runners, bolsters, spacers, and hangers, as required.

Reinforcement shall be placed to obtain at least minimum coverages for concrete protection. Arrange, space and securely tie bars and bar supports to hold reinforcement in position during concrete placement operations. Set wire ties so ends are directed into concrete, not toward exposed concrete surfaces.

Install welded wire fabric in as long lengths as practicable. Lap adjoining pieces at least one full mesh and tie splices with wire. Offset end laps in adjacent widths to prevent continuous laps in either direction.

### JOINTS

Locate and install construction joints, which are not shown on drawings, so as not to impair strength and appearance of the structure, as acceptable to Engineer.

Provide keyways at least 1-1/2" deep in construction joints in walls, slabs and between walls and footings; accepted bulkheads designed for this purpose may be used for slabs.

Place construction joints of members perpendicular to the main reinforcement. Continue reinforcement across construction joints or structural members.

Isolation Joints in Slabs-on-Ground: construct isolation joints in slabs-on-ground at points of contact between slabs on ground and vertical surfaces, such as column pedestals, foundation walls, grade beams and elsewhere as indicated.

### PREPARATION OF FORM SURFACES

Contact surfaces of forms shall be coated with a form-coating compound before reinforcement is placed. Thin form-coating compounds only with thinning agent of type, and in amount, and under conditions of form-coating compound manufacturer's directions. Do not allow excess form-coating material to accumulate in forms or to come into contact with concrete surfaces against which fresh concrete will be placed. Apply in compliance with manufacturer's instructions.

Steel forms shall be coated with a non-straining, rust-preventative form oil or otherwise protect against rusting. Rust-stained steel formwork is not acceptable.

### CONCRETE PLACEMENT

Before placing concrete, the Engineer shall inspect formwork installation, reinforcing steel, and items to be embedded or cast-in. The Contractor shall notify other crafts to permit installation of their work and shall cooperate with other trades in setting such work. Moisten wood forms immediately before placing concrete where form coatings are not used.

The Contractor shall coordinate the installation of joint materials and moisture barriers with placement of forms and reinforcing steel.

Concrete shall be deposited continuously or in layers of such thickness that no concrete will be placed on concrete which has hardened sufficiently to cause the formation of seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as herein specified. Deposit concrete as nearly as practicable to its final location to avoid segregation. Deposit concrete in forms in horizontal layers not deeper than 24" and in a manner to avoid inclined construction joints. Where placement consists of several layers, place each layer while preceding layer is still plastic to avoid cold joints.

When placing concrete in cold weather, protect concrete work from physical damage or reduced strength which could be caused by frost, freezing actions, or low temperatures, in compliance with ACI 306 and as herein specified. When air temperature has fallen to or is expected to fall below 40°F (4°C), uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50°F (10°C), and not more than 80°F (27°C) at point of placement. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.

Only the specified non-corrosive non-chloride accelerator shall be used. Calcium chloride, thiocyanate or admixtures containing more than 0.05% chloride ions are not permitted.

When placing concrete in hot weather, low humidity or dry winds or other conditions suitable for plastic cracking, the evaporation retarder "Eucobar" by The Euclid Chemical Co. or "Confilm" by Master Builders may be required to be applied by spray one or more times during the finishing operation. Cool ingredients before mixing to maintain concrete temperature at time of placement below 90°F (32°C). Mixing water may be chilled, or chopped ice may be used to control temperature provided water equivalent of ice is calculated to total amount of mixing.

Cover reinforcing steel with water-soaked burlap if it becomes too hot, so that steel temperature will not exceed the ambient air temperature immediately before embedment in concrete.

Forms shall be wetted thoroughly before placing concrete.

Use water-reducing retarding admixture (Type D) when required by high temperatures, low humidity, or other adverse placing conditions.

#### FINISH OR FORMED SURFACES

Rough form finish shall be used for formed concrete surfaces not exposed-to-view in the finish work or by other construction, unless otherwise indicated. This is the concrete surface having texture imparted by form facing material used, with tie holes and defective areas repaired and patched and fins and other projections exceeding ¼" in height rubbed down or chipped off.

Smooth form finish shall be used for formed concrete surfaces exposed-to-view, or that are to be covered with a coating material applied directly to concrete, or a covering material applied directly to concrete, such as waterproofing, dampproofing, painting or other similar system. This is as-cast concrete surface obtained with selected form facing material, arranged orderly and symmetrically with a minimum of seams. Repair and patch defective areas with fins or other projections completely removed and smoothed.

Smooth rubbed finish shall be used, where indicated, which have received smooth form finish treatment, not later than on day after form removal.

At tops of walls, horizontal offsets and surfaces occurring adjacent to formed surfaces, strike-off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.

#### MONOLITHIC SLAB FINISHES

Float finish shall be applied to monolithic slab surfaces to receive trowel finish and other finishes as hereinafter specified and slab surfaces which are to be covered with membrane or elastic waterproofing, membrane or elastic roofing, or sand-bed terrazzo, and as otherwise indicated.

After screeding, consolidating, and leveling concrete slabs, do not work surface until ready for floating. Begin floating when surface water has disappeared or when concrete has stiffened sufficiently to permit operation to power driven floats, or both consolidate surface with power-driven floats, or by hand-floating if area is small or inaccessible to power units. Check and level surface plane to a tolerance of F<sub>r</sub>20/F<sub>1</sub>17. Cut down high spots and fill low spots, refloat surface to a uniform, smooth, granular texture.

Trowel finish shall be applied to monolithic slab surfaces to be exposed-to-view, and slab surfaces to be covered with resilient flooring, carpet, ceramic or quarry tile, paint or other thin film finish coating system. After floating, begin first trowel finish operation using a power-driven trowel. Begin final troweling when surface produces a ringing sound as trowel is moved over surface. Consolidate concrete surface by final hand-troweling operation, free of trowel marks, uniform in texture and appearance, and with a surface leveled to a tolerance of  $F_{1,25}/F_{1,20}$ . Surface defects which would telegraph through applied floor covering system are to be ground smooth.

Non-slip broom finish shall be applied to exterior concrete platforms, steps and ramps, and elsewhere as indicated. Immediately after trowel finishing, slightly roughen concrete surface by brooming with fiber bristle broom perpendicular to main traffic route. Coordinate required final finish with Engineer before application.

### CONCRETE CURING AND PROTECTION

The Contractor shall protect freshly placed concrete from premature drying and excessive cold or hot temperatures. In hot, dry, and windy weather, protect concrete from rapid moisture loss before and during finishing operations with an evaporation-control material. Apply in accordance with manufacturer's instructions after screeding and bull floating, but before power floating and troweling.

Initial curing shall be started as soon as free water has disappeared from concrete surface after placing and finishing. Weather permitting, keep continuously moist for not less than 7 days. Perform curing of concrete by curing and sealing compound, by moist curing, by moisture-retaining cover curing, and by combinations thereof, as herein specified.

Concrete surfaces shall be covered with moisture-retaining cover for curing concrete, placed in widest practicable width with sides and ends lapped at least 3 inches and sealed by waterproof tape or adhesive. Immediately repair any holes or tears during curing period using cover material and waterproof tape.

The specified curing and sealing compound shall be applied to concrete slabs as soon as final finishing operations are complete (within 2 hours and after surface water sheen has disappeared). Apply uniformly in continuous operation by power spray or roller in accordance with manufacturer's directions. Recoat areas subjected to heavy rainfall within 3 hours after initial application. Maintain continuity of coating and repair damage during curing period.

Membrane curing compounds shall be used that will not affect surfaces to be covered with finish materials applied directly to concrete.

Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces, by moist curing with forms in place for full curing period or until forms are removed. If forms are removed, continue curing by methods specified above, as applicable.

Cure unformed surfaces, such as slabs, floor topping, and other flat surfaces, by application of appropriate curing method.

### REMOVAL OF FORMS

Formwork not supporting weight of concrete, such as sides of beams, walls, columns, and similar parts of the work, may be removed after cumulatively curing at not less than 50°F (10°C) for 24 hours after placing concrete, provided concrete is sufficiently hard to not be damaged by form removal operations, and provided curing and protection operations are maintained.

Formwork supporting weight of concrete, such as beam soffits, joints, slabs and other structural elements, may not be removed until concrete has attained design compressive strength ( $f'_c$ ) but in no case shall the

forms be removed in less than 14 days. Determine potential compressive strength of in-place concrete by testing field-cured specimens representative of concrete location or membrane.

### REUSE OF FORMS

The Contractor shall clean and repair surfaces of forms to be re-used in work. Split, frayed, delaminated or otherwise damaged form facing material will not be acceptable for exposed surfaces. Apply new form coating compound as specified for new formwork.

When forms are extended for successive concrete placement, thoroughly clean surfaces, remove fins and laitance, and tighten forms to close joints. Align and secure joint to avoid offsets. Do not use "patched" forms for exposed concrete surfaces, except as acceptable to Engineer.

### CONCRETE SURFACE REPAIRS

All defective areas shall be repaired and patched with cement mortar immediately after removal of forms, when acceptable to Engineer.

Cut out honeycomb, rock packets, voids over  $\frac{1}{4}$  inch in any dimension, and holes left by tie rods and bolts, down to solid concrete but in no case to a depth of less than 1 inch. Make edges of cuts perpendicular to the concrete surface. Thoroughly clean, dampen with water, and brush-coat the area to be patched with specified bonding agent. Place patching mortar before bonding compound has dried.

For exposed-to-view surfaces, blend white portland cement and standard portland cement so that, when dry, patching mortar will match color surrounding. Provide test areas at inconspicuous location to verify mixture and color match before proceeding with patching. Compact mortar in place and strike-off slightly higher than surrounding surface.

The Contractor shall remove and replace concrete having defective surfaces if defects cannot be repaired to satisfaction of Engineer. Surface defects, as such, include color and texture irregularities, cracks, spalls, air bubbles, honeycomb, rock pockets, fins and other projections on surface, and stains and other discolorations that cannot be removed by cleaning. Flush out form tie holes, fill with dry-pack mortar, or precast cement cone plugs secured in place with bonding agent.

The Contractor shall repair concealed formed surfaces, where possible, that contain defects that affect the durability of concrete. If defects cannot be repaired, remove and replace concrete.

Unformed surfaces, such as monolithic slabs, shall be tested for smoothness and verify surface lane to tolerances specified for each surface and finish. Correct low and high areas as herein specified. Test unformed surfaces sloped to drain for trueness of slope and smoothness by using a template having required slope.

The Contractor shall repair finished unformed surfaces that contain defects that affect durability of concrete. Surface defects, as such, include crazing and cracks in excess of 0.01 inch wide or that penetrate to reinforcement or completely through nonreinforced sections regardless of width, spalling, popouts, honeycomb, rock pockets, and other objectionable conditions.

High areas in unformed surfaces shall be corrected by grinding after concrete has cured at least 14 days. Low areas in unformed surfaces shall be corrected during or immediately after completion of surface finishing operations by cutting out low areas and replacing with patching compound. Repaired areas shall be finished to blend into adjacent concrete. Proprietary underlayment compounds may be used when acceptable to Engineer.

The Contractor shall repair defective areas, except random cracks and single holes not exceeding 1 inch in diameter, by cutting out and replacing with fresh concrete. Remove defective areas to sound concrete with clean, square cuts and expose reinforcing steel with at least  $\frac{3}{4}$ -inch clearance all around. Dampen

concrete surfaces in contact with patching concrete of same materials to provide concrete of same type or class as original concrete. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.

The Contractor shall perform structural repairs with prior approval of Engineer for method and procedure, using specified epoxy adhesive and mortar. Repair methods not specified above may be used, subject to acceptance of Engineer.

#### MEASUREMENT AND PAYMENT

Measurement and payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
CONCRETE DEPRESSED CURB	LINEAR FOOT

#### Causes for Rejection of Concrete Walks / Pads and Driveways

Concrete walks and pads shall be rejected and ordered replaced by the Engineer if any or all of the following should occur or exist:

- A. Staining or discoloration of concrete sidewalk.
- B. Walk / pad or driveway is out of alignment.
- C. Walk / pad or driveway is out of grade.
- D. Joints and surfaces are improperly finished.
- E. Expansion joints protrude from concrete.
- F. Cracks, chips, or other damages occur during construction or maintenance period.
- G. Settlement of walk or driveway.
- H. Inspection not asked for prior to pouring of concrete.
- I. Improper vibration of concrete.
- J. Vandalism during initial setup of concrete.

Payment for the depressed concrete curb will be made at the linear foot bid price for said items as listed in the bid form. Said prices shall include all materials, labor and incidentals required to complete the installation.

Separate payment will not be made for removal, disposal, and replacement of walks and driveways rejected due to the causes of rejection listed above.

Separate payment for the all items requiring footings / foundations will not be made. Compensation for these items shall be included in the bid price for said items.

## **SECTION 2H – CONCRETE PAVERS, STONE VENEER SEATWALL AND FIRE PIT**

### **WORK INCLUDED**

The contractor shall construct concrete paver walkways, patio areas, stone veneer seatwalls and fire pit as designated on the plans, including all excavation, sub-base material, foundations, reinforcement, edging and labor necessary.

### **MATERIALS**

#### **CONCRETE PAVER WALKWAY AND PATIO**

The concrete pavers shall be 'Brickstone' as manufactured EP Henry (800-444-3679), or an approved equal. Colors shall be 'Dakota Blend' for the field and 'Harvest Blend' for the soldier course.

The pavers shall be installed in accordance with the manufacturer's instructions and with the construction details.

Bedding sand shall conform to Subsection 901 of the NJDOT Standard Specifications for Road and Bridge Construction, Latest revision.

Aggregate base shall conform to Subsection 901 of the NJDOT Standard Specifications for Road and Bridge Construction, Latest revision.

Edge restraint along the paver areas is required. The type of edge restraint shall be as approved by the Engineer. No separate payment will be made.

#### **21" HIGH STONE VENEER RETAINING WALL**

Construction of the 21" high stone veneer seatwall shall utilize precast concrete masonry units. Stone veneer shall be utilized for all vertical faces of the seatwall and shall be 'Ledgestone' Style 'Aspen', as manufactured by EP Henry (800-444-3679), or an approved equal.

Caps shall be a 2" thick Bluestone, 1'-0" wide, adhered to top of concrete masonry units/ stone veneer. Bluestone caps shall be cut to fit around the exact design of the concrete masonry units of the seatwall, maintaining a 1" overhang for a clean appearance.

#### **FIRE PIT KIT AND STORAGE RACK**

The fire pit kit shall be 'Cast Stone Wall Fire Pit Kit' and shall be 'Breckenridge' in color as manufactured EP Henry (800-444-3679), or an approved equal. The kit is comprised of the necessary components to construct a 47" wide circular fire pit with stone cap. Fire Pit Kit shall be set upon a twelve (12) inch compacted aggregate base.

Aggregate base shall conform to Subsection 901 of the NJDOT Standard Specifications for Road and Bridge Construction, Latest revision.

The fire wood storage rack shall be 'The Woodhaven ¼ Cord Plus Rack' provided by The Woodhaven and manufactured by Alexander Manufacturing (888-421-5010) or approved equal. The rack shall measure 4'H, 5'W and 14"D and be set upon a 4" thick concrete slab. The rack shall also be provided with a cover for the appropriate size.

The fire pit kit and storage rack shall be installed in accordance with the manufacturer's instructions and with the construction details.

MEASUREMENT AND PAYMENT

Measurement and payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
CONCRETE PAVER PATIO, INCLUDING SUB-BASE	SQUARE YARD
CONCRETE PAVER WALKWAY, INCLUDING SUB-BASE	SQUARE YARD
STONE VENEER SEATWALL, 21" HIGH, INCLUDING CONCRETE FOOTING	LINEAR FOOT
FIRE PIT KIT, INCLUDING SUB-BASE	UNIT
FIRE WOOD STORAGE RACK WITH COVER, INCLUDING 4" THICK CONCRETE PAD	UNIT

Payment for construction of the concrete paver patio and walkways will be made at the square yard price bid as listed in the bid form for the quantity actually installed. No separate payment will be made for labor, materials, sub-base, or any appurtenances necessary for a complete installation.

Payment for construction of the stone veneer seatwall will be made at the linear foot price bid as listed in the bid form for the quantity actually installed. No separate payment will be made for labor, materials, sub-base, or any appurtenances necessary for a complete installation.

Payment for the Fire Pit Kit will be made at the unit bid price for said items as listed in the bid form. Said prices shall include all materials, hardware, aggregate base, labor, and incidentals necessary for a complete and functioning system.

Payment for the Fire Wood Storage Rack will be made at the unit bid price for said items as listed in the bid form. Said prices shall include all materials, hardware, concrete base, anchoring, and incidentals necessary for a complete and fully functioning system.



## **SECTION 2I – TIMBER BOARDWALK**

### **WORK INCLUDED**

The Contractor shall provide all labor, materials and equipment necessary to furnish and install the timber boardwalk in accordance with the contract drawings and as directed by the Engineer or Engineer.

### **SECTION INCLUDES**

- A. Coordination of boardwalk framing work with the foundation installation.
- B. Fabrication, galvanizing and furnishing of metal bolts, assemblies and fittings as indicated on the drawings and specified herein;
- C. Furnishing of pressure treated structural lumber framing members of the grades and dimensions as indicated on the drawings and specified herein.
- D. Setting and connecting structural timber girders on foundation posts in accordance with the plans and details and as specified herein.
- E. Installing and anchoring the treated timber deck framing including girders, stringers, and supplementary connections for railing systems (where required).
- F. Installation of fascia boards as indicated on the plans and specified herein.
- G. Furnishing and installing pressure treated cedar decking conforming to the grade and dimensional criteria indicated on the plans and specified herein.
- H. Cleanup of debris both beneath and alongside the boardwalk related to the deck framing construction and disposal of treated lumber materials in accordance with all Municipal, County, State, and Federal Regulations having jurisdiction.

### **REFERENCES**

- A. Occupational Safety and Health Administration Construction Standards and Interpretations Construction Industry Standards Related to excavation safety and heavy construction.
- B. New Jersey Department of Transportation Standard Specifications for Road and Bridge Construction (2007)
- C. BOCA Building Code
- D. ASTM Construction Standards
  - 1) ASTM A36 - Structural Steel
  - 2) ASTM A307- Carbon Steel Externally Threaded Fasteners
  - 3) ASTM A325-High Strength bolts for Structural Steel
  - 4) ASTM A163- Hot dip galvanizing
  - 5) ASTM D5456 Standard Specification for Evaluation of Structural Composite Lumber Products.
  - 6) ASTM D-2559 for Glueline Quality
- E. Structural Steel Painting Council
- F. American Welding Society- AWS D1.1 Structural Welding Code

- G. American Forest Products Association- National Design Specification for Wood Construction.
- H. Timber grading rules for applicable species used in the construction.
- I. American Wood Preservers Association treatment standards
  - 1) AWWPA Standard C2-Lumber, Timbers, Bridge and Mine Ties and timbers.

#### QUALITY ASSURANCE

- A. Fabricating, and galvanizing steel connection hardware and in accordance with approved shop drawings, codes and standards;
- B. Furnishing treated structural lumber in accordance with the design plans and specifications;
- C. Connecting and aligning girders and substructure frame in accordance with the plans and details.
- D. Preboring of holes for large nails, and lag screws and deck screws as required to prevent splitting if the decking and framing.
- E. Application of field applied preservatives to drill holes, cut ends etc.
- F. Furnishing standard treated lumber conforming to grading rules for specified grades and species.
- G. Framing and connecting deck systems in accordance with details and inspections.

#### SUBMITTALS

The following material submittals shall be made prior to performing the related items of work:

- A. Overall layout, material connections, concrete foundations and anticipated execution
- B. Galvanizer's certificates for steel fabrications, and hardware.
- C. Submit galvanizing certificates and catalog details for galvanized fasteners.
- D. Submit manufacturers catalog data for stainless steel screws, galvanized wire nails etc.
- E. Submit bolt manufacturers catalog data and head type and thread length for steel bolts.
- F. Submit timber grading certificates for each grade of decking and structural framing.
- G. Submit manufacturer's certificates for Parallel Strand Lumber Framing and beams including material treatment certificates.
- H. Submit treatment certificates for standard lumber in accordance with AWPI standards

#### DELIVERY AND STORAGE

- A. Store and handle materials to prevent physical damage.

#### ENVIRONMENTALLY APPROVED TREATMENT PROCESS

At the time of these specifications it is understood that environmental guidelines have been issued concerning the use of CCA wood treatment in areas accessible to the public. Restrictions could be instituted during the course of the project. Verify prior to ordering decking material the

material that CCA treatment is currently acceptable for use. Notify the Engineer, the Owner and the Owner's Design Engineer, if restrictions prevent further use and provide submittal criteria for substitute equivalent AWPA treatment process.

### INSPECTION

- A. All members shall be subject to the initial inspection by the Engineer in order to confirm compliance with the drawings, specifications and specified standards.

### TIE AND CONNECTION COMPONENTS

- A. All nails, spikes, fasteners, bolts, screws and hardware shall be hot dipped galvanized in accordance with ASTM A307. All structural steel shall conform with ASTM A36.
- B. Spikes for securing stringers to girders shall be 40d, common and "Teco" nails for "Teco" Straps.
- C. Bolts for securing girders to the support posts shall be ½" diameter bolts; stringer to scab plates shall be ½" diameter bolts; and scab plates to girders shall be ½" diameter bolts, all with 1/8" x 2-1/2" minimum washers at each end.
- D. Screws for securing decking to stringers shall be a minimum of three (3") inches long.
- E. "Teco" tie-down straps for fastening the stringers to the girders shall be provided at the 4<sup>th</sup>, 6<sup>th</sup>, 12<sup>th</sup>, and 14<sup>th</sup> stringers.
- F. The Contractor shall field power plane the top of all stringers prior to the installation of decking by the Owner.

### FRAMING LUMBER

- A. All required timbers for stringer and girder members shall be Southern Yellow Pine, square four sides (S4s) dense structural grade No. 2 in accordance with the current grading rules for southern pine lumber approved by the American Lumber Standards Committee as issued and copyrighted by the Southern Pine Lumber Association, New Orleans, LA. All timber stringer and girder members shall conform with ASTM-D24-81 and shall be solid sawn southern pine structural grade #2. Timbers for stringer and girders shall be as shown on the plans.
- B. All timbers, dimension lumber and boards shall be graded and carry an identifiable grade mark in the accordance with the Grading Rules of the Southern Pine Inspection Bureau. The minimum in-place length of lumber shall be as shown on the drawings.
- C. All timber stringers and girders shall be treated in accordance with the American Wood Preservers Association as follows: C1-C6 "Standards for Preservative Treatment by Pressure Process – All Timber Products" and C2 "Standard for the Preservative Treatment of Lumber, Timbers and Ties by Pressure Process".
- D. All timbers shall be treated with a 1.0 pounds per cubic foot CCA (chromated copper arsenite).

### DECKING LUMBER

- A. Decking material shall be cedar decking conforming to the grades and dimensions as indicated on the drawings and specified herein.
- B. All decking shall be treated in accordance with the American Wood Preservers Association

## SAFETY PROCEDURES

- A. Perform all operations in accordance with OSHA procedures for job health and safety.
- B. Control dust, coating residues and debris in accordance with permit requirements and environmental regulations having jurisdiction.

## GENERAL TIMBER FRAMING REQUIREMENTS

- A. Verify that lumber has been stamped and/or tagged for grading and treatment prior to using the material in the work.
- B. Discard wood that is damaged or has excessive splits and checks.
- C. Verify that lumber is of proper size and length for the location in the structure.
- D. Whenever possible, precut lumber to size before assembly. Prebore and treat bore holes with field applied preservative.
- E. Apply field preservative to all cuts prior to assembly.
- F. Accurately set and assemble substructure framing in accordance with the design drawings and details. Report any inconsistencies to the Engineer prior to proceeding with framing for further evaluation.
- G. Pre-bore holes for nail, lag screw, bolts and drift pin holes as required to prevent splitting of the wood.

## SUBSTRUCTURE FRAMING

- A. All moving, handling, transporting, hauling and placing of the stockpiled materials within and around the site of work shall be done by the Contractor. The Contractor shall provide all equipment, tools, machines, vehicles and labor required to prepare, haul and place all materials and construct the boardwalk structures in accordance with the Contract Plans and Specifications. The Contractor will transport and install all cedar decking material.
- B. The Contractor shall be responsible to secure all materials and equipment at the site of work and protect them from trespass and vandalism. Any material that is damaged, lost or stolen after it has been received and accepted by the Contractor shall be the sole responsibility of the Contractor.
- C. Verify that support posts have been treated with approved preservative coating.
- D. Drill support posts and girders accurately to permit through bolting of support post connection plates. Bolt holes shall be of the minimum diameter so that bolts are installed using light tapping.
- E. Install and tighten connecting bolts and washers.
- F. The boardwalk structure shall be constructed to the dimensions, lines, and grades, as shown on the drawings or as directed by the Engineer.
- G. 15# bituminous felt paper shall be stapled or nailed securely in place over the top of the girder members prior to the placement of the stringer members.
- H. Stringers shall be connected to the girders to the spacing as shown on the plans for the appropriate sections involved. Every stringer shall be tow spiked in place to the girders using a

minimum of two (2) galvanized 40d spikes to the girder and four (4) galvanized 40d spikes to the adjacent stringers. In addition, the 4th, 6th, 12th, and 14th stringers shall be fastened to the girder using a galvanized "Teco" tie-down strap and "Teco" nails.

- I. Contractor to field power plane top of all stringers to within 1/8" in ten (10) feet with maximum variation 1/16" in any one (1) foot prior to the Owner's placement of the decking.
- J. Decking construction shall be performed by the Contractor. Decking shall be secured to the stringer at 90° angles. A pattern of two (2)/one (1), three inch (3") long galvanized screws shall be used to fasten each decking board to every other stringer and two (2), three inch (3") screws to fasten all decking board ends. All screw holes shall be pre-drilled through the decking, as required, to properly set and countersink all screws. Decking shall have no seams within the limits of the walkway width (6'). Decking shall be spaced at one-quarter inch (1/4") between boards. All decking shall run in the same direction continuous throughout. Screws shall be finish set below the deck surface. No screws shall be permitted to extend above the deck surface. Deck edging that abuts access ramps or other transverse decking shall be chamfered to minimize tripping hazard.

#### CLEANUP

- A. Cleanup and remove all wood cuts, trash and debris from beneath and alongside the boardwalk.
- B. Rake area adjacent to the boardwalk and remove wood pieces nails, trash and debris.

#### PERMITS AND INSPECTION

The contractor is responsible for obtaining all necessary permits for the construction of the boardwalk structure, footbridge and handicapped accessible ramp.

The County and Building Sub-Code Official shall review shop drawings and inspect the construction. The presence of the Engineer or his representative shall not relieve the Contractor of his responsibility to install the structures in accordance with plans, specifications and codes and standards having jurisdiction.

#### MEASUREMENT AND PAYMENT

<u>Pay Item</u>	<u>Pay Unit</u>
TIMBER BOARDWALK, INCLUDING VERTICAL POSTS AND CONCRETE FOUNDATIONS	SQUARE FOOT

Payment for furnishing and installation of the timber boardwalk, including, but not limited to all necessary decking, materials, hardware, labor and equipment, preparation of shop drawing submittals, permits, and all incidentals, will be included in the square foot price bid for said item as listed in the bid form for the quantity actually installed.

## **SECTION 2J – GALVANIZED HANDRAIL SYSTEM**

### **WORK INCLUDED**

The contractor shall provide all labor, materials and equipment necessary to furnish and install galvanized handrails on all boardwalk sections and ramps exceeding a five (5) percent running slope. The galvanized handrail shall be securely attached to the upright wooden boardwalk support posts.

The railings should be built in accordance with ADA requirements for height and diameter of railing required to meet these guidelines. In addition, the railings shall meet all requirements set forth in the latest edition of the building code.

### **PERFORMANCE REQUIREMENTS**

- A. Structural Performance: Engineer, fabricate, and install handrail system to withstand the structural loading required by applicable loads.
- B. Thermal and Corrosion Control:
  - 1. Allow for thermal action resulting from the maximum range (change) in ambient temperature in the design, fabrication, and installation of rail systems, to prevent opening of joints, buckling, and other detrimental effects, including overstressing of connections and components.
  - 2. Prevent galvanic action and other forms of corrosion by isolating dissimilar metals, preventing direct contact with each other.

### **SUBMITTALS**

- A. Product Data: Manufacturer's specifications and installation instructions for all components of each product type specified.
- B. Shop Drawings: Prepared specifically for this project.
  - 1. Show complete layout; plan views, elevations, connections, details for fabrication and attachment to other elements, and other installation details.

### **QUALITY ASSURANCE**

- A. Manufacturer/Installer Qualifications: Provide handrails from one source, produced by a manufacturer and craftsmen having resources to provide consistent quality in appearance and physical properties, without delaying the work.

### **DELIVERY, STORAGE, AND HANDLING**

- A. Deliver handrail systems and related components in protective packaging. Inspect materials to ensure that specified products have been received.
- B. Store components to avoid damage from moisture, abrasion, and other construction activities.

### **MANUFACTURERS**

- A. Manufacturer: RTB Fabricators – 14 Cartier Drive, Franklin Park, NJ 08823 (732) 422-9743; or approved equal.
- B. Provide handrail system from a single manufacturer.

## MATERIALS

- A. General: Provide material free from surface blemishes where exposed to view in the finished installation. Materials used to fabricate and mount the railing shall be in accordance with the contract drawings and with the standard and supplementary specifications. Shop drawings shall be submitted to the Engineer for approval prior to fabrication. The railing shall be properly prepared for finishing.
- B. Galvanized Steel: Railing shall be Schedule 40 Seamless Galvanized Steel pipe conforming to ASTM A53.
- C. Base Flanges, Anchors, and Inserts:
  - 1. Anchors and inserts as required to support work specified, in accord with approved shop drawings.
  - 2. All components to be comprised of Galvanized Steel.
- D. Fittings and Fasteners: Same basic material and alloy as parts being joined, unless otherwise indicated. Do not use metals that will be corrosive or incompatible with materials being fastened; do not utilize pop-rivets, sheet metal screws, adhesives, or cast fittings.
  - 1. Fasteners: Galvanized Steel
  - 2. Component Fittings: Galvanized Steel
- E. Terminal safety returns shall be provided at all ramp terminal handrails.

## FABRICATION

- A. Fabricate handrail system to comply with Engineer's and manufacturer's printed requirements, project design requirements, ADA requirements, details, dimensions, finish and member sizes, including post spacing and anchorage, but not less than the structural requirements to support loading. The railing shall meet the quality requirements of NAAMM's Pipe Railing Manual.
  - 1. Clearly mark component units for site assembly and installation.
  - 2. Use connections that maintain structural capacity of joined members.
- B. Provide weep holes or other means to exit entrapped water from hollow sections of railing members exposed to exterior, condensation, or moisture from other sources.
- C. Railings shall be prefabricated and preassembled in the factory or shop as far as practical.

## FINISHES

- A. Galvanized Steel:
  - 1. Hot-Dipped Galvanized Coating in accordance with ASTM A123 and ASTM A385.

## EXAMINATION

- A. Examine system components, substrate, and conditions where railing systems are to be installed.

- B. Notify Engineer in writing of unsatisfactory conditions. Do not proceed with the work until unsatisfactory conditions have been corrected.

#### PREPARATION

- A. Prepare surrounding construction to receive railing system installations to comply with manufacturer's requirements.
- B. Review and coordinate setting drawings, shop drawings, templates, and instructions for assembly and installation of railing system and related items to be embedded in concrete and masonry.

#### INSTALLATION

- A. Fabricate and install railing system and related components in strict accordance with manufacturer's printed installation instructions, project shop drawings, and Engineer's orders.
- B. Preassemble railing system, including posts, in easy to lift sections whenever possible.
  - 1. Align rails so that variations from level horizontal members, and from parallel with rake of steps and ramps for sloping members, do not exceed 1/4 inch in 12 feet (6.3mm in 3.657m).
- C. Adjust, level, and securely install railing system components.
  - 1. Avoid springing assembled components of system into place.
- D. Provide for water to drain from the railing system hollow sections by drilling weep holes at bottom locations or other approved methods.
- E. Field welding shall not be permitted.
- F. Galvanized surfaces damaged from handling or installation shall be removed and replaced at no additional cost to the Owner.
- G. No improvements shall be installed prior to the Owner's written acceptance of shop drawings.
- H. No improvements shall be installed prior to a mutually agreed upon final location by the Township, Engineer, and Contractor.

#### CLEANING

- A. Immediately upon completion of installation, clean all railing system surfaces using clean water and mild soap or detergent.
- B. Do not use abrasive agent or harsh chemicals.

#### PROTECTION

- A. Provide adequate protection for all surfaces of completed installations to prevent damage during remainder of construction activities



MEASUREMENT AND PAYMENT

<u>Pay Item</u>	<u>Pay Unit</u>
GALVANIZED STEEL HANDRAIL, INCLUDING VERTICAL POSTS AND CONCRETE FOUNDATIONS	LINEAR FOOT
GALVANIZED STEEL HANDRAIL	LINEAR FOOT

Payment for furnishing and installation of the galvanized handrail, including, but not limited to all necessary materials, hardware, labor, and equipment for a complete installation will be made at the linear foot price bid for said item as listed in the bid form for the quantity actually installed.

## **SECTION 2K – BRAILLE TRAIL AND INTERPRETATIVE SIGNAGE**

### **WORK INCLUDED**

The Contractor shall provide all labor, materials and equipment necessary to furnish and install the braille trail, talking informational sensory kiosk and braille trail sensory touch signs in accordance with the contract drawings and as directed by the Engineer or Engineer.

All materials, labor, and equipment required for the construction and installation of the sign faces and supporting structure, as required by the plans and specifications shall be included under these items.

### **BRAILLE TRAIL**

The contractor shall construct a section of the overall project as a braille trail. The trail shall have a ¼" marine grade nylon guide rope installed along the perimeter. The rope shall pass through 4"x4" southern yellow pine, pressure treated wooden posts at 10' intervals. An indicator knot should be provided directly before the braille signage.

### **TALKING INFORMATIONAL KIOSK**

The wooden sign face with cedar roof structure shall be constructed in accordance with the contract drawings, with good construction practice and with all applicable building codes. Working/design drawings shall be submitted to the Engineer for review and approval. Said working drawings shall also be suitable and used for sub-code permit application purposes. It is the intent of the owner to have constructed a single-sided wooden sign face with full color interpretative signage and an audio box as depicted in the contract drawings. The sign shall be constructed fully of cedar and capable of supporting the necessary signage and audio box. Specifications, samples and materials shall be provided by the Contractor for selections to be made by the owner.

It is the responsibility of the Contractor to provide all engineering drawings, apply for and secure sub-code permits and to secure all sub-code inspections and final approval certificates from the local Construction Official's Office. Any signed and sealed engineering/working drawings or other certifications required for the permit process, other than the contract drawings, must be obtained and provided by the Contractor.

### **AUDIO BOX**

The contractor shall install the U-Turn Audio Box Through Mount with Rear Casing, manufactured by Digital Audio Technologies (800-261-3199) or approved equal within the center of the kiosk. The audio box shall be capable of eight (8) audio selections and be inset flush within the kiosk center panel.

The Owner will provide the required script for each audio selection. As part of this contract, the contractor will be responsible for coordinating the necessary narrative between the Owner and manufacturer to create a studio recording for each sign face installed (10 total).

### **SIGNAGE**

The contractor is responsible for the creation and installation of all interpretative signage as depicted within the contract drawings as directed by the Owner.

The kiosk signage shall be 2'H x 3'W High Pressure Laminate 1/8" thick panels carrying a 10 year guarantee. These sign faces shall be full color and contain a variety of text and images for the necessary subject material.

The braille trail signage shall be 12"H x 18"W High Pressure Laminate 1/8" thick panels carrying a 10 year guarantee. These sign faces shall be full color and contain a variety of text and images. The text will be transcribed into braille on alternating lines. In addition, carved sections of the sign will be created

on each sign face to provide a sensory experience.

The Owner will provide all required information for each sign face. As part of this contract, the contractor will be responsible for coordinating the necessary information, graphics, vector files and any other materials required for sign creation between the Owner and manufacturer. A proof of each sign face shall be provided to the Owner for approval prior to ordering and installation. All sign faces shall be designed and produced by Loumarc Signs (908-575-4000) or an approved equal.

#### MEASUREMENT AND PAYMENT

Measurement and payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
TALKING INFORMATIONAL SENSORY KIOSK, INCLUDING CONCRETE FOUNDATIONS	UNIT
BRAILLE TRAIL LOOP NYLON ROPE, INCLUDING VERTICAL POSTS AND GRAVEL FOUNDATIONS	LINEAR FOOT
BRAILLE TRAIL LOOP NYLON ROPE	LINEAR FOOT
BRAILLE TRAIL LOOP SIGN, INCLUDING CONCRETE FOUNDATION	UNIT

Payment for the talking informational sensory kiosk will be made at the unit bid price for said items as listed in the bid form. Said prices shall include construction of the kiosk, signage, roof structure, audio box, all hardware, foundations, anchoring, and incidentals necessary for a complete and fully functioning system.

Payment for the Braille Trail Loop nylon rope will be made at the linear foot bid price for said items as listed in the bid form. Said prices shall include all materials, hardware, foundations, labor, and incidentals necessary for a complete and fully functioning system.

Payment for the Braille Trail Loop informational signage components will be made at the unit bid price for said items as listed in the bid form. Said prices shall include all hardware, foundations, anchoring, and incidentals necessary for a complete and fully functioning system.

## **SECTION 2L – SENSORY COMPONENTS AND SURFACING**

### **WORK INCLUDED**

The contractor shall furnish and install safety surface and sensory components at the locations indicated on the plans or as directed by the owner. All materials, labor, and equipment required to complete fine grading of stone base course, and all other associated work, as required by the plans and specifications shall be included under this item.

### **SENSORY COMPONENTS**

The contractor shall furnish and install sensory components at the locations indicated on the plans or as directed by the owner. The contractor shall provide a survey stake out for sensory component layout prior to installation, to ensure all components and safety use zones are in accordance with the plans and manufacturer recommendations. All materials, labor, and equipment required to complete the construction including component installation and all incidental items required by the plans and specifications shall be included under this item.

All sensory components shall be installed with a direct burial concrete foundation, in strict conformance with the manufacturer's instructions and recommendations and with all applicable governmental regulations. This shall include any grading required for ADA compliant access to the designated barrier free components.

Sensory components shall be as shown on the detail drawings within Appendix A, as manufactured by Landscape Structures, Inc. and provided by General Recreation (800-726-4793) or an approved equal.

Shop drawings for all equipment shall be submitted to the Engineer for review and approval prior to ordering of materials. Shop drawing submittal shall include component layout in the areas designated on the plans along with specifications and warranty information for all components. Component layout shall be in accordance with the plan detail or as directed by the Engineer.

### **WOOD ENGINEERED FIBER SAFETY MULCH**

Wood engineered fiber safety mulch shall be 'GT Impax' as manufactured by GameTime and provided by MRC (800-922-0070) or approved equal. The mulch shall be placed in the locations and thickness as shown on the contract drawings. The mulch shall be manufactured of size controlled softwoods and/or hardwoods that average 1"-2" in length and contain a maximum of 15% fine particles to aid in knitting. The mulch shall be non-toxic and not contain paint, chemicals, or additives. The mulch shall contain minimal bark and be free of twigs, leaf debris, and other organic material. Submittal of the material's certification is required prior to deliver and placement onsite. A permeable filter fabric shall be installed on the approved sub grade under the fiber mulch.

### **MEASUREMENT AND PAYMENT**

Measurement and payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
ENGINEERED WOOD FIBER SAFETY MULCH, 6" THICK	SQUARE FOOT
CHITTER-CHATTER NOODLE, INCLUDING CONCRETE FOUNDATIONS	PAIR
SENSORY PLAY CENTER, INCLUDING CONCRETE FOUNDATIONS	UNIT

LOG CRAWL TUNNEL, INCLUDING CONCRETE FOUNDATIONS	
LOG BALANCE BEAM, INCLUDING CONCRETE FOUNDATIONS	UNIT
LOG STEPPER, INCLUDING CONCRETE FOUNDATION	UNIT
MUSHROOM STEPPER, INCLUDING CONCRETE FOUNDATION	UNIT
GOBLET DRUM, INCLUDING CONCRETE FOUNDATION	UNIT
KUNDO DRUM, INCLUDING CONCRETE FOUNDATION	UNIT
KETTLE DRUM, INCLUDING CONCRETE FOUNDATIONS	UNIT
VIVO METALLOPHONE, INCLUDING CONCRETE FOUNDATIONS	UNIT

Payment for the engineered wood fiber safety mulch will be made at the square foot bid price for said items as listed in the bid form. Said prices shall include all materials, labor, and incidentals necessary for a complete and fully functioning system. No separate payment will be made for the required sub-base, drainage, and any fine grading within the sensory area.

Payment for the sensory components will be made at the unit bid prices for said items as listed in the bid form. Said prices shall include all hardware, foundations, anchoring, and incidentals necessary for a complete and fully functioning system.

## **SECTION 2M – PREFABRICATED SHADE STRUCTURE**

### **WORK INCLUDED**

The contractor shall furnish and install the 30' Wide Prefabricated Shade Structure at the location indicated on the plan or as directed by the owner. All materials, labor, permitting, and equipment required to complete the installation, including all foundations, connections and all incidental items required by the plans, specifications, or manufacturer's recommendations shall be included under this item.

The contractor shall provide shop submittals detailing layout, concrete foundations, reinforcement and execution for review and approval prior to construction. The contractor is responsible for the preparation of plans and details signed and sealed by a N.J. Licensed Engineer for submittal to the construction department for all permitting. All construction shall comply with applicable codes. Any required soil borings and testing for bearing capacity determination is the responsibility of the contractor.

Installation of all components shall be in strict conformance with the detail drawings and/or with the manufacturer's instructions and recommendations, or as directed by the Engineer.

### **MATERIALS**

The 30' Wide Prefabricated Shade Structure (Model #: HX30M2C-P6) shall be as shown on the detail drawings and manufactured by Icon Shelter Systems, Inc. (800-748-0985) and provided by Ben Shaffer Recreation, Inc. (800-953-2021) or approved equal.

The structure shall be a 2-Tier 30' Hexagonal Structure with a 24 gauge precut multi-rib metal roof. The roof shall have a 6:12 roof slope and a steel frame cupola. The manufacturer will provide anchor bolts, column base covers, anchor templates and engineering drawings. The engineering drawings shall include all structure components and connections as well as foundation design appropriate for the structure.

The metal roof shall be 'Patina Green', the steel frame powder coat shall be 'Surrey Beige' and the ornamentation powder coat shall be 'Fence Brown'. All final color selections to be approved by the Owner.

### **PART 1 - GENERAL**

#### **1.01 DESCRIPTION OF PRODUCT**

- A. Shelter Type: 30' Hexagonal style shelter with Multi-Rib roof panels.
- B. Roof Slope: 6:12
- C. Clear height under Tie Beam (UTB): 8'-0". This is the clearance under the tie beam which spans between the columns.

#### **1.02 REFERENCES**

##### **A. REFERENCED STANDARDS**

- 1. AISC – American Institute of Steel Construction
  - a. AISC Steel Construction Manual – 14<sup>th</sup> edition
  - b. AISC 360-10 Specification for Structural Steel Buildings
- 2. ASTM – American Society for Testing and Materials
  - a. ASTM A36/A36M – Standard Specification for Carbon Structural Steel; 2008
  - b. ASTM A325 – Standard Specification for Structural Steel Bolts, Heat Treated, 120/105 ksi Minimum Tensile Strength; 2010
  - c. ASTM A563 – Standard Specification for Carbon and Alloy Steel Nuts; 2007a
  - d. ASTM A500 – Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes; 2010a

- e. ASTM A653/A653M – Standard Specification for Sheet Steel, Zinc-Coated (Galvanized) or Zinc-Iron Alloy Coated (Galvanealed) by the Hot Dip Process; 2010
- f. ASTM A792/A792M – Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy Coated by the Hot-Dip Process; 2010
- g. ASTM F1554 – Standard Specification for Anchor Bolts, Steel, 36, 50 and 105 ksi Yield Strength; 2007a
- 3. AWS – American Welding Society
  - a. D1.1
  - b. D1.3
  - c. D1.8
- 4. OSHA – Occupational Safety and Health Administration
  - a. Steel Erection Standard 29 CFR 1926.750 Part R
- 5. SSPC – Steel Structures Painting Council
  - a. SSPC-SP 2 – Hand Tool Cleaning; 2004
  - b. SSPC-SP 10/NACE No. 2 – Near White Blast Cleaning; 2007
- 6. LEED – Leadership in Energy and Environmental Design
- 7. ISO – International Organization for Standardization

### 1.03 SYSTEM DESCRIPTION

- A. The structure shall be a pre-engineered package and shall be shipped as a pre-cut (excluding standing seam roof panels) and pre-fabricated package that shall include the structural framing members, roof panels, fasteners and roof trim as well as job specific installation instructions. The structure will be shipped in an un-assembled package for ease of shipment and minimum shipping charges.

### 1.04 SUBMITTALS

- A. Submit a minimum of four (4) sets of submittal drawings and (2) sets of structural calculations signed and sealed by a Professional Engineer licensed in the state of New Jersey.
- B. PRODUCT DESIGN REQUIREMENTS:
  - 1. The structure shall meet all national, state or local Building Codes, Ground Snow Loads, Live Loads, Wind Speeds, and Seismic Design Standards for the projects specific location.
- C. SUBMITTAL REQUIREMENTS
  - 1. Calculations:
    - a. Design according to the requirements of the national, state or local building codes.
    - b. Calculations shall include all member design for each different member type.
    - c. Connection design for each different connection that will determine the design of the bolts, welds, plate thickness and anchorage to the foundation.
    - d. Foundation design shall be for the loads applied and not a generic foundation design, taking into account all soils information.
  - 2. Submittal Drawings:
    - a. Anchor bolt layout with all appropriate dimensions for installation.
    - b. Site specific foundation design.
    - c. Isometric as well as elevation and plan views of the framing members along with the member sizes and locations indicated on the drawings.
    - d. Connection details for every connection on the frame.
    - e. Roof panel connections and trim installation details.
    - f. All accessories on the structure shall have an installation detail as well as connection details.
- D. FOUNDATION DESIGN
  - 1. The foundation design shall be supplied by the manufacturer.

2. Anchor bolts shall be supplied by the manufacturer.
3. Foundation materials and labor shall be provided by the structure contractor.
4. Owner should provide site specific soils information for proper foundation design, if that data is not provided the foundation will be design for the minimum soil values allowed by code.

#### 1.05 QUALITY ASSURANCE

##### A. MANUFACTURER QUALIFICATIONS

1. The product shall be designed, engineered and fabricated at a facility operated and directly supervised by the manufacturer.
2. The manufacturer shall have a minimum of 9 years in steel shelter fabrication.
3. Full Time on Staff Quality Assurance Manager.
4. All welders must be AWS certified for welding steel structures.
5. Membership in the American Welding Society (AWS).
6. Membership in the American Institute of Steel Construction (AISC).
7. Full Time on Staff Licensed Engineer.
8. Published Quality Control System manual.
9. Quality Control System must pass an annual audit by a Third Part Agency.
10. ISO 9001 certification for Powder Coating System.

#### 1.06 FIELD OR SITE CONDITIONS

- A. Foundations shall be installed per the ICON installation drawings.
  1. All foundations shall be cast at the same elevation unless specifically noted on the ICON installation drawings.
- B. Anchor bolts shall be placed in the foundation as per the ICON installation drawings utilizing the anchor bolt template supplied with the anchor bolts.
  1. Anchor bolts shall be installed per the dimensions and orientation shown on the drawings.

#### 1.07 MANUFACTURER WARRANTY

- A. Shelter shall have a 10 year limited warranty on the steel framing members.
- B. Shelter shall have a 10 year limited warranty on the powder-coated elements.
- C. For all Metal Roofing there will be a pass through warranty direct from the metal Roofing supplier, warranty shall be provided on request.

### PART 1 - MATERIALS

#### 2.01 SHELTER SYSTEM AND MATERIALS

##### A. PRODUCT REQUIREMENTS AND MATERIALS:

1. GENERAL:
  - a. The pre-engineered and pre-fabricated package of parts shall be pre-cut and packaged unless noted otherwise. These packages will include all parts and pieces necessary to field assemble the shelter at the jobsite. The shelter shall be shipped in knocked down format to minimize shipping expenses. Field labor will be kept to a minimum with no on-site welding required.
2. CONCRETE FOR FOUNDATIONS:
  - a. Concrete shall have a minimum 28-day compressive strength of 2,500 psi unless noted otherwise on the foundation detail.
  - b. Reinforcing steel shall be ASTM A615, Grade 60.



3. COLUMNS:
  - a. Hollow Structural Section (HSS) columns shall meet ASTM A500, Grade B with a minimum wall thickness of 3/16" (0.1875").
  - b. Unless the columns are direct buried in the foundation the columns shall attach to the foundation with a minimum of four (4) anchor rods and shall meet OSHA Steel Erection Standard 29 CFR 1926.755(a)(1)
4. STRUCTURAL FRAMING
  - a. All Hollow Structural Sections (HSS) shall meet ASTM A500, Grade B. "I" Beams, tapered columns or open channel sections shall not be accepted for primary members.
5. COMPRESSION RINGS:
  - a. Compression rings shall be made of ASTM A36 structural plate or of structural channel welded together to form the ring. All connections not requiring compression rings shall use ASTM A500, Grade B HSS sections for these connections.
6. CONNECTION REQUIREMENTS:
  - a. Anchor rods shall be ASTM F1554, Grade 36 unless otherwise noted.
  - b. Structural fasteners shall be ASTM A325 high strength bolts and A563 nuts.
  - c. All structural fasteners shall be hidden within the framing members whenever possible.
  - d. No field welding shall be required to finish the construction of the shelter.
  - e. Manufacturer shall supply extra fasteners.
7. ROOFING MATERIALS:
  - a. PRIMARY ROOF DECK – MULTI-RIB METAL ROOFING
    - 1) Roofing shall be a minimum of 24 gauge Galvalume steel sheet with ribs that are 1 3/16" tall and 12" on center. Ribs shall run with the slope of the roof for proper drainage.
    - 2) Roof outside surface shall be a baked on Kynar 500 paint finish and shall be supplied in one of the manufacturer's standard colors: TBD Ceiling color to be a "wash coat" primer.
    - 3) Roof panels shall have the roof angles factory pre-cut to size to provide ease of installation.
    - 4) Metal roofing trim shall match the color of the roof and shall be factory made from 26 gauge Kynar 500 painted Galvalume sheet steel.
    - 5) Trim includes panel ridge caps, hip caps, eave "J" trim, splice channels, rake trim, roof peak cap and corner trim as applicable for the model selected. Trim may need to be field cut to length. Please refer to the installation drawings for additional information and detail.
    - 6) Ridge, hip and valley caps shall be pre-formed with a single central bend to match the roof slope and shall be hemmed on both edges.
    - 7) Roof peak caps shall be pre-fabricated with no field assembly required.
    - 8) Manufacturer shall supply roof screws painted to match the roof.
8. FACTORY FRAME FINISH:
  - a. All structural steel shall be cleaned, pre-treated and finished in the following manner:
    - 1) The steel shall be shot-blasted to the specification of SSPC-SP10 near white blast cleaning. SSPC-SP2 hand tool cleaning will not be an acceptable alternative.
    - 2) The shot-blasted parts are then washed with zinc-phosphate in an eight (8) stage washer.
    - 3) The steel is then immersed in a liquid epoxy and coated through an electro-deposition process (E-coat), this is coated both inside and out to a uniform cover

of 0.7-0.9 mils. The E-coat totally encapsulates the part for superior corrosion protection.

- 4) The parts are then coated with a color coat of TGIC polyester powder and then one clear coat for a final finish thickness of 8 to 12 mils.

#### 9. FACTORY PRIME PAINT

- a. All steel shall be cleaned to the specification of SSPC-SP2 (Hand Tool cleaning) or better. This removes all loose mill scale, loose rust and any other loose foreign matter. The clean steel will then be primed with a quick dry, lead and chromate free alkyd primer.

#### 10. ACCESSORIES

##### a. ELECTRICAL ACCESS

- 1) Standard in all column bases is a 1 3/4" diameter hole, located in the center of the plate. This allows electrical wiring into the column base.

### PART 3 - EXECUTION

#### 3.01 STORAGE AND HANDLING

- A. When the shelter arrives at the jobsite protect the products from weather, sunlight and damage.
- B. When unloading, pad the forks and use other precautions to protect the powder-coated finish. Do not use chains to move the materials, use straps. Handle all materials carefully in the field to avoid scratching the powder-coat finish.
- C. Contractor shall store the product elevated from the soil to allow full air circulation around the materials as do not introduce mold, decay, fungi or insects into or on the materials. One end of the materials shall be elevated higher than the other end if storage will be longer than a few days as to allow the water to run off the materials.

#### 3.02 INSTALLATION OF MATERIALS

- A. The shelter shall be placed on prepared foundations. Foundation shall be constructed to all local building code requirements and per good construction practices for the specific site conditions.
  1. In accordance with OSHA Steel Erection Standard 29 CFR 1926.750 Part R, anchor rods shall be installed for proper column stability and shall have a minimum of four (4) anchor bolts per column. Therefore no single anchor rod column base connections shall be allowed.
- B. The contractor shall install all parts and pieces per the manufacturer's supplied installation instructions and these specifications.
- C. The interface with other work required is to be coordinated by the customer or the customer's agent. Some design may have electrical or plumbing requirements that are not supplied by ICON.
- D. Tolerances on structural steel members are set according to AISC Code of Standard Practice for Steel Buildings and Bridges and have been used for the fabrication of this product. These tolerances will not and cannot be increased. No field slotting or opening of holes will be allowed without proper guidance from the ICON Engineering Department.

## 3.03 REPAIR

- A. No field modifications or corrections are allowed without authorization from the ICON Engineering Department.

MEASURE AND PAYMENT

Measurement and payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
GAZEBO, 30' WIDE, INCLUDING CONCRETE FOUNDATIONS	UNIT

Payment for the furnish and installation of the Prefabricated Shade Structure will be made at the unit bid price as listed in the Bid Form. Said bid prices shall include all materials, labor and incidentals required to complete the installation. No separate payment will be made for signed and sealed drawings.

Separate payment for all items requiring construction permits will not be made. Compensation for these items shall be included in the bid price for said items.

## **SECTION 2N – TRAILHEAD ENTRY SIGN**

### **WORK INCLUDED**

The contractor shall furnish and install the trailhead entry sign where designated on the plans, including all materials, excavation, foundations, reinforcement, and labor necessary for a complete installation.

### **MATERIALS**

Custom Pedestrian Entry Sign, 12' Long

### **PART 1 GENERAL**

#### 1.1 SECTION INCLUDES

- A. *CFI Custom Pedestrian Trailhead Entry Sign*

#### 1.2 REFERENCES

Specifier Notes: List standards referenced in this section, complete with designations and titles. This article does not require compliance with standards, but is merely a listing of those used.

##### A. ASTM Testing Standards:

1. ASTM B 117 – Standard Practice for Operating Salt Spray (Fog) Apparatus.
2. ASTM D 522 – Standard Test Methods for Mandrel Bend Test of Attached Organic Coatings.
3. ASTM D 523 – Standard Test Method for Specular Gloss.
4. ASTM D 2247 – Standard Practice for Testing Water Resistance of Coatings in 100% Relative Humidity.
5. ASTM D 2794 – Standard Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact).
6. ASTM D 3359 – Standard Test Methods for Measuring Adhesion by Tape Test.
7. ASTM D 3363 – Standard Test Method for Film Hardness by Pencil Test.
8. ASTM G 155 – Standard Practice for Operating Xenon Arc Light Apparatus for Exposure of Non-Metallic Materials.

##### B. ISO Testing Standards:

1. ISO 1520 – Paints and Varnishes – Cupping Test.
2. ISO 2815 – Paints and Varnishes – Buchholz Indentation Test.

##### C. ANSI/BIFMA Testing Standards:

1. ANSI/BIFMA X5.4-2005 – Standard Test for Lounge Seating.

#### 1.3 SUBMITTALS

- A. Product Data: Submit manufacturer's product data, storage and handling requirements and recommendations, installation methods and available colors, styles, patterns and textures.
- B. Shop Drawings: Submit manufacturer's shop drawings, including plans and elevations, indicating overall dimensions.
- C. Samples: Submit manufacturer's samples of materials, finishes, and colors.
- D. Warranty: Manufacturer's standard warranty.

#### 1.4 QUALITY ASSURANCE

- A. Manufacturer's Qualifications: Manufacturer regularly engaged in manufacture of site furnishings since 1995.
- B. Product Support: Products are supported with complete engineering drawings and design patents.
- C. Base Worth: An installed base of products worth in excess of thirty million dollars.
- D. Assets: Excess of ten million dollars in assets.
- E. Production: Standard orders are filled within a 40-day schedule.
- F. Facility Operator: Welders and machine operators are certified.

### 1.5 DELIVERY, STORAGE, AND HANDLING

A. Delivery: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.

B. Storage: Store materials in clean, dry area in accordance with manufacturer's instructions. Keep materials in manufacturer's original, unopened containers and packaging until installation.

C. Handling: Protect materials and finish during handling and installation to prevent damage.

### 1.6 WARRANTY

A. Warranty Information:

-Products will be free from defects in material and/or workmanship for a period of one year from the date of delivery.

-The warranty does not apply to damage resulting from accident, alteration, misuse, tampering, negligence, or abuse.

-CFI shall, at its option, repair, replace, or refund the purchase price of any items found defective upon inspection by an authorized CFI service representative.

-Purchasers should be aware that normal use of these high quality products can result in superficial damage affecting the finish. Scratches, nicks, and dents are to be considered normal wear and tear, and are not the responsibility of the manufacturer.

## PART 2 PRODUCTS

### 2.1 MANUFACTURER

A. CFI 2903 NY RT7, HARPURSVILLE, NY, 13787 / PH: (607)-693-3223  
FX: (607)-693-3226 / [KILLMEIER@ECHOES.NET](mailto:KILLMEIER@ECHOES.NET) OR APPROVED EQUAL

### 2.2 ITEM

ARCH 'CUSTOM' STYLE

### 2.3 MATERIALS

A. PRESSURE TREATED POSTS

B. LASER TEMPLATED LETTER OVERLAY SHD BLASTED INTO LOGO PLATE

C. ALL GALVANIZED HARDWARE

D. 1" DIA. WEATHER RESISTANT HEMP ROPE

-Recycled Material Content: Minimum 25 percent. Alum. generally 75%

-Recyclable: 100 percent.

### 2.4 FINISHES

A. Finish on Metal: CFI POWDERCOAT FINISH

1. White metal blast surface preparation

2. Primer: Rust inhibitor (zinc primer / or e-coat when specified)

2. Topcoat: Thermosetting TGIC polyester powder coat. UV, chip, and flake resistant.

3. Test Results: ASTM Cross hatch for adhesion and MEK rub for cure test

a. Gloss Consistency, Gardner 60 Degrees, ASTM D 523: Plus or minus 5 percent from standard.

b. UV Resistance, Color and Gloss, ASTM G 155, Cycle 7: Delta E less than 2 at 2.0 mils and less than 20 percent loss.

c. Cross-Hatch Adhesion, ASTM D 3359, Method B: 100 percent pass.

d. Flexibility Test, Mandrel, ASTM D 522: 3 mm at 2 mils.

e. Erichsen Cupping, ISO 1520: 8 mm.

f. Impression Hardness, Buchholz, ISO 2815: 95.

g. Impact Test, ASTM D 2794: 60 inch-pounds at 2.5 mils.

h. Pencil Hardness, ASTM D 3363: 2H minimum.

i. Corrosion Resistance, 1,500-Hour Test, ASTM B 117: Max. undercutting 1 mm.

j. Humidity Resistance, 1,500-Hour Test, ASTM D 2247: Max. blisters 1 mm. Specifier Notes: Specify color of metal. Consult CFI. for selection of standard colors and availability of custom colors.

4. Color: Natural wood with accent colors to be selected by owner.

### PART 3 EXECUTION

#### 3.1 EXAMINATION

- A. Examine area to receive entry sign.
- B. Notify Engineer of conditions that would adversely affect installation or subsequent use.
- C. Do not begin installation until unacceptable conditions are corrected.

#### 3.2 INSTALLATION

- A. Install *ARCH* in accordance with manufacturer's instructions / dimensions and locations indicated on the drawings.
- B. *ARCH plumb and level.*
- Specifier Notes: Specify anchoring method.
- C. Anchoring Method:
  1. Arch to have full length post to be supplied and anchored to a 4'x4'x5' deep footer minimum with cast in "J" bolts on required 4 bolt pattern. J bolts to be 18" deep. Please see Engineers specific detail for exact construction and size to accommodate stone face

#### 3.3 ADJUSTING

- A. Finish Damage: Repair minor damages to finish in accordance with manufacturers Instructions and as approved by Engineer.
- B. Component Damage: Remove and replace damaged components that cannot be successfully repaired as determined by Engineer.

#### 3.4 CLEANING

- A. Clean promptly after installation in accordance with manufacturer's instructions.
- B. Do not use harsh cleaning materials or methods that could damage finish.

#### 3.5 PROTECTION

- A. Protect installed product to ensure that, except for normal weathering, product will be Without damage or deterioration at time of Substantial Completion.

### MEASUREMENT AND PAYMENT

Measurement and payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
TRAILHEAD ENTRY SIGN, INCLUDING CONCRETE FOUNDATIONS	UNIT

Payment for furnishing and installing the trailhead entry sign will be made at the unit bid price as listed in the bid form. No separate payment will be made for materials, excavation, foundations, reinforcement, and labor necessary for a complete installation.

## **SECTION 20 – MISCELLANEOUS SITE AMENITIES**

### **WORK INCLUDED**

The Contractor shall provide all labor, materials, and equipment necessary to install the Log Benches, Acorn Seats, Trash and Recycling Receptacles, Decorative Table and Raised Garden Bed as specified.

Submittal and approval of shop drawings/catalog cuts for the above items and all appurtenances is required prior to installation/acceptance.

### **LOG BENCHES**

Log Benches shall be Model 173595, as manufactured by Landscape Structures, Inc. and provided by General Recreation (800-726-4793) or an approved equal. Permanent direct burial installation shall be in accordance with the detail drawing and manufacturer's recommendations. Contractor shall submit shop drawings for approval prior to ordering. Concrete footings shall be buried a minimum of 2" beneath the mulch to provide a clean finished installation.

### **ACORN SEATS**

Acorn Seats shall be Model 186579, as manufactured by Landscape Structures, Inc. and provided by General Recreation (800-726-4793) or an approved equal. Permanent direct burial installation shall be in accordance with the detail drawing and manufacturer's recommendations. Contractor shall submit shop drawings for approval prior to ordering. Concrete footings shall be buried a minimum of 2" beneath the mulch to provide a clean finished installation.

### **TRASH AND RECYLING RECEPTACLE**

Trash and Recycling Receptacles shall be Models 186584 (Wood Grain Litter Receptacle) and 186585 (Wood Grain Recycling Receptacle), as manufactured by Landscape Structures, Inc. and provided by General Recreation (800-726-4793) or an approved equal. Permanent direct burial installation shall be in accordance with the detail drawing and manufacturer's recommendations. Contractor shall submit shop drawings for approval prior to ordering. Concrete footings shall be buried a minimum of 2" beneath the mulch to provide a clean finished installation. Liners for each receptacle shall be provided by the Contractor.

### **DECORATIVE TABLE**

Decorative Table shall be 6' long (Custom Model 100-60-1PL), as manufactured by Dumor, Inc. and provided by General Recreation (800-726-4793) or an approved equal. The contractor shall coordinate ordering with the product representative to supply only the table portion. The table height and supporting legs shall be increased from the standard thirty (30) inches to a height of thirty-four (34) inches. Permanent direct burial installation shall be in accordance with the detail drawing and manufacturer's recommendations. Contractor shall submit shop drawings for approval prior to ordering. Concrete footings shall be buried a minimum of 2" beneath the mulch to provide a clean finished installation.

Table structure shall be powder coated black and table top shall be Walnut recycled plastic. Final color selections to be approved by Owner prior to ordering.

### **RAISED GARDEN PLANTER**

Raised Garden Planter shall be Model 'Traditional' as manufactured by Accessible Gardens and provided by Ben Shaffer Recreation, Inc. (732-840-1060) or approved equal. The Raised Garden Planters shall be constructed of red cedar and meet all ADA accessible and NJ Structural Standards.

Overall dimensions of the Raised Garden Bed shall be 32" x 48" and provide a 28" clearance beneath the

lowest horizontal member. The box shall be constructed of 2"x12" lumber for the sides and 2"x6" lumber for the bottom of the garden bed and all braces. The legs shall be 4"x4" material. An integral drainage system shall be provided. All connections shall be pre-drilled and made with stainless steel or ceramic fasteners.

The Contractor shall apply an oil based outdoor finish to the planters prior to installation. The Contractor shall provide samples of a minimum of three (3) different oil based finishes for approval by the Owner.

#### MEASUREMENT AND PAYMENT

Measurement and payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
LOG BENCH, 6' LONG, INCLUDING CONCRETE FOUNDATIONS	UNIT
ACORN SEAT, INCLUDING CONCRETE FOUNDATION	UNIT
TRASH AND RECYCLING RECEPTACLE, INCLUDING CONCRETE FOUNDATIONS	PAIR
DECORATIVE TABLE, INCLUDING CONCRETE FOUNDATIONS	UNIT
RAISED GARDEN PLANTER	UNIT

Payment for furnishing and installing the log bench will be made at the unit price bid as listed in the bid form. No separate payment will be made for materials, excavation, foundations, reinforcement, and labor necessary for a complete installation.

Payment for furnishing and installing the acorn seat will be made at the unit price bid as listed in the bid form. No separate payment will be made for materials, excavation, foundations, reinforcement, and labor necessary for a complete installation.

Payment for furnishing and installing the trash and recycling receptacles will be made at the unit price bid for the pair as listed in the bid form. No separate payment will be made for materials, excavation, foundations, reinforcement, and labor necessary for a complete installation.

Payment for furnishing and installing the decorative table will be made at the unit price bid as listed in the bid form. No separate payment will be made for materials, excavation, foundations, reinforcement, and labor necessary for a complete installation.

Payment for furnishing and installing the raised garden planter will be made at the unit price bid as listed in the bid form. No separate payment will be made for materials, oil finish, reinforcement, and labor necessary for a complete installation.



## **SECTION 2P – PLANTINGS**

### **WORK INCLUDED**

The Contractor shall be required to purchase the appropriate specimens of plant material as identified on the construction drawings from a certified nursery in a USDA plant hardiness Zone 6. All plant material shall be grown and dug in the Zone 6 area and verification of same shall be provided to the Engineer upon request.

All plant material shall be purchased, transported, and installed where indicated on the construction drawings and as directed by the Engineer in a healthy, vigorous, and undamaged condition. The planting contractor will provide the Owner with a guarantee for the health and survival of all trees planted in this contract throughout the period of the Maintenance Bond (2 years) following the final acceptance of the contract. Stakes must be removed after one (1) year.

### **MATERIALS**

All plant materials used shall be true to name and size in conformity with the American Standard of Nursery Stock and shall be typical of their species or variety. All plants shall have normal well-developed branches, a strong central leader free of defects and vigorous root systems. They shall be sound, healthy, vigorous and free from defects, disfiguring knots, stress, drought abrasions of the bark, sunscald injuries, plant diseases, insect eggs, borers and all other forms of infection. All plants must be accompanied by a Nursery Certificate or Plant Dealer certificate to confirm nursery stock certification by the New Jersey Department of Agriculture (NJSA4: 7-15 et seq.) for the Owner's files.

A. Standard #1 (Ed Gilman University of Florida) shall be used to evaluate the minimal acceptable diagram outlines of the following: \*

1. Rootball soil firmness
2. Good/strong, straight tree trunk taper
3. Good quality tree crown shapes
4. The highest quality tree trunk forms
5. Good quality tree branch scaffold spacing

B. Standard #1 diagrams outlines of the following: \*

1. Unacceptable tree trunk forms
2. Unacceptable loose rootball soil
3. Unacceptable poor quality crown shapes
4. Unacceptable poor/weak tree trunk taper
5. Unacceptable poor quality tree branch scaffold spacing

All plants are to be protected during storage period and not allowed to dry out. Plants shall be installed on the day of arrival at the site.

Contractor is to provide the Engineer with the location of nurseries where plants are to be purchased from or stored and plants to be purchased are to be tagged for inspection by the Engineer (if feasible) prior to digging and delivery to the site. All plant material is subject to review and approval by the Engineer upon arrival at the site, prior to installation.

All plant material and sizes are specified on the landscaping plan. No substitutes shall be made without specific approval of the Engineer.

Topsoil used in planting pits and for backfilling for trees and shrubs shall be fertile agricultural soil, capable of sustaining vigorous plant growth and shall have a pH of five point five (5.5) to six point five (6.5). It shall have uniform composition, be free from large stones, wood and other foreign objects and

shall not contain substances toxic to plant growth. Planting pit and backfilling material shall not be used unless it meets this requirement. All planting pit backfill material shall be in compliance with same as identified on the set of construction drawings.

A backfill soil amendment is required to be added to each tree's planting pit as follows:

A. Granular form or tablets:

1. Bio-stimulants
2. Organic matter
3. Hydrogel type
4. Ectomycorrhizal fungi
5. Endomycorrhizal fungi
6. The approved soil amendment formula (granular or tab) will be layered into planting pit soil backfill at 1/3 to 1/2 the depth of the root ball. The manufacturer's label description of the soil amendment and hydrogel must be submitted for review and approval prior to planting. Deviations from the mandated soil amendment specifications noted above in Soil Amendment A, one through five will not be permitted.

### Planting Season

Planting shall normally be undertaken when the soil is free of frost and friable, unless otherwise specified. No planting shall be done during abnormally hot weather. The time of planting, however, shall be agreed upon at the conference between the Engineer, Project Engineer and the contractor, and a specific schedule shall be set up.

Deciduous trees and all evergreens over six (6) feet tall shall be staked according to current Nursery and Arboricultural standards as indicated on the construction drawings and used in the following manner.

- A. Two (2) stakes shall be driven a minimum of two (2) feet into the soil and outside the planting pit if possible.
- B. Stakes, when driven, must be one-half (1/2) to two-thirds (2/3) the height of the tree measured from ground level.
- C. Stakes shall be a minimum of two (2) inches in diameter at the thick end, two-by-two hardwood or cedar posts.
- D. Stakes shall be placed in line with the prevailing winds when possible.
- E. Stakes shall be attached to the tree with any of the commercially available material designed specifically for trees such as plastic tree chain.
- F. All stakes and ties shall be removed by the contractor not less than twelve (12) months nor more than eighteen (18) months from the time of planting. No portion of any maintenance bond will be released until the contractor has removed all the stakes and ties.

### Protection during Transportation

Trees shall be protected from dying and breakage due to wind during transportation. Trees may be transported in a covered van or on an open flatbed with tarp tightly tied so that the tarps do not flap or rebound more than four (4) inches at highway speeds.

Tree root balls shall be thoroughly watered immediately prior to transport.

Tree root balls shall be thoroughly watered immediately upon completion of unloading.

Trees shall be sufficiently watered daily until planted to prevent desiccation.

### Plant Installation

1. The diameter of all planting pits shall be at least one and two-thirds (1 2/3) larger than the ball diameter. In areas of poor soil or where trees are placed between sidewalk and curb the planting pit is to be four (4) times greater than the ball diameter. Topsoil meeting the requirement of the section labeled (soil) shall be provided at a minimum depth of six (6) inches below the ball or root system. The pit for bare root trees and shrubs must be at least six (6) inches deeper than existing roots and twelve (12) inches wider.
2. Plants shall be planted at exactly the same depth as previously grown. All soil in the planting pits shall be firmed to prevent air pockets and settling.
3. After balled and burlapped plants are set at the proper level in the holes, all cord and burlap shall be untied from the trunk and turned down into the planting pit. Synthetic non-biodegradable ties shall be removed from the ball and planting pit prior to backfill. All wire baskets shall be completely removed from the planting pit prior to backfill. All plants shall be backfilled with topsoil that meets the requirements noted above. All plants shall be thoroughly watered in at the time of planting to prevent air pockets and settling. Watering for plant survival shall be the contractor's responsibility until final acceptance of the project by the Owner.
4. After materials are planted, all damaged branches shall be removed by pruning utilizing the current standards of the American Association of Nurserymen and the National Arborist Association recommendations. No other pruning is permitted. All nursery tags should be removed following inspection and approval by the Engineer.
5. All nylon, burlap, wire, wire baskets, string, and containers shall be entirely removed at the time of planting.
6. All newly planted trees shall be fertilized as directed by the Engineer or Owner.

Caliper indicates diameter of a tree trunk measured, in inches, six (6) inches above ground level for trees up to four (4) inches, and at twelve (12) inches above ground level for larger trees over four (4) inches. Ground level refers to the ground level of the tree or plant at the time of digging in the nursery, otherwise known as the "root collar."

A four (4) inch minimum layer of organic mulch shall be applied around each individual tree, except next to the trunk where no mulch is to be placed. The mulch around the tree must be saucer-shaped with the concave depression located nearest the trunk as indicated on the construction drawings.

All "mulch" shall be considered any material, organic in nature, composted, that is not readily subject to movement by wind or water.

Wood chips, partially decayed or nitrogen enriched, may be used. New chips are not acceptable due to the nitrogen depletion by bacteria from the soil preventing use of nitrogen by the plant. Treated triple shredded hardwood mulch is recommended.

Deer protection shall be provided around the trunks of all single stem deciduous trees as per the Deciduous Tree Planting Detail within the plans, if and when directed by the Engineer. The deer protection shall be A.M. Leonard Rigid Mesh Tree Bark Protectors, Model: BG48, (48" high), from A.M. Leonard Horticultural Supply Company, or approved equal. Tree bark protectors shall not be required on any multi-stem deciduous ornamental trees or shrubs. The tree bark protectors shall be cut down to size if necessary and shall be affixed with jute in three (3) locations: top, bottom and center.

MEASUREMENT AND PAYMENT

Measurement and payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
SUGAR MAPLE, 2" – 2 ½" CALIPER (IF AND WHERE ORDERED)	UNIT
GOLDEN RAIN TREE, 7' – 8' HEIGHT (IF AND WHERE ORDERED)	UNIT
FOREST PANSY EASTERN REDBUD, 7' – 8' HEIGHT (IF AND WHERE ORDERED)	UNIT
CHEROKEE BRAVE DOGWOOD, 7' – 8' HEIGHT (IF AND WHERE ORDERED)	UNIT
PINK CHIMES JAPANESE SNOWBELL, 7' – 8' HEIGHT (IF AND WHERE ORDERED)	UNIT
GOLDSLOCKS HINOKI FLASE CYPRESS, 8' – 10' HEIGHT (IF AND WHERE ORDERED)	UNIT
BLUE COLORADO SPRUCE, 8' – 10' HEIGHT (IF AND WHERE ORDERED)	UNIT
GREEN GIANT ARBORVITAE, 8' – 10' HEIGHT (IF AND WHERE ORDERED)	UNIT
LO & BEHOLD ICE CHIP BUTTERFLY BUSH, 12" – 18" HEIGHT (IF AND WHERE ORDERED)	UNIT
RUBY SPICE SUMMERSWEET, 24" – 30" HEIGHT (IF AND WHERE ORDERED)	UNIT
SUNSHINE BLUE BLUEBEARD, 18" – 24" HEIGHT (IF AND WHERE ORDERED)	UNIT
BLUE MIST DWARF FOTHERGILLA, 18" – 24" HEIGHT (IF AND WHERE ORDERED)	UNIT
HOOGENDORN JAPANESE HOLLY, 18" – 24" HEIGHT (IF AND WHERE ORDERED)	UNIT
HENRY'S GARNET VIRGINIA SWEETSPIRE, 24" – 30" HEIGHT (IF AND WHERE ORDERED)	UNIT
GOLD STAR JUNIPER, 24" – 30" SPREAD (IF AND WHERE ORDERED)	UNIT
BIRD'S NEST SPRUCE, 18" – 24" HEIGHT (IF AND WHERE ORDERED)	UNIT
SUMMER WINE NINEBARK, 24" – 30" HEIGHT (IF AND WHERE ORDERED)	UNIT

ANTHONY WATERER SPIREA, 18" – 24" HEIGHT (IF AND WHERE ORDERED)	UNIT
BLOOMERANG PURPLE LILAC, 24" – 30" HEIGHT (IF AND WHERE ORDERED)	UNIT
COMPACT KOREANSPICE VIBURNUM, 24" – 30" HEIGHT (IF AND WHERE ORDERED)	UNIT
COMMON MILKWEED, 2 GALLON (IF AND WHERE ORDERED)	UNIT
PINK GRAPEFRUIT YARROW, 2 GALLON (IF AND WHERE ORDERED)	UNIT
OVERDAM FEATHER REED GRASS, 2 GALLON (IF AND WHERE ORDERED)	UNIT
ZAGREB TICKSEED, 2 GALLON (IF AND WHERE ORDERED)	UNIT
MAGNUS PURPLE CONEFLOWER, 2 GALLON (IF AND WHERE ORDERED)	UNIT
HIDCOTE ENGLISH LAVENDER, 2 GALLON (IF AND WHERE ORDERED)	UNIT
MORNING LIGHT MAIDEN GRASS, 2 GALLON (IF AND WHERE ORDERED)	UNIT
WALKER'S LOW CATMINT, 2 GALLON (IF AND WHERE ORDERED)	UNIT
HAMELN DWARF FOUNTAIN GRASS, 2 GALLON (IF AND WHERE ORDERED)	UNIT
KARLEY ROSE ORIENTAL FOUNTAIN GRASS, 2 GALLON (IF AND WHERE ORDERED)	UNIT
RUSSIAN SAGE, 2 GALLON (IF AND WHERE ORDERED)	UNIT
NORTHWIND SWITCHGRASS, 2 GALLON (IF AND WHERE ORDERED)	UNIT
ALEXANDRA GARDEN PHLOX, 2 GALLON (IF AND WHERE ORDERED)	UNIT
GOLDSTURM BLACK-EYED SUSAN, 2 GALLON (IF AND WHERE ORDERED)	UNIT
MAY NIGHT GARDEN SAGE, 2 GALLON (IF AND WHERE ORDERED)	UNIT

CAROUSEL LITTLE BLUESTEM, 2 GALLON (IF AND WHERE ORDERED)	UNIT
HELENE VON STEIN LAMB'S EAR, 2 GALLON (IF AND WHERE ORDERED)	UNIT

Payment for the furnishing and installation of plant materials in accordance with the plans and specifications will be made at the unit prices bid for the various plant items as listed in the Bid Form for the quantity actually installed. Said bid price shall include excavation, backfill, soil amendments, staking, mulching, deer protection, area restoration, and all other associated work.

## **SECTION 2Q - TOPSOIL, LIME, FERTILIZER, AND SEED**

### **WORK INCLUDED**

The Contractor shall provide all labor, materials, and equipment necessary to re-spread amended topsoil, lime, fertilizer and seed tack in accordance with the Contract Documents.

It is intended to provide topsoil, fine grading, lime, fertilizer, seed and mulch in all those areas of the site that have been disturbed during construction activities and designated for turf stabilization within the contract documents.

The Contractor shall install topsoil throughout the site as required to complete the work as intended by the plans or required by the Engineer. The work also includes the furnishing and placement of imported topsoil, if required, to provide the required covering throughout the area to be seeded and throughout those areas disturbed by the Contractor.

Proposed topsoil thickness shall be a minimum of 4" unless otherwise indicated on the plans or required by the Engineer.

### **TOPSOIL**

It shall be the responsibility of the Contractor to determine, during the pre-bid due diligence, if imported topsoil will be required to satisfactorily complete the scope included within the contract.

### **Import Topsoil: (if and where deemed necessary)**

**Topsoil to be spread within the project areas as designated by the contract or Engineer shall be imported, screened material of high quality. The topsoil to be used shall be approved by the Engineer prior to delivery to the site. The source and representative samples shall be submitted for review and approval prior to even materials being delivered or placed. Manufactured "topsoil" from recycling facilities will be well scrutinized. All topsoil shall be absolutely free of non-organic material, thoroughly cleared of all sticks, roots, branches, coarse sods and other deleterious matter, and all stones larger than 1" in diameter before it is spread. A minimum thickness of topsoil of 4" will be required. Topsoil shall not be handled or spread when it is in a frozen or muddy condition, or otherwise unsuitable for handling.**

### **Specifications for Imported Topsoil:**

- **Unacceptable Topsoil Sources: Do not obtain topsoil from the following sources:**
  1. **Areas containing chemically contaminated soils**
  2. **Areas from which the original surface has been stripped or covered over, such as borrow pits, open mines, demolition sites, dumps, and landfills**
  3. **Wet excavations**
  4. **Acid producing soils**
- **Provide topsoil that conforms to the pH requirements specified below, when tested according to ASTM D 4972.**

<b><u>pH Range</u></b>	<b><u>Acceptability / Remediation</u></b>
<b>pH &lt; 4.1</b>	<b>Topsoil is UNACCEPTABLE</b>

$4.1 \leq \text{pH} < 5.8$	Add pulverized lime to increase the pH to 6.5 before use
$5.8 \leq \text{pH} < 7.0$	Topsoil is acceptable. No remediation needed
$7.0 \leq \text{pH} < 7.2$	Decrease pH to at least 6.8 before use
$\text{pH} \geq 7.2$	Topsoil is UNACCEPTABLE

- **Organic Content requirement shall be between the range of 3 to 8 percent by weight. The organic content shall be determined according to AASHTO T 194, except that the sample is to be taken from oven-dried soil passing a No. 10 sieve. Any soil additives being considered to increase the organic content of selected import topsoil needs to be reviewed and approved by the Engineer prior to the amending process.**
- **Gradation / particle Size: Provide topsoil conforming to the following particle size requirements and that has no more than 20 percent retained on a No. 10 sieve when mechanically graded.**

<u>Particle Size</u>	<u>Percent</u>
<b>Sand (2.0mm to 0.05 mm)</b>	<b>50 – 80</b>
<b>Silt (0.05 mm to 0.005mm)</b>	<b>5 – 15</b>
<b>Clay (0.005 mm to smaller)</b>	<b>5 – 10*</b>

**\* - If more than 50 percent of the sand portion is larger than 0.5 millimeters, the allowable range for clay is 10 to 20 percent.**

No topsoil shall be spread before the completion of all construction in the area or before all fills are fully compacted.

Before spreading topsoil, the subgrade shall be cleared of all stones more than 2" in diameter, all coarse roots, sticks, and debris. Any portions of the subgrade that have been compacted to a hard surface shall be pulverized to a depth of 3" by plowing, or other methods acceptable to the Engineer.

If applicable, particular attention to fine grading tolerances shall be required for the athletic fields in general and especially the grass infield areas. The topsoil finish grade shall properly complement the "skin" infield allowing for proper runoff, ridges (or lips) where grassed areas meet the infields on all fields are unacceptable.

#### FERTILIZING AND SEEDING

Ground limestone shall be evenly applied to all areas to be seeded at the rate of 4.5 pounds to every 100 square feet of surface, and shall be thoroughly and evenly mixed with the soil to a depth of 5" below finished grade.

All areas to be seeded shall be fine graded as described above to remove all ridges and depressions and the surface shall be cleaned of all stones greater than 1" in diameter, and other debris.

After preparation for seeding, and at least nine days before seeding, an approved commercial fertilizer with a minimum content of 5% nitrogen, 10% phosphoric acid, and 5% potash, or as approved by the Engineer, shall be incorporated into the soil at a rate of two pounds per 100 square feet, to a depth of two



inches. The soil shall then be thoroughly watered.

Seed shall later be spread and raked (or slice seeded) into the prepared soil at a rate of 0.5 lbs. per 100 sq. ft. or 220 lbs. per acre. Seed shall be rolled with a water ballast roller, and shall be watered, protected, and tended until there is a hardy stand of grass.

All dates and schedules for seeding operations shall be as approved by the Engineer. Seeding shall be done in favorable weather, in the fall, where possible, and in early spring, if necessary, to complete unfinished areas. Unsatisfactory coverage will require overseeding and appropriate soil supplements at no additional cost to the Owner.

When seeding has been completed, fiber mulch tack shall be installed in accordance with industry standards.

Seed mix to be furnished and installed shall be "Team Mates Plus" as distributed by John Deere Landscapes (Lesco Inc.), or equivalent.

The above seed mix consists of:

70% Turf Type Tall Fescue Blend

20% Perennial Ryegrass

10% Premium Kentucky Bluegrass

The seed shall contain practically no seeds of noxious weeds and shall be delivered mixed in uniform sealed bags with tags/labels showing weights, analysis and vendor's name. Bags and labels shall be saved and given to the Engineer or Owner.

#### WATERING AND CUTTING LAWNS

The contractor shall take all necessary steps to produce a satisfactory lawn covering. Such steps may include the thorough watering of the new lawn until it has received its second cutting.

The cost of such watering shall be borne by the contractor, and the equipment and manpower required, shall be furnished by the contractor.

The contractor shall also be held responsible for all lawn cuttings until the project is accepted and closed out. Any lawn areas that have not developed after two (2) cuttings shall be cut and re-seeded, fertilized, watered, and cut until a full lawn is produced. Should crab grass or broadleaf weed prevention be deemed necessary by the engineer, same shall be applied at no additional cost.

The cuttings of lawn shall not occur closer than 7 to 10 days, or as directed by the Engineer.

Lawn areas must be hearty and uniform prior to acceptance by the owner.

#### MEASUREMENT AND PAYMENT

Measurement and payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
EXCAVATE EXISTING WALKWAY TO BE REMOVED, 2" THICK, TOPSOIL, LIME, FERTILIZE, AND SEED	SQUARE YARD

Payment for the removal of the existing walkway, topsoil, lime, fertilize and seed will be made at the square yard price bid for said items as listed in the bid form. Said bid prices shall include all materials, labor, restoration and incidentals required to complete the installation.

Separate payment for the furnishing, delivery and installation of suitable, screened topsoil for the project areas will not be made. Compensation for said materials shall be included in the price bid for said items as listed in the Bid Form.

## **SECTION 2R - CLEANUP AND RESTORATION**

### **WORK INCLUDED**

The Contractor shall throughout the course of the work maintain the site in a presentable condition to the satisfaction of the Engineer. The Contractor shall be responsible for all periodic clean-up and coordination or cooperative efforts of all subcontractors. All contractors involved in the work shall cooperate fully with direction by the Engineer.

Periodic clean-ups shall include, but is not necessarily restricted to, storage of equipment and material, removal of rubbish, and any material which may either become unsightly or impede progress of the work or cause unsafe conditions. In general, the site shall be maintained in the neat and orderly fashion at all times.

At the conclusion of the workday, the Contractor shall restore all areas damaged due to construction activity. Each contractor shall be responsible for damage due to his operations; however, the general contractor shall assume the overall responsibility for any damage. All contractors and subcontractors shall cooperate with the general contractor in this regard.

Grass, shrubs, walks and other site related work damaged during construction shall be restored to the satisfaction of the Engineer.

The Contractor is responsible to leave the site in a condition intended by the plans and all areas shall be left in a state equal to or better than that existing prior to the start of the contract.

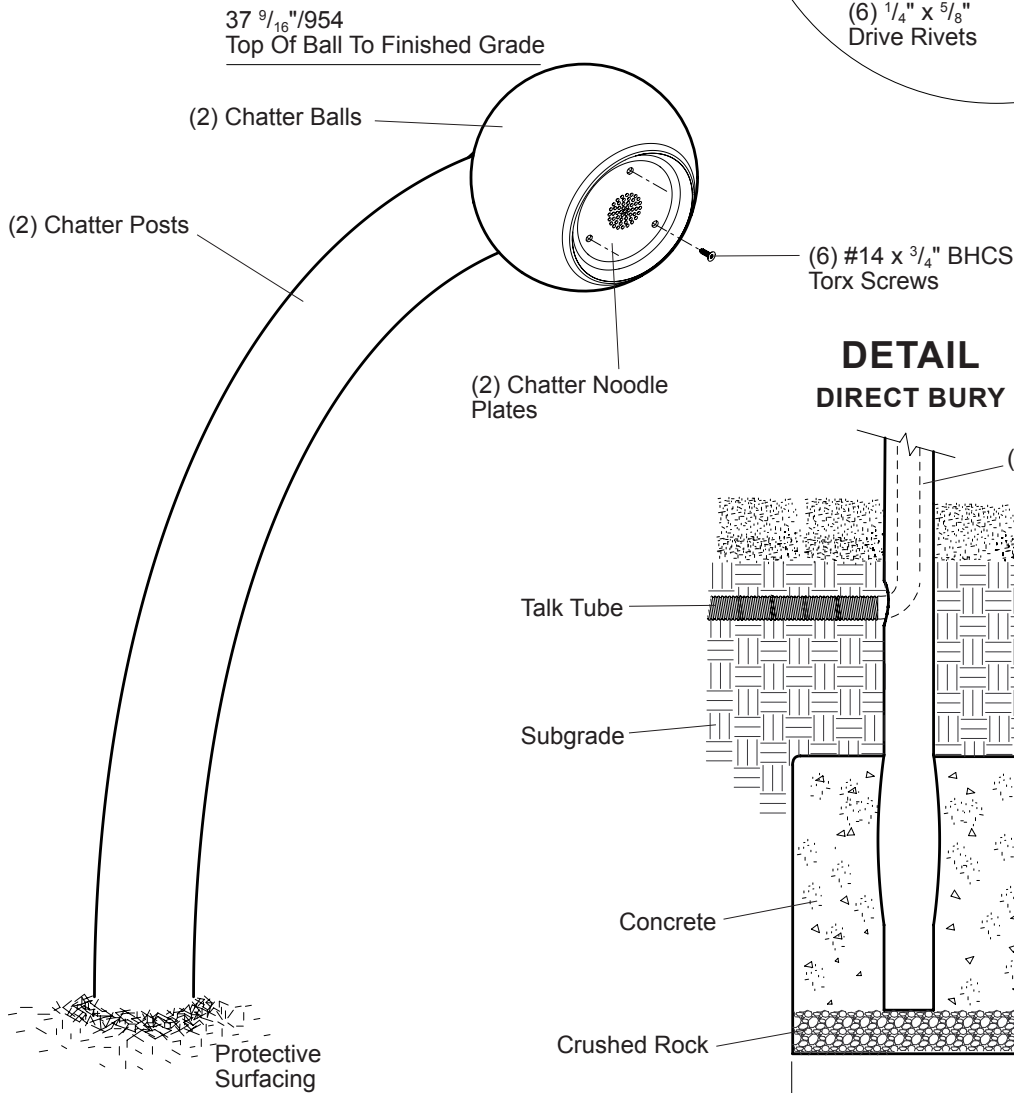
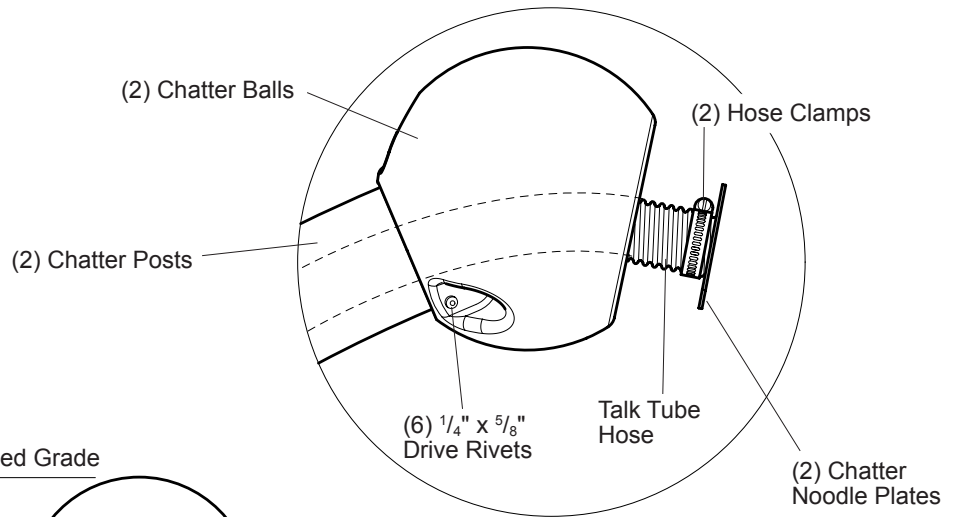
### **MEASUREMENT AND PAYMENT**

Separate payment for restoration and clean-up will not be made. Payment for all clean-up and restoration related work shall be included in the prices bid for all items requiring same.

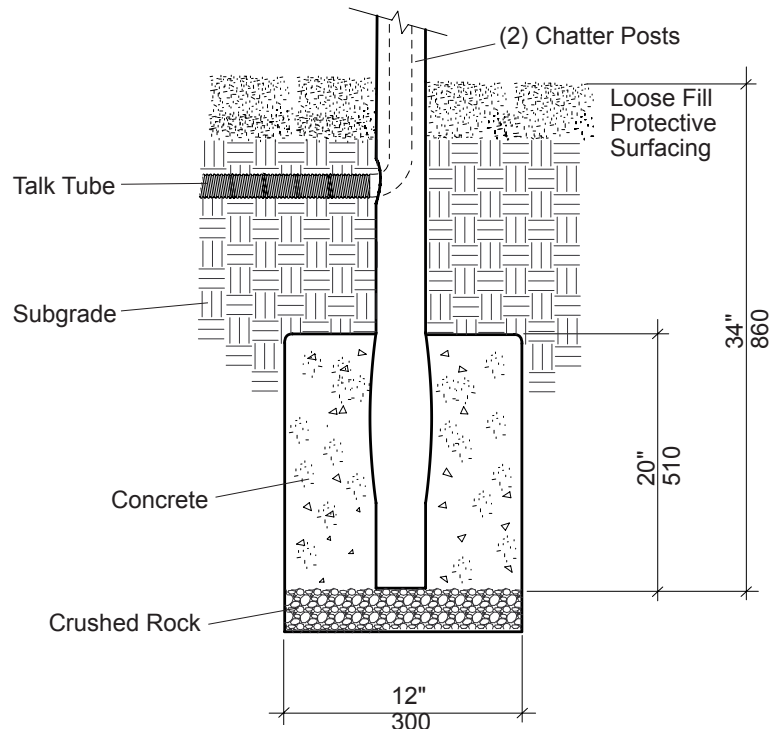
**APPENDIX A**

**SENSORY PLAY COMPONENTS**

**DETAIL**  
**TALK TUBE HOSE ATTACHMENT**



**DETAIL**  
**DIRECT BURY**





# Weevos® 164177 ChitterChatter® Noodle

## Parts List

Part#	Description	Qty.
173612	1.75" O.D. Plastic Tube .....	50 Ft.
164826	Chatter Noodle Plate, Specify Color .....	2
163903	Chatter Ball, Specify Color .....	2
164155	Chatter Post, Specify Color .....	2
<b>164987</b>	<b>ChatterNoodle Hardware Package</b> .....	1
100610	1/4" x 5/8" Drive Rivet, AL/SST .....	6
127872	#14 x 3/4" BHCS Torx, SST .....	6
156845	Welcome Label, 2-5 Years .....	1
<b>125528</b>	<b>Tubing Attachment Hardware Package</b> .....	1
100671	Hose Clamp .....	2

## Specifications

**Chatter Ball:** Rotationally molded from U.V. stabilized linear low density polyethylene, color specified.

**Chatter Noodle Plate:** Weldment comprised of 1.250" O.D. x 11 GA. (120") black steel tube and 12 Ga. (.105") HRPO flat steel. Finish: ProShield®, color specified.

**Chatter Post:** Fabricated from 3.500" O.D. RS20 (.125" Wall) galvanized steel tube. Finish: ProShield, color specified.

**Talk Tube Hose:** Made from HDPE conduit.

**Hose Clamp:** Band and housing made from 300 series stainless steel. Slotted screw with hex head and safety collar is cadmium-plated carbon steel.

**Fasteners:** Primary fasteners shall be socketed and pinned tamperproof in design, stainless steel (SST) per ASTM F 879 unless otherwise indicated (see specific product installation/specifications).

**Installation Time:** Approx. 3 man hours

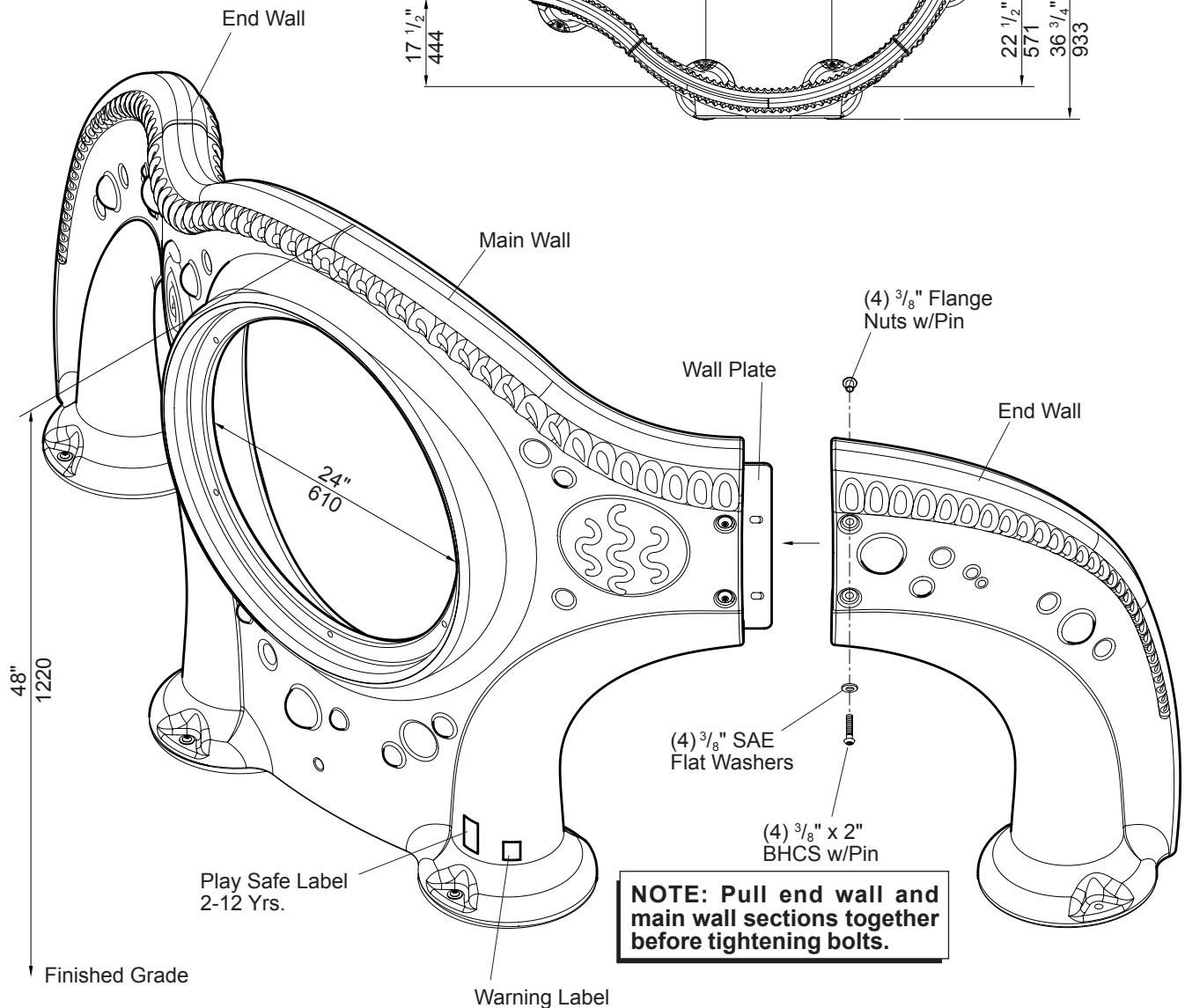
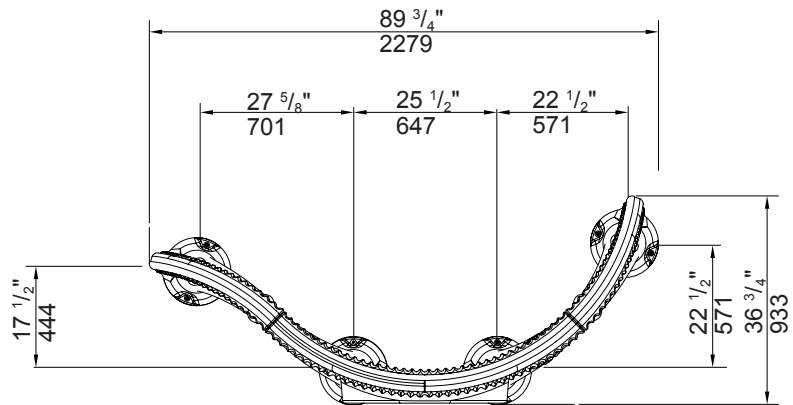
**Concrete Req.:** Approx. 3 cu. ft.

**Weight:** 83 lbs.

## Installation Instructions

- 1) **(Direct Bury)** Refer to the Site Plan to determine placement of Chatter Posts. Maximum distance apart is 40 feet.
- 2) Dig footings to width and depth shown. Dig a trench into subgrade between the two footings for placement of plastic tubing.
- 3) Set posts into footings and temporarily brace in plumb position.
- 4) Insert talk tube through lower hole in post and out the top of post, as shown.
- 5) Place chatter ball over talk tube hose, and onto post. Drill through holes in chatter ball and into chatter post with a 1/4" or "F" (only) drill bit. Insert 1/4" x 5/8" drive rivets into holes and hammer rivet pins in until flush with head.
- 6) Attach talk tube hose to chatter noodle plate using hose clamp, as shown. Refer to the Talk Tube Hose Attachment Detail.
- 7) Push chatter noodle plate tight against chatter ball, and attach using #14 x 3/4" torx screws.
- 8) Lay plastic tubing flat and cut to correct length for your installation. Attach talk tube hose to remaining chatter post following steps 3, 4, 5 & 6.
- 9) Mix and pour concrete into footing holes, up to, but not above trench level.
- 10) Backfill footings and trench to top of subgrade.
- 11) Install protective surfacing before users are allowed to play on the structure.

**TOP VIEW**



## Parts List

Part#	Description	Qty.
	<b>Model #168100</b>	
166757	Sensory Roto Main Wall, Specify Color .....	1
167219	Wall Mount Plate Footer, (DB), Specify Color .....	*
	<b>Model #168101</b>	
166758	Sensory Roto End Wall, Specify Color .....	1
167219	Wall Mount Plate Footer, (DB), Specify Color .....	*
	<b>Model #168661</b>	
167186	Sensory Wall Plate, Specify Color .....	1
<b>169036</b>	<b>Attachment Plate Hardware Package</b> .....	1
100353	3/8" Flange Nuts w/Pin, SST .....	4
100365	3/8" SAE Flat Washer, SST .....	4
100173	3/8" x 2" BHCS w/Pin, SST .....	4
<b>169179</b>	<b>2-Hole Play Center End (DB) Hardware Pkg.</b> .....	1
100321	3/8" Patch Hex Nut, SST .....	2
100362	3/8" Flat Washer, SST .....	4
123224	3/8" x 1 11/16" BHCS w/Pin, SST .....	2
<b>183890</b>	<b>4-Hole Play Center Wall (DB) Hardware Pkg.</b> .....	1
100321	3/8" Patch Hex Nut, SST .....	4
100362	3/8" Flat Washer, SST .....	8
123224	3/8" x 1 11/16" BHCS w/Pin, SST .....	4
156846	Play Safe Label 2-12 Yrs. ....	1
183064	Warning Label .....	1
<b>169174</b>	<b>2-Hole Play Center End (SM) Hardware Pkg.</b> .....	1
100263	3/8" x 2 3/4" Expansion Anchors .....	2
100264	3/8" x 5" Expansion Anchors .....	2
100327	3/8" Standard Hex Nut, SST .....	2
100362	3/8" Flat Washer, SST .....	2
169172	1 1/8" O.D. x 2" Long Spacer Tube, AL .....	2
<b>183891</b>	<b>4-Hole Play Center Wall (SM) Hardware Pkg.</b> .....	1
100263	3/8" x 2 3/4" Expansion Anchors .....	4
100264	3/8" x 5" Expansion Anchors .....	4
100327	3/8" Standard Hex Nut, SST .....	4
100362	3/8" Flat Washer, SST .....	4
169172	1 1/8" O.D. x 2" Long Spacer Tube, AL .....	4
156846	Play Safe Label 2-12 Yrs. ....	1
183064	Warning Label .....	1

\* = Quantity Determined By Your Order

DB = Direct Bury

SM = Surface Mount

## Specifications

<b>Walls:</b>	Rotationally molded from U.V. stabilized linear low-density polyethylene, color specified.
<b>Wall Plate:</b>	Fabricated from 1/4" HRPO steel plate. Finish: ProShield®, color specified.
<b>Wall Mount Plate Footer:</b>	Weldment comprised of 2.375" O.D. RS20 (.095"-.105") wall galvanized steel tubing and 1/4" HRPO steel plate. Finish: ProShield, color specified.
<b>Fasteners:</b>	Primary fasteners shall be socketed and pinned tamperproof in design, stainless steel (SST) per ASTM F 879 unless otherwise indicated (see specific product installation/specifications).
<b>Installation Time:</b>	Main Wall (DB) 1 1/4 man hours End Wall (DB) 3/4 man hour Main Wall (SM) 1 1/4 man hours End Wall (SM) 3/4 man hour
<b>Weight:</b>	Main Wall (DB) 88 lbs. Main Wall (SM) 54 lbs. End Wall (DB) 38 lbs. End Wall (SM) 21 lbs.
<b>Concrete:</b>	(DB) Approx. 1.31 cu. ft. per hole

Specifications are subject to change without notice.

## Installation Instructions

### (Direct Bury)

- 1) Refer to the Site Plan for footing locations.
- 2) Insert wall plate into main wall and attach, using 3/8" x 2" BHCS w/pin with 3/8" SAE flat washers and 3/8" flange nuts w/pin. Connect end wall to wall plate, using 3/8" x 2" BHCS w/pin with 3/8" SAE flat washers and 3/8" flange nuts w/pin.
- 3) Attach wall mount plate footers to wall sections, using 3/8" x 1 11/16" BHCS w/pin with 3/8" flat washers and 3/8" patch hex nuts with 3/8" flat washers. Refer to the Direct Bury Detail. **NOTE:** Pull end wall and main wall sections together before tightening bolts.
- 4) With Sensory wall sections in position and plumb, pour concrete footings. Allow concrete to cure a minimum of 72 hours before allowing users to play on the structure.
- 5) Apply labels as shown.
- 6) Install protective surfacing before users are allowed to play on the structure. **NOTE:** When a Sensory Play Center is installed in a play-ground environment, protective surfacing is required.

### (Surface Mount Without Protective Surfacing)

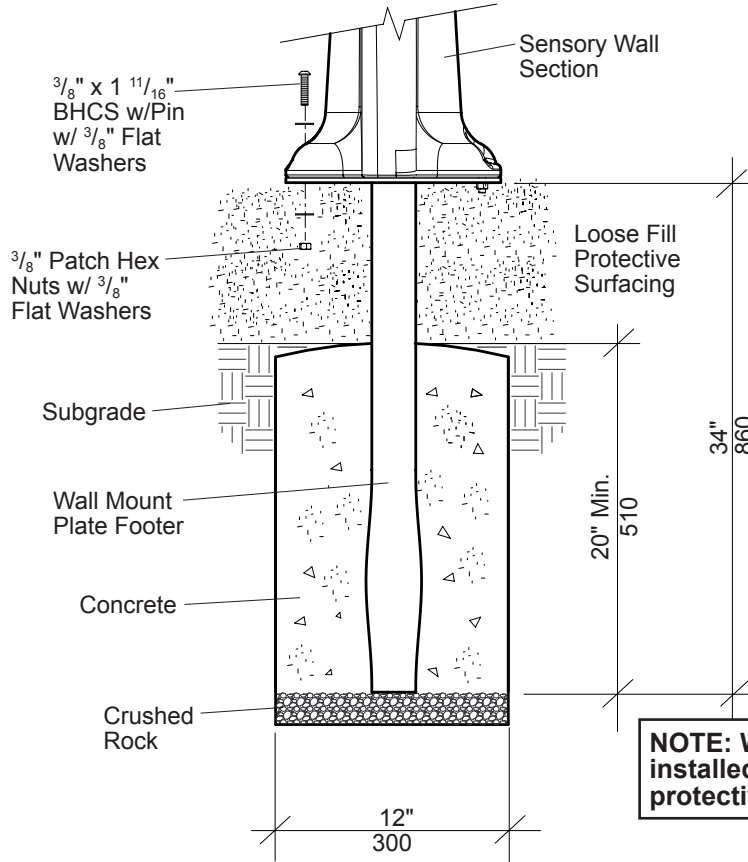
- 1) Insert wall plate into main wall and attach, using 3/8" x 2" BHCS w/pin with 3/8" SAE flat washers and 3/8" flange nuts w/pin. Connect end wall to wall plate, using 3/8" x 2" BHCS w/pin with 3/8" SAE flat washers and 3/8" flange nuts w/pin. **NOTE:** Pull end wall and main wall sections together before tightening bolts.
- 2) With Sensory wall sections in position, mark anchor bolt locations on the concrete slab (through wall section holes). Move wall sections aside. Drill 3/8" x 3" deep holes, using a hammer drill and 3/8" masonry bit.
- 3) Reposition wall sections. Tap 3/8" x 2 3/4" expansion anchors into drilled holes. Fasten wall sections to 3/8" x 2 3/4" expansion anchors, using 3/8" standard hex nuts with 3/8" flat washers. Refer to the Surface Mount Without Protective Surfacing Detail.
- 4) Apply labels as shown.

### (Surface Mount With Protective Surfacing)

- 1) Insert wall plate into main wall and attach, using 3/8" x 2" BHCS w/pin with 3/8" SAE flat washers and 3/8" flange nuts w/pin. Connect end wall to wall plate, using 3/8" x 2" BHCS w/pin with 3/8" SAE flat washers and 3/8" flange nuts w/pin. **NOTE:** Pull end wall and main wall sections together before tightening bolts.
- 2) With Sensory wall sections in position, mark anchor bolt locations on the concrete slab (through wall section holes). Move wall sections aside. Drill 3/8" x 3" deep holes, using a hammer drill and 3/8" masonry bit.
- 3) Reposition wall sections with 1 1/8" O.D. x 2" long spacer tubes in between bottom of wall sections and concrete slab. Tap 3/8" x 5" expansion anchors into drilled holes. Fasten wall sections to 3/8" x 5" expansion anchors, using 3/8" standard hex nuts with 3/8" flat washers. Refer to the Surface Mount With Protective Surfacing Detail.
- 4) Apply labels as shown.
- 5) Install protective surfacing before users are allowed to play on the structure. **NOTE:** When a Sensory Play Center is installed in a play-ground environment, protective surfacing is required.

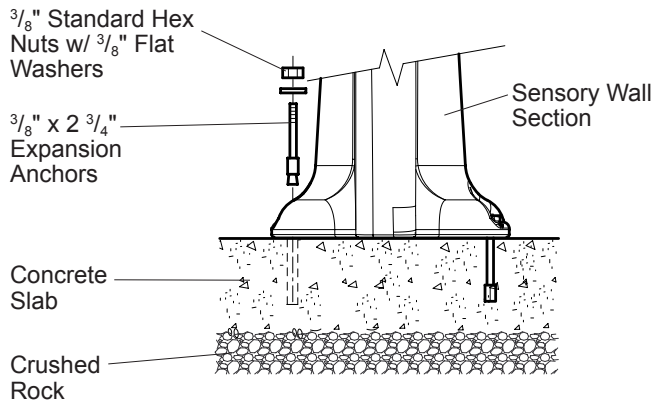


**DETAIL  
DIRECT BURY**

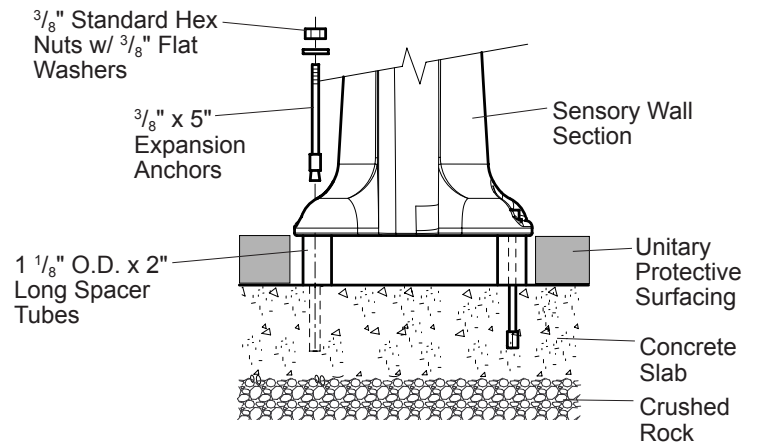


**NOTE: When a Sensory Play Center is installed in a playground environment, protective surfacing is required.**

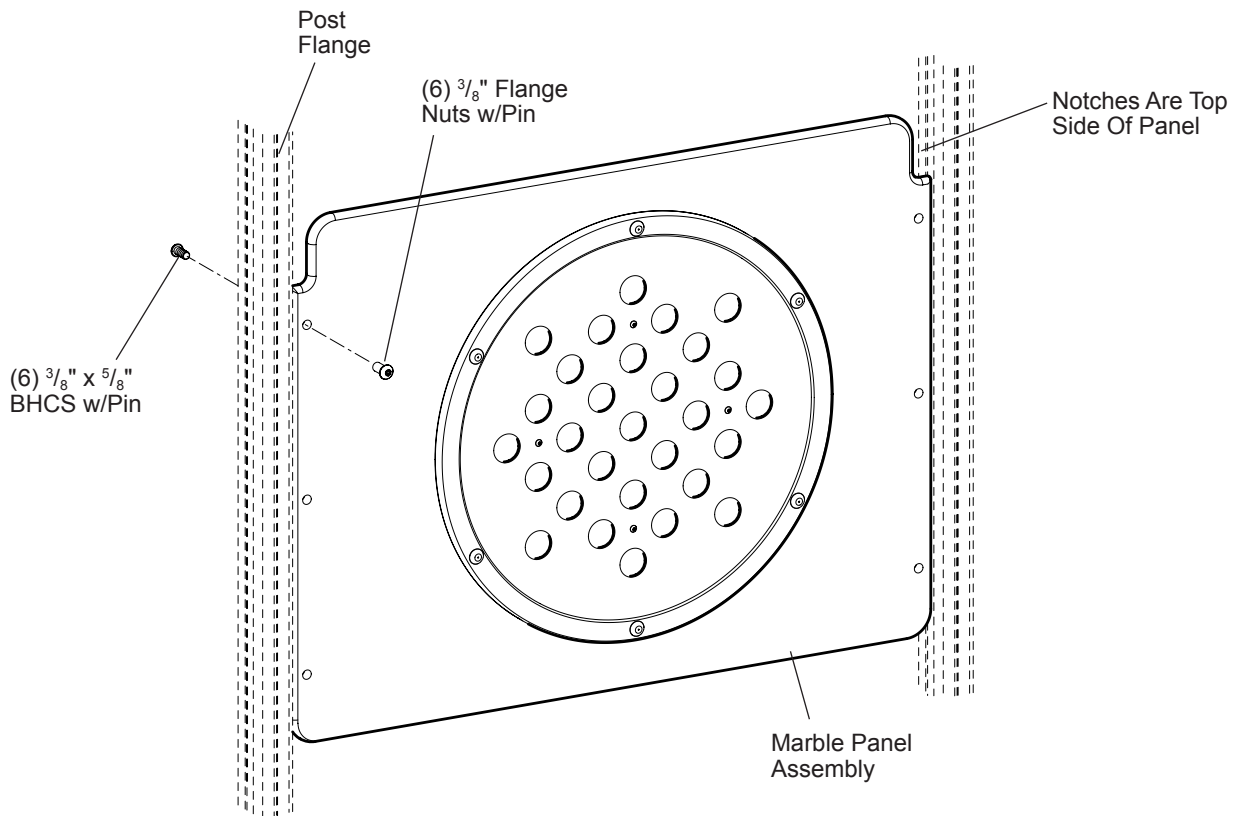
**DETAIL  
SURFACE MOUNT  
(WITHOUT PROTECTIVE SURFACING)**



**DETAIL  
SURFACE MOUNT  
(WITH PROTECTIVE SURFACING)**



**PS = Playshaper**  
**LW = Learning Wall - Mounted 10 3/4" Above The Playing Surface.**



**NOTE:**  
 The Marble Panel is preassembled at the factory.



# PlayShaper® 173572/184897 Marble Panel®

## Parts List

Part#	Description	Qty.
172697	Marble Panel Assembly, Specify Color.....	1
<b>106480</b>	<b>Panel Hardware Package</b> .....	1
100195	$\frac{3}{8}$ " x $\frac{5}{8}$ " BHCS w/Pin, SST .....	6
100353	$\frac{3}{8}$ " Flange Nut w/Pin, SST.....	6

## Specifications

**Marble Panel Assy.:** (Panels) Two color Permalene®, color specified. (Poly Panel) Fabricated from .236" thick clear polycarbonate. (Marbles) 2" Diameter glass.

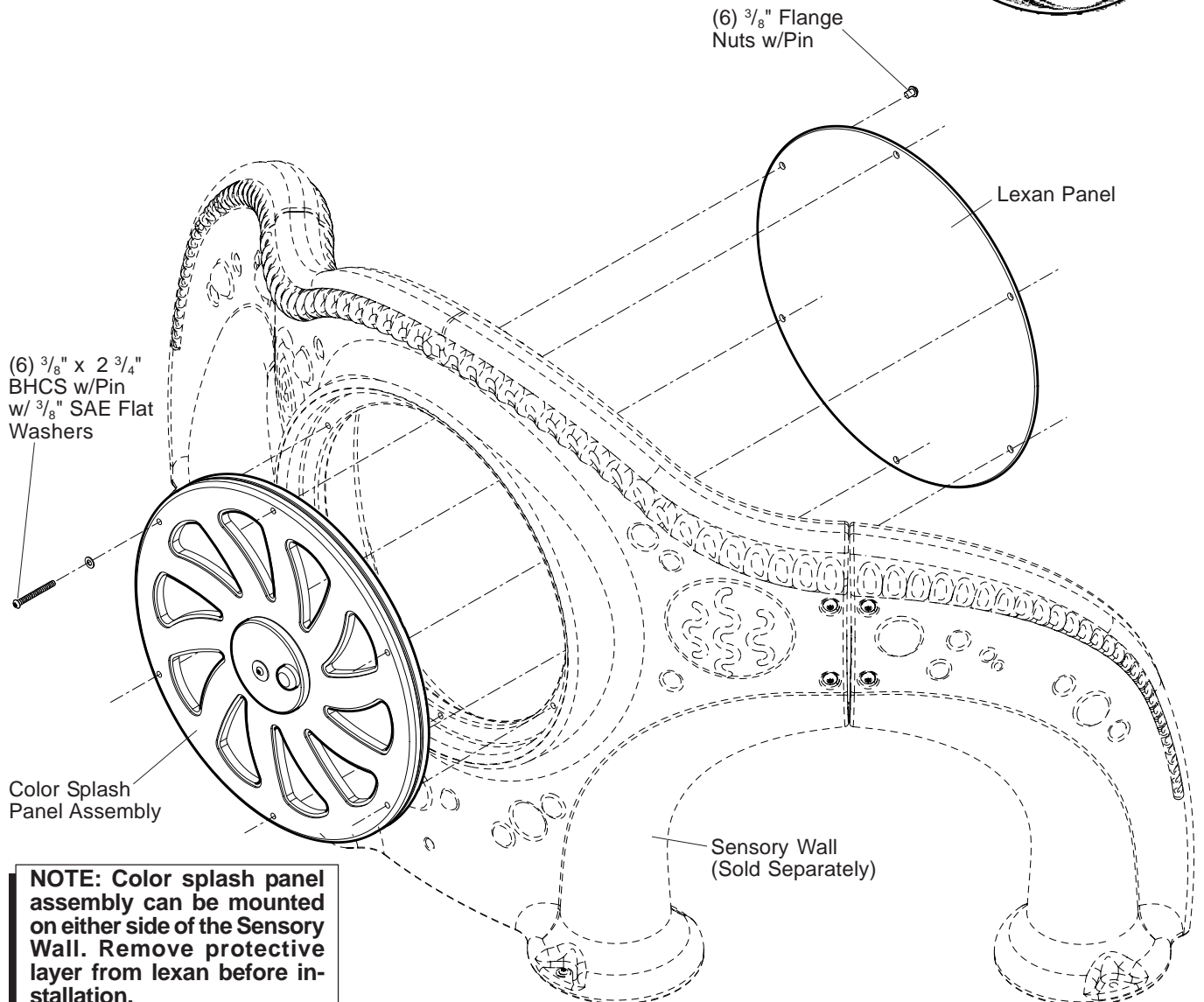
**Fasteners:** Primary fasteners shall be socketed and pinned tamperproof in design, stainless steel (SST) per ASTM F 879 unless otherwise indicated (see specific product installation/specifications).

**Installation Time:** Approx.  $\frac{1}{4}$  man hour  
**Weight:** 54 lbs.

## Installation Instructions

- 1) Attach panel to post flanges using  $\frac{3}{8}$ " x  $\frac{5}{8}$ " BHCS w/pin and  $\frac{3}{8}$ " flange nuts w/pin as shown.
- 2) Install protective surfacing before users are allowed to play on the structure.

**DETAIL  
(BACK SIDE)**



**NOTE: Color splash panel assembly can be mounted on either side of the Sensory Wall. Remove protective layer from lexan before installation.**

**Sensory Play**

**177715 Color Splash Panel™**



J:\SPECS\184\18428100.P65

# Sensory Play 177715 Color Splash Panel™

## Parts List

Part#	Description	Qty.
178123-00	Color Splash Panel Assy., Specify Color .....	1
<b>178144-00</b>	<b>Color Splash Wheel Hardware Package .....</b>	<b>1</b>
100175-00	$\frac{3}{8}$ " x 2 $\frac{3}{4}$ " BHCS w/Pin, SST .....	6
100353-00	$\frac{3}{8}$ " Flange Nut w/Pin, SST .....	6
100365-00	$\frac{3}{8}$ " SAE Flat Washer, SST .....	6

## Specifications

### Color Splash

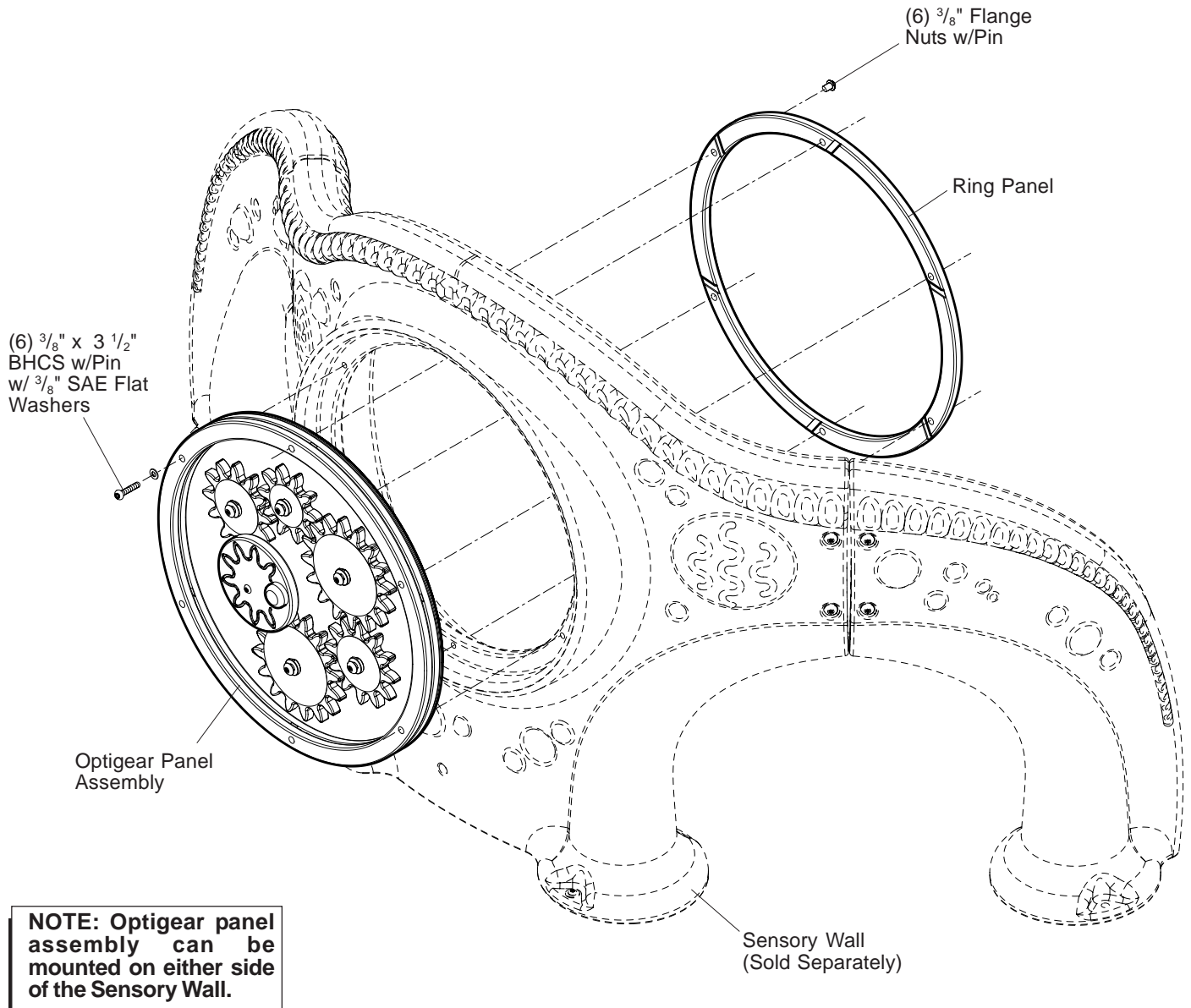
**Panel Assy.:** Assembly comprised of (Permalene® Panels), color specified. (Lexan Panel)  $\frac{1}{4}$ " (6,35 mm) thick x 26  $\frac{3}{4}$ " (679,45 mm) diameter. (Acrylic Panel)  $\frac{1}{8}$ " (3,18 mm) thick x 26  $\frac{3}{4}$ " (679,45 mm) diameter clear. (Color Wheel) .1875" (4,76 mm) thick x 23  $\frac{7}{16}$ " (595,30 mm) diameter aluminum sheet. Finish: ProShield®, image is transferred into paint by the process of infusion. (Shaft) 300 Series stainless steel. (Thrust Oilite Bearing) .125" (3,18 mm) thick x 2.875" (73,03 mm) diameter. (Sleeve Oilite Bearing) 1.25" (31,75 mm) diameter x .750" (19,05 mm) long.

**Fasteners:** Primary fasteners shall be socketed and pinned tamperproof in design, stainless steel (SST) per ASTM F 879 unless otherwise indicated (see specific product installation/specifications).

**Installation Time:**  $\frac{1}{2}$  man hour  
**Weight:** 38 lbs.

## Installation Instructions

- 1) Attach color splash panel assembly to sensory wall, using  $\frac{3}{8}$ " x 2  $\frac{3}{4}$ " BHCS w/Pin with  $\frac{3}{8}$ " SAE flat washers and  $\frac{3}{8}$ " flange nuts with pin. **NOTE:** Color splash panel assembly can be attached on either side of the Sensory Wall. Remove protective layer from lexan before installation.





J:\SPECS\184\18432900.P65

# Sensory Play 168104 Optigear Panel®

## Parts List

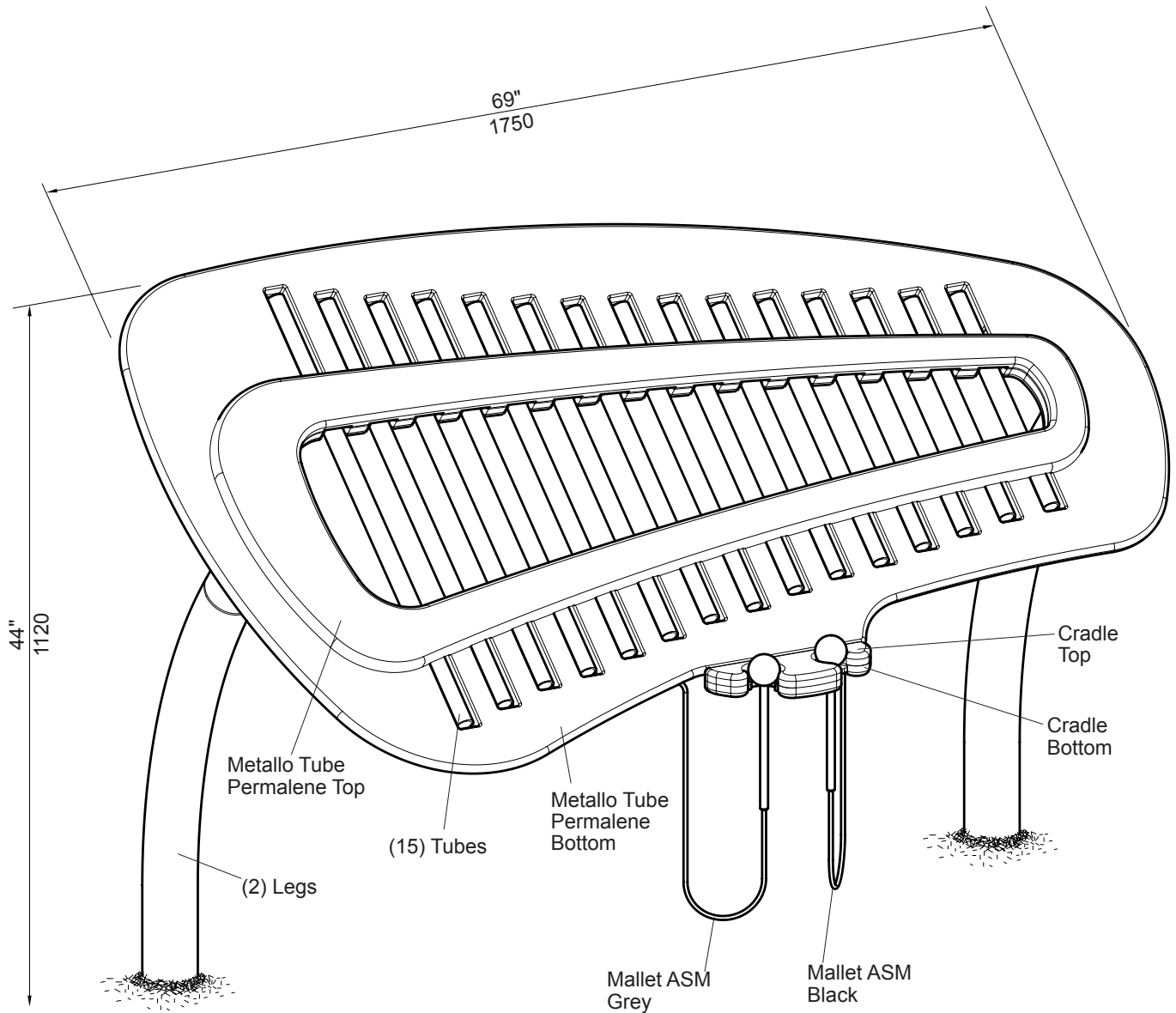
Part#	Description	Qty.
181247-00	Optigear Panel Assembly, Specify Color .....	1
167014-00	Ring Panel, Specify Color .....	1
<b>169035-00</b>	<b>Optigear Panel Hardware Package</b> .....	<b>1</b>
100200-00	<sup>3</sup> / <sub>8</sub> " x 3 <sup>1</sup> / <sub>2</sub> " BHCS w/Pin, SST .....	6
100353-00	<sup>3</sup> / <sub>8</sub> " Flange Nut w/Pin, SST .....	6
100365-00	<sup>3</sup> / <sub>8</sub> " SAE Flat Washer, SST .....	6

## Specifications

- Optigear Panel Assy.:** (Panels) Two color Permalene®, color specified. (Poly Panel) .236" thick clear polycarbonate, <sup>3</sup>/<sub>8</sub>" threaded rod and <sup>3</sup>/<sub>16</sub>" SST plate.
- Ring Panel:** Two color Permalene, color specified.
- Fasteners:** Primary fasteners shall be socketed and pinned tamperproof in design, stainless steel (SST) per ASTM F 879 unless otherwise indicated (see specific product installation/specifications).
- Installation Time:** <sup>1</sup>/<sub>2</sub> man hour
- Weight:** 41 lbs.

## Installation Instructions

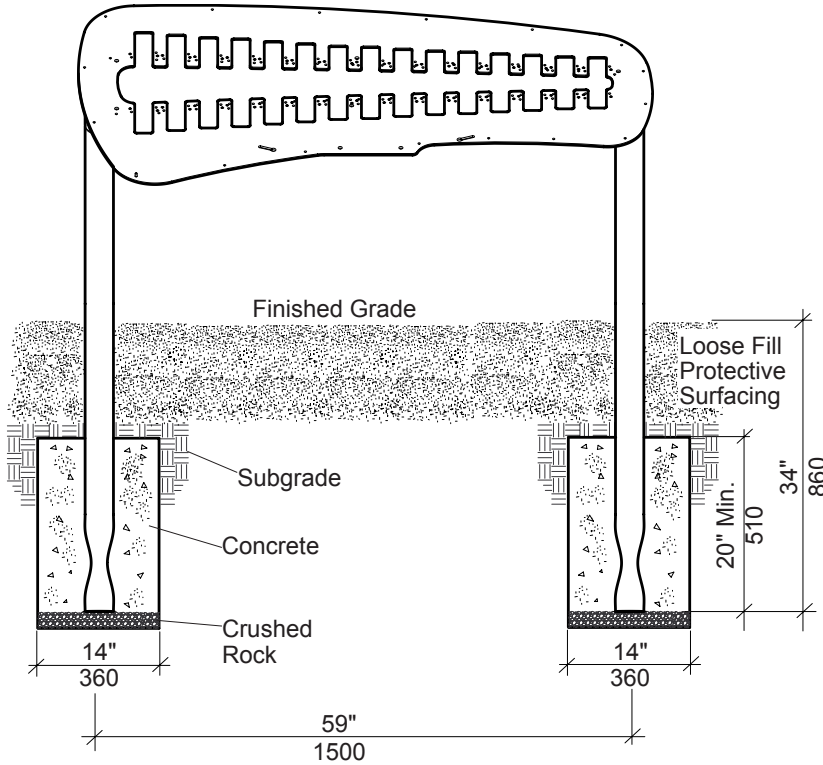
- 1) Attach Optigear panel assembly to sensory wall, using ring panel, <sup>3</sup>/<sub>8</sub>" x 3 <sup>1</sup>/<sub>2</sub>" BHCS w/Pin with <sup>3</sup>/<sub>8</sub>" SAE flat washers and <sup>3</sup>/<sub>8</sub>" flange nuts with pin. **NOTE:** *Optigear panel assembly can be attached on either side of the Sensory Wall.*



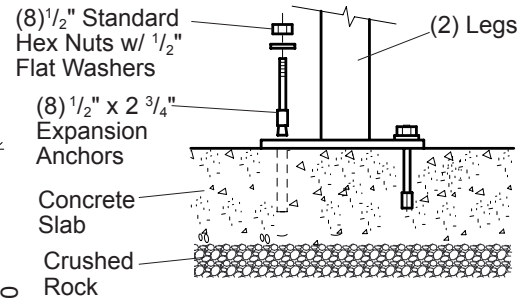
**Sensory Play 214441 Vivo™ Metallophone**



**DETAIL  
DIRECT BURY**



**DETAIL  
SURFACE MOUNT**



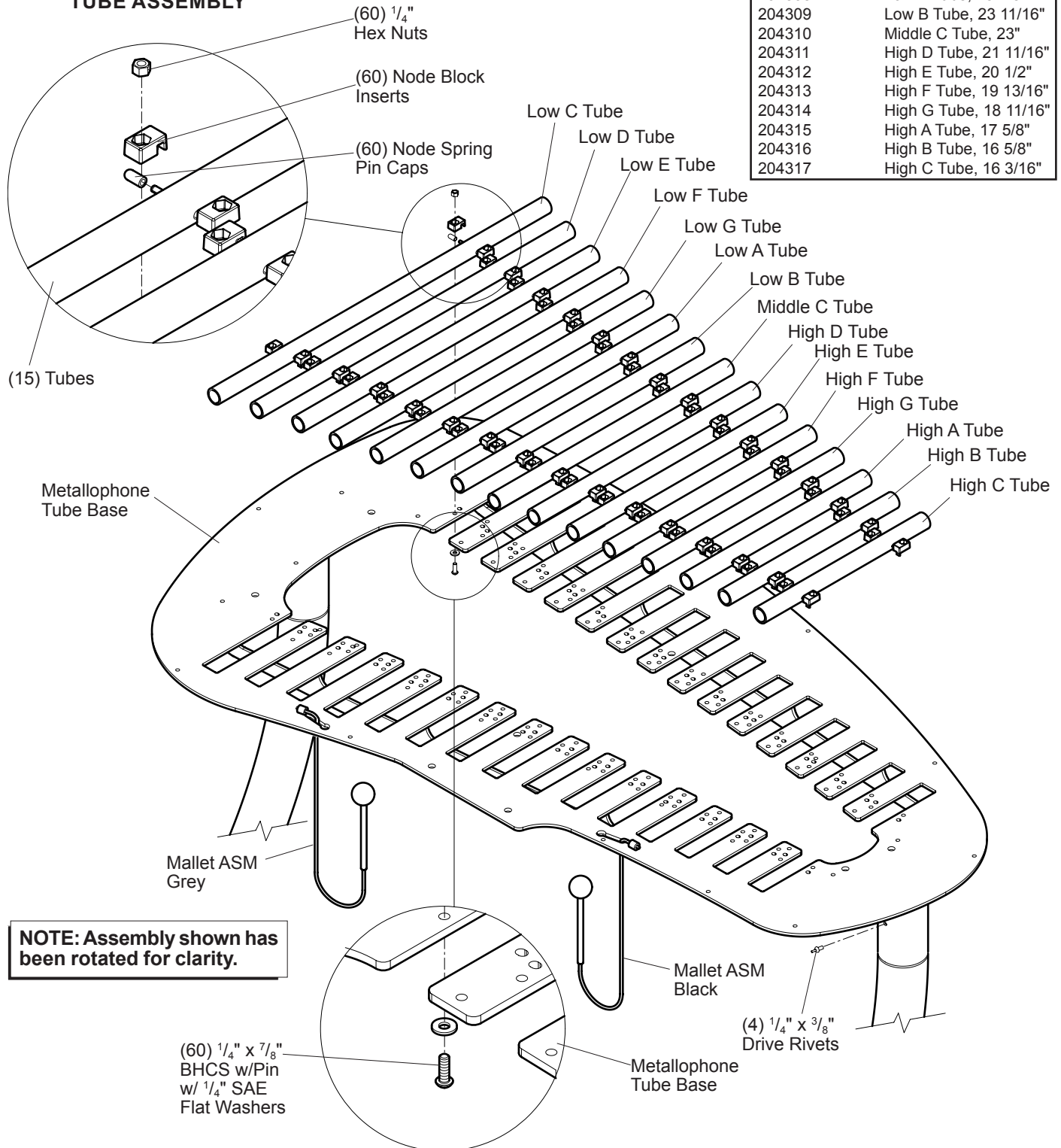
**DETAIL  
PROPPED IN FINAL POSITION**



**NOTE:** Picture shown is an example of how to prop the Vivo Metallophone assembly in final position, using 2 x 4 boards and wooden stakes, prior to pouring concrete footings.

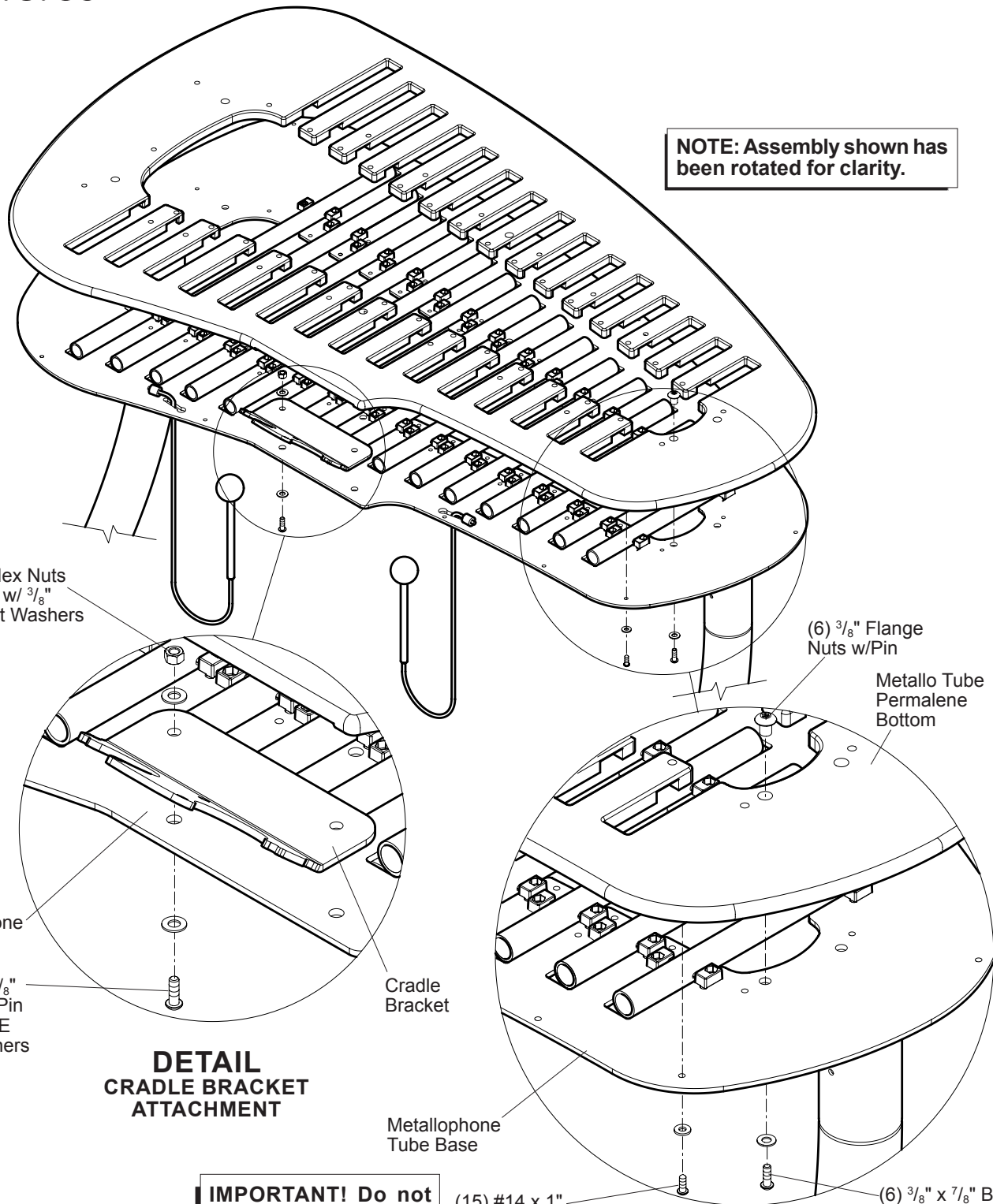
204303	Low C Tube, 32 5/8"
204304	Low D Tube, 30 11/16"
204305	Low E Tube, 29"
204306	Low F Tube, 28 3/16"
204307	Low G Tube, 26 5/8"
204308	Low A Tube, 25 1/8"
204309	Low B Tube, 23 11/16"
204310	Middle C Tube, 23"
204311	High D Tube, 21 11/16"
204312	High E Tube, 20 1/2"
204313	High F Tube, 19 13/16"
204314	High G Tube, 18 11/16"
204315	High A Tube, 17 5/8"
204316	High B Tube, 16 5/8"
204317	High C Tube, 16 3/16"

**DETAIL  
TUBE ASSEMBLY**



**NOTE: Assembly shown has been rotated for clarity.**

NOTE: Assembly shown has been rotated for clarity.



(2) 3/8" Hex Nuts  
w/Patch w/ 3/8"  
SAE Flat Washers

(6) 3/8" Flange  
Nuts w/Pin

Metallo Tube  
Permalene  
Bottom

Metallophone  
Tube Base

Cradle  
Bracket

(2) 3/8" x 7/8"  
BHCS w/Pin  
w/ 3/8" SAE  
Flat Washers

**DETAIL  
CRADLE BRACKET  
ATTACHMENT**

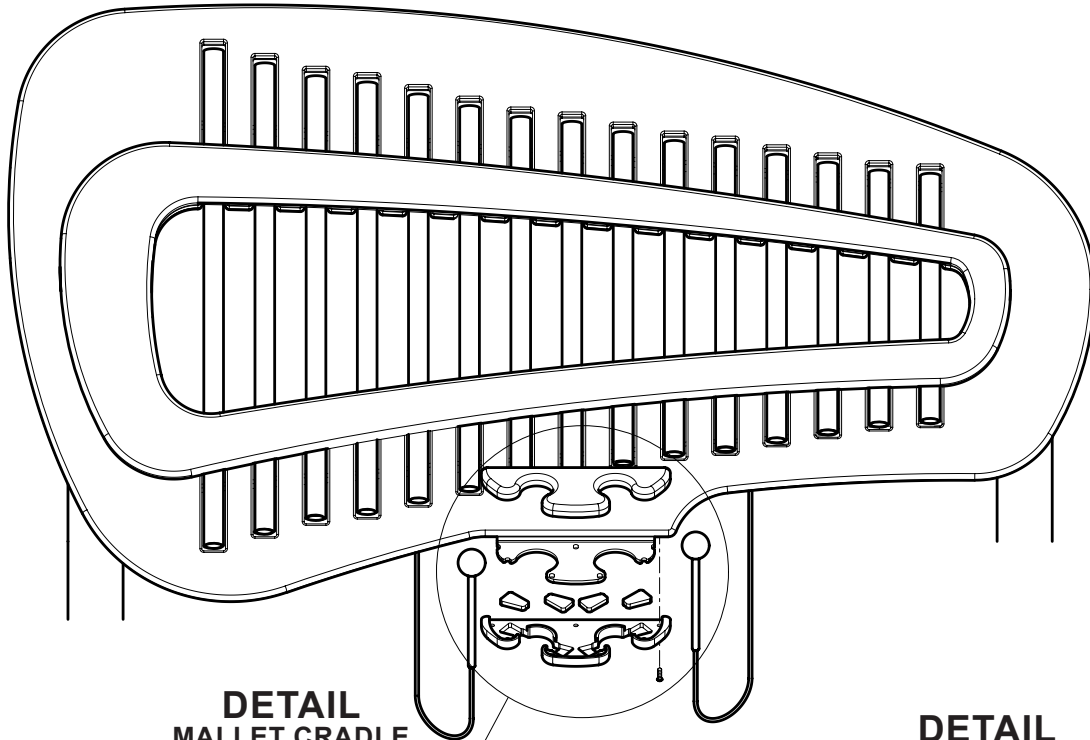
Metallophone  
Tube Base

(15) #14 x 1"  
BHCS Torx  
w/ 1/4" Nylon  
Washers

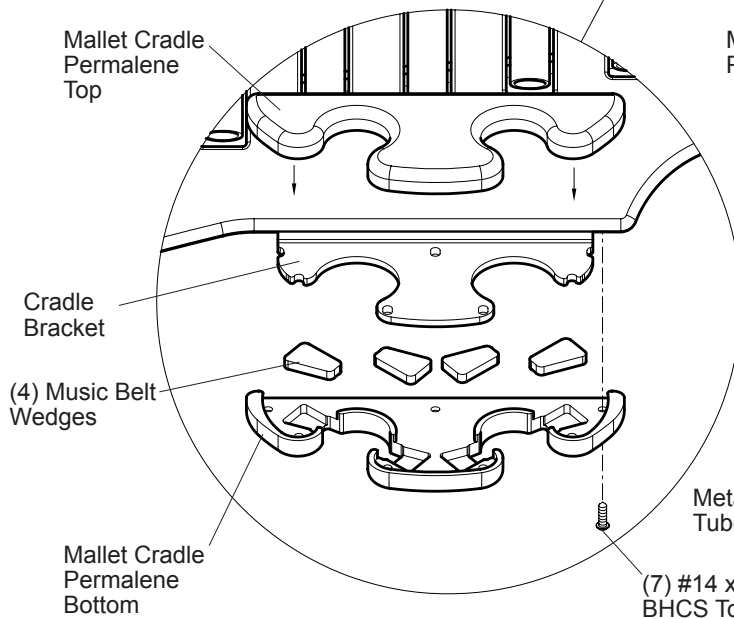
(6) 3/8" x 7/8"  
BHCS  
w/ Pin w/ 3/8" SAE  
Flat Washers

**DETAIL  
PERMALENE BOTTOM  
ATTACHMENT**

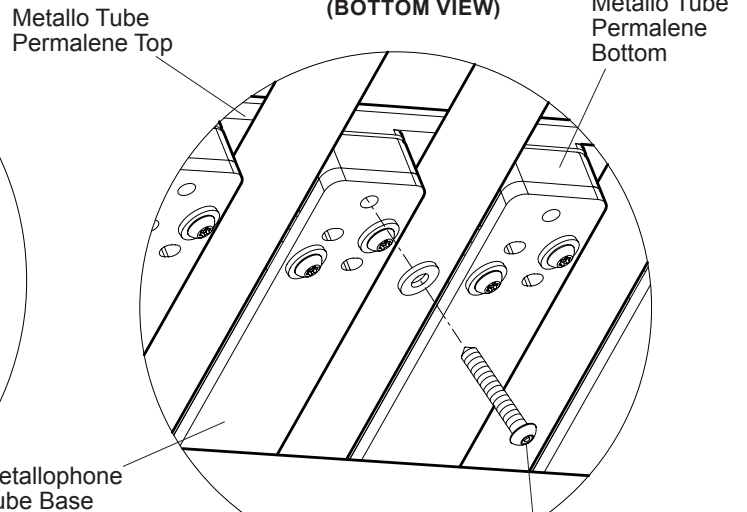
**IMPORTANT! Do not  
use an impact wrench  
to tighten BHCS Torx  
bolts. Hand tighten  
only.**



**DETAIL  
MALLET CRADLE  
ASSEMBLY**



**DETAIL  
METALLO TUBE PERMALENE  
TOP ATTACHMENT  
(BOTTOM VIEW)**



**IMPORTANT! Do not use an impact wrench to tighten BHCS Torx bolts. Hand tighten only.**

(7) #14 x 1" BHCS Torx

(34) #14 x 1 3/4" BHCS Torx w/ 1/4" Nylon Washers

Part#	Description	Qty.
211013	Metallophone Tube Base, Specify Color.....	1
211018	Metallo Tube Permalene Bottom, Specify Color .....	1
211030	Metallo Tube Permalene Top, Specify Color .....	1
213638	Metallophone Leg, (DB), Specify Color.....	2
211033	Metallophone Leg, (SM), Specify Color.....	2
215141	Mallet Cradle Bracket, Specify Color .....	1
215142	Mallet Cradle Permalene Top, Specify Color.....	1
215735	Mallet Cradle Permalene Bottom, Specify Color.....	1
213630	Mallet Assembly, Grey.....	1
214056	Mallet Assembly, Black.....	1
<b>218900</b>	<b>Vivo™ Chimes Kit .....</b>	<b>1</b>
204303	Low C Tube, 32 5/8".....	1
204304	Low D Tube, 30 11/16".....	1
204305	Low E Tube, 29".....	1
204306	Low F Tube, 28 3/16".....	1
204307	Low G Tube, 26 5/8".....	1
204308	Low A Tube, 25 1/8".....	1
204309	Low B Tube, 23 11/16".....	1
204310	Middle C Tube, 23".....	1
204311	High D Tube, 21 11/16".....	1
204312	High E Tube, 20 1/2".....	1
204313	High F Tube, 19 13/16".....	1
204314	High G Tube, 18 11/16".....	1
204315	High A Tube, 17 5/8".....	1
204316	High B Tube, 16 5/8".....	1
204317	High C Tube, 16 3/16".....	1
<b>216993</b>	<b>Animato™/Vivo™ Chimes Hardware Package .....</b>	<b>1</b>
211443	Node Block w/Insert.....	66
162374	1/4" x 3/4" BHCS w/Pin, SST .....	66
100364	1/4" SAE Flat Washer, SST.....	66
212291	Node Spring Pin Cap.....	66
213980	Music Belt Wedge .....	4
216761	#14 x 1" BHCS (Torx), SST.....	26
216762	#14 x 1 3/4" BHCS (Torx), SST.....	37
100365	3/8" SAE Flat Washer, SST.....	11
100196	3/8" x 7/8" BHCS (Torx), SST .....	9
100353	3/8" Flange Nut w/Pin, SST.....	7
100321	3/8" Hex Patch Nut, SST.....	3
216777	1/4" Hex Nut, SST .....	66
127463	T-27 TPP Hex Bit (Torx), SST .....	1
100611	1/4" x 3/8" Drive Rivet, AL/SST.....	5
133368	1/4" Nylon Washers.....	62
<b>121348</b>	<b>4-Hole Surface Mount Hardware Package .....</b>	<b>2</b>
100266	1/2" x 2 3/4" Standard Hex Nut, SST .....	8
100322	1/2" Standard Hex Nut, SST .....	8
100363	1/2" Flat Washer, SST .....	8

DB = Direct Bury  
SM = Surface Mount

## Specifications

**Tube Base:** Weldment comprised of 3.500" (88,9 mm) O.D. RS20 (.125")(3,17 mm) wall galvanized steel tubing, and 1/4" (6,35 mm) thick HRPO steel sheet. Finish: ProShield®, color specified.

**Bar Top & Bottom:** Permalene®, color specified.

**Leg:** Weldment comprised of 3.500" (88,9 mm) O.D. RS20 (.125")(3,17 mm) wall galvanized steel tubing. Finish: ProShield®, color specified.

**Tubes:** Made from 1.250" (31,75 mm) diameter (.125")(3,17 mm) wall aluminum tube.

**Cradle Bracket:** Made from 1/4" (6,35 mm) thick HRPO steel sheet. Finish: ProShield®, color specified.

**Cradle Top & Bottom:** Permalene®, color specified.

**Mallet:** Comprised of 2" (50,8 mm) diameter grey & black polyurethane, 1/2" (12,7 mm) diameter aluminum handle and 3/16" (4,74 mm) diameter stainless steel cable with nylon coating.

**Fasteners:** Primary fasteners shall be socketed and pinned tamperproof in design, stainless steel (SST) per ASTM F 879 unless otherwise indicated (see specific product installation/specifications).

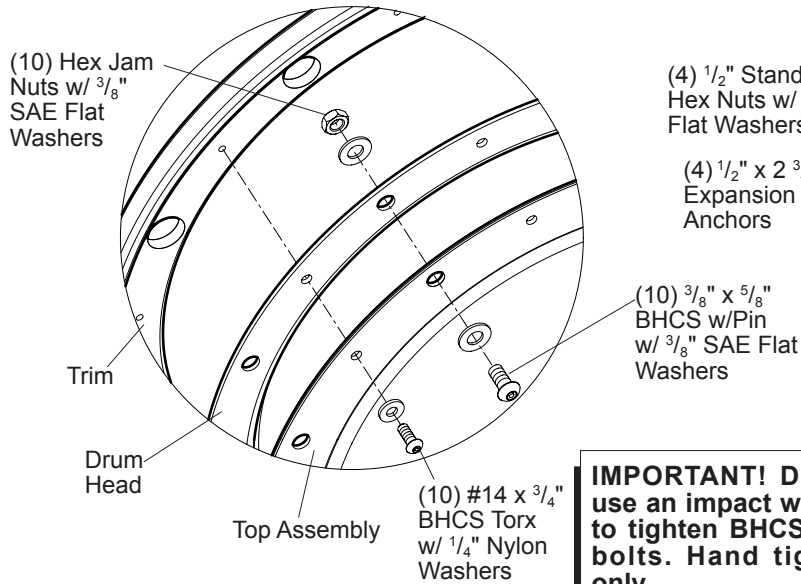
**Installation Time:** DB - Approx. 8 man hours  
SM - Approx. 6 man hours

**Concrete Req.:** Approx. 3.56 cu. ft.  
**Weight:** DB - 235 lbs.  
SM - 222 lbs.

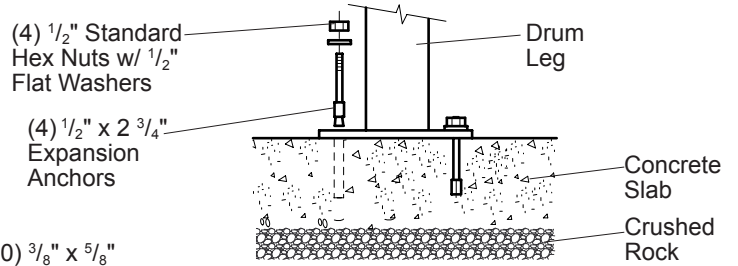
## Installation Instructions

- (Direct Bury)** Dig footings as shown.
- Insert metallophone legs into bar base tubes. Measurement from center to center of each leg should be 59" (1500 mm). With legs in correct position, drill through holes in bar base tubes and into metallophone legs with a 1/4" or "F" (only) drill bit. Insert 1/4" x 3/8" drive rivets into holes and hammer rivet pins in until flush with head. Refer to sheet 2.
- (Direct Bury)** Place metallophone legs into footing holes. With metallophone legs propped in plumb and final position, pour concrete footings. Allow concrete footings to cure for a minimum of 24 hours before completing assembly. **NOTE:** See back of sheet 1 for an example of Vivo Metallophone assembly propped in final position.  
**(Surface Mount)** With metallophone legs in plumb position, drill 1/2" x 3" deep holes through metallophone leg plates using hammer drill and 1/2" masonry bit. Tap expansion anchors into drilled holes. Fasten metallophone leg plates to expansion anchors using 1/2" standard hex nuts with 1/2" flat washers.
- Place node spring caps on each end of tube pins. Attach tubes and mallets to tube base as shown. Refer to the Tube Assembly Detail.
- Attach cradle bracket to tube base. Refer to the Cradle Bracket Attachment Detail.
- Attach metallo tube Permalene bottom to tube base. Refer to the Permalene® Bottom Attachment Detail.
- Attach mallet cradles to cradle bracket, as shown. Refer to the Mallet Cradle Assembly Detail.
- Attach metallo bar Permalene top to metallophone tube base, as shown. Refer to the Metallo Tube Permalene Top Attachment Detail.

**DETAIL  
DRUM ASSEMBLY**

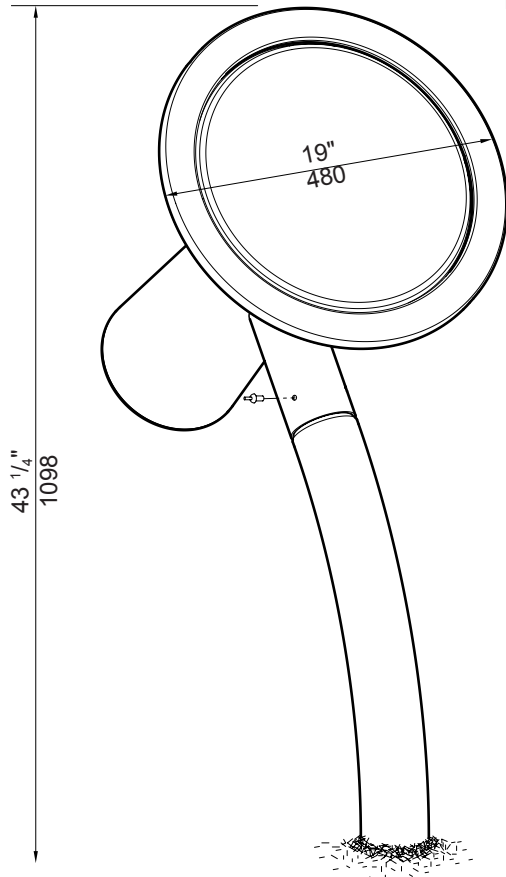
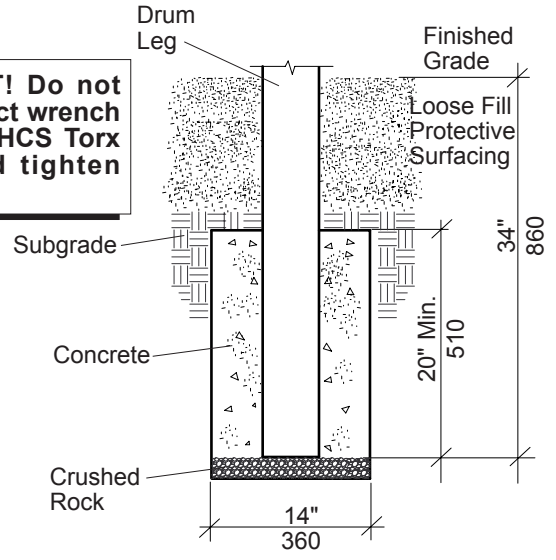


**DETAIL  
SURFACE MOUNT**

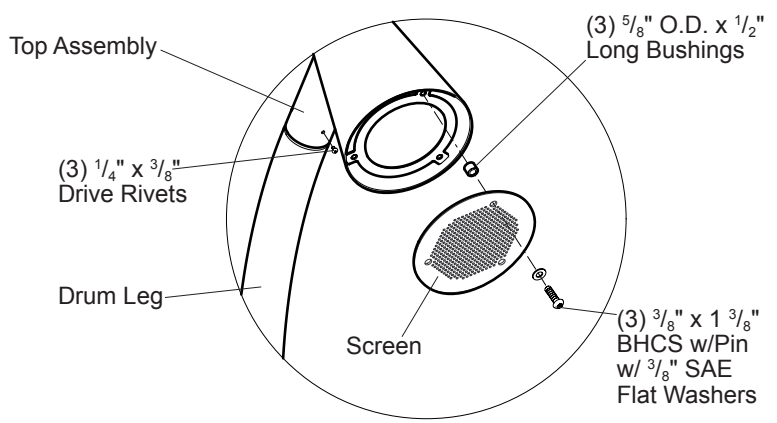


**DETAIL  
DIRECT BURY**

**IMPORTANT! Do not use an impact wrench to tighten BHCS Torx bolts. Hand tighten only.**



**DETAIL  
SCREEN ATTACHMENT**



## Parts List

Part#	Description	Qty.
213936	Drum Leg, (DB), Specify Color.....	1
204402	Drum Leg, (SM), Specify Color.....	1
211062	Goblet Drum Top Assembly, Specify Color.....	1
203966	Goblet Drum Head.....	1
204398	Permalene Trim, Specify Color.....	1
210433	8" Drum Screen, Specify Color.....	1
<b>217006</b>	<b>Goblet/Kundu Drum Hardware Package</b> .....	<b>1</b>
216760	#14 x 3/4" BHCS Torx, SST .....	10
100195	3/8" x 5/8" BHCS w/Pin, SST.....	10
113027	3/8" x 1 3/8" BHCS w/Pin, SST.....	3
100365	3/8" SAE Flat Washer, SST.....	23
128296	3/8" Hex Jam Nut, SST.....	10
133368	1/4" Nylon Washer, SST.....	10
156962	5/8" O.D. x 1/2" Long, SST.....	3
127463	T-27 TPP Hex Bit (Torx), SST.....	1
100611	1/4" x 3/8" Drive Rivet, AL/SST.....	3
<b>121348</b>	<b>4-Hole Surface Mount Hardware Package</b> .....	<b>1</b>
100266	1/2" x 2 3/4" Standard Hex Nut, SST.....	4
100322	1/2" Standard Hex Nut, SST.....	4
100363	1/2" Flat Washer, SST.....	4

DB = Direct Bury

SM = Surface Mount

## Specifications

**Drum Leg:** Made from 3.500" (88,9 mm) O.D. RS20 (.125")(3,17 mm) wall galvanized steel tubing. Finish: ProShield®, color specified.

**Top Assembly:** Weldment comprised of 3.500" (88,9 mm) O.D. RS20 (.125")(3,17 mm) wall galvanized steel tubing, 11 GA. (.120")(3,05 mm) flat steel and 1/8" (3,17 mm) thick HRPO steel sheet. Finish: ProShield®, color specified.

**Trim:** Permalene®, color specified.

**Screen:** Made from 11 GA. (.125")(3,17 mm) thick aluminum sheet. Finish: ProShield®, color specified.

**Drum Head:** Translucent, UV stabilized polycarbonate with a matte textured surface on one side.

**Fasteners:** Primary fasteners shall be socketed and pinned tamperproof in design, stainless steel (SST) per ASTM F 879 unless otherwise indicated (see specific product installation/specifications).

**Installation Time:** DB - Approx. 3 man hours  
SM - Approx. 2 1/2 man hours

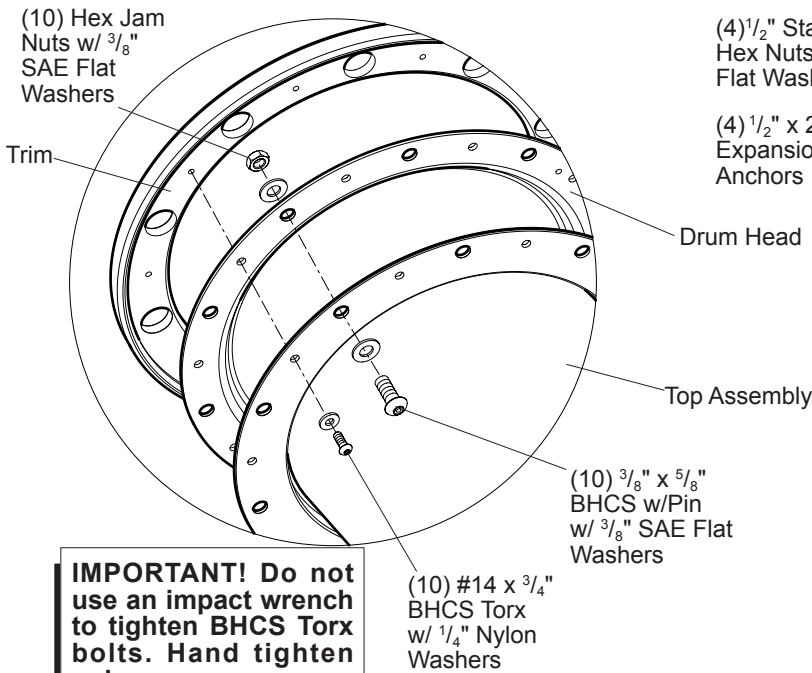
**Concrete Req.:** DB - Approx. 1.78 cu. ft.

**Weight:** DB - 59 lbs.  
SM - 53 lbs.

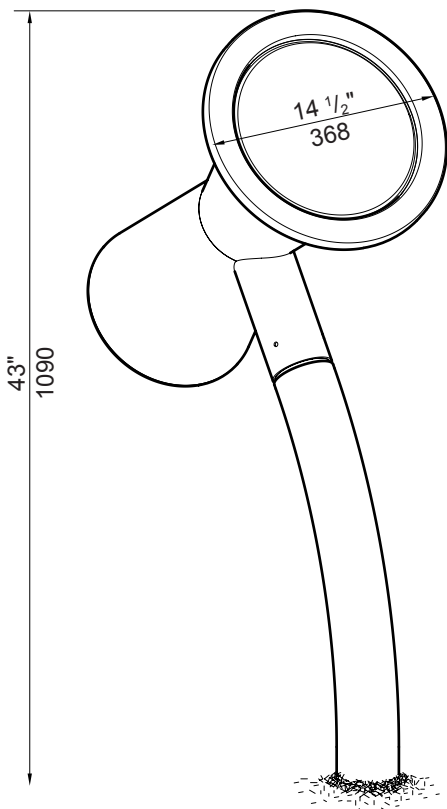
## Installation Instructions

- 1) **(Direct Bury)** Dig footing as shown.
- 2) **(Direct Bury)** With lower portion of drum leg plumb and in final position, pour concrete footing. Allow concrete footing to cure for a minimum of 24 hours before attaching drum assembly, drum head and trim to drum leg.  
  
**(Surface Mount)** Drill 1/2" x 3" deep holes through drum mount post plate using hammer drill and 1/2" masonry bit. Tap expansion anchors into drilled holes. Fasten drum mount post plate to expansion anchors using 1/2" standard hex nuts with 1/2" flat washers.
- 3) Place drum onto leg. Drill through holes in drum assembly and into drum leg with a 1/4" or "F" (only) drill bit. Insert 1/4" x 3/8" drive rivets into holes and hammer rivet pins in until flush with head.
- 4) Attach drum head and trim to top assembly, as shown. Refer to the Drum Assembly Detail.
- 5) Attach screen to drum top assembly. Refer to the Screen Attachment Detail.

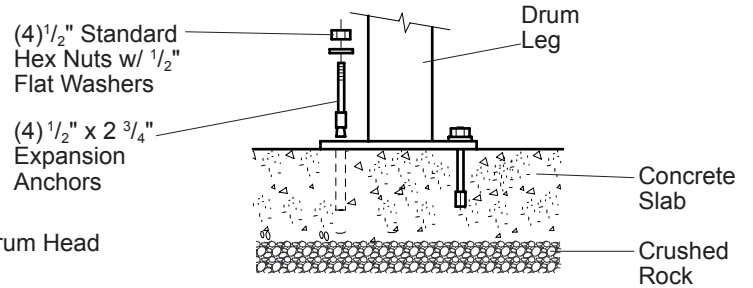
**DETAIL  
DRUM ASSEMBLY**



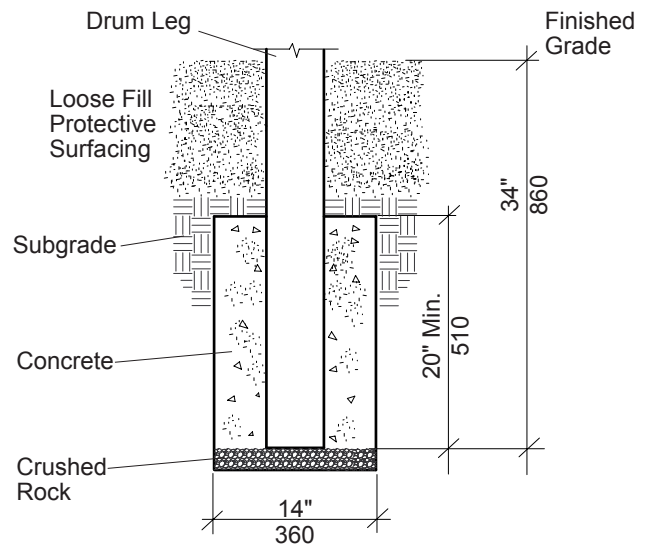
**IMPORTANT! Do not use an impact wrench to tighten BHCS Torx bolts. Hand tighten only.**



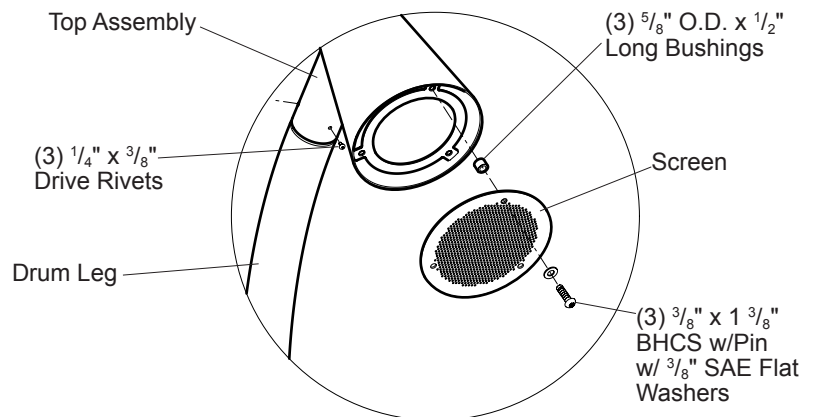
**DETAIL  
SURFACE MOUNT**



**DETAIL  
DIRECT BURY**



**DETAIL  
SCREEN ATTACHMENT**



**Sensory Play**

**214444 Kundo Drum**





# Sensory Play 214444 Kundo Drum

## Parts List

Part#	Description	Qty.
213936	Drum Leg, (DB), Specify Color.....	1
204402	Drum Leg, (SM), Specify Color.....	1
204403	Kundo Drum Top Assembly, Specify Color.....	1
203967	Kundo Drum Head .....	1
204401	Permalene Trim, Specify Color.....	1
210434	10" Drum Screen, Specify Color.....	1
<b>217006</b>	<b>Goblet/Kundo Drum Hardware Package .....</b>	<b>1</b>
216760	#14 x 3/4" BHCS Torx, SST .....	10
100195	3/8" x 5/8" BHCS w/Pin, SST .....	10
113027	3/8" x 1 3/8" BHCS w/Pin, SST.....	3
100365	3/8" SAE Flat Washer, SST.....	23
128296	3/8" Hex Jam Nut, SST.....	10
133368	1/4" Nylon Washer, SST .....	10
156962	5/8" O.D. x 1/2" Long, SST.....	3
127463	T-27 TPP Hex Bit (Torx), SST .....	1
100611	1/4" x 3/8" Drive Rivet, AL/SST.....	3
<b>121348</b>	<b>4-Hole Surface Mount Hardware Package .....</b>	<b>1</b>
100266	1/2" x 2 3/4" Standard Hex Nut, SST .....	4
100322	1/2" Standard Hex Nut, SST .....	4
100363	1/2" Flat Washer, SST .....	4

DB = Direct Bury  
SM = Surface Mount

## Specifications

**Drum Leg:** Made from 3.500" (88,9 mm) O.D. RS20 (.125")(3,17 mm) wall galvanized steel tubing. Finish: ProShield®, color specified.

**Top Assembly:** Weldment comprised of 3.500" (88,9 mm) O.D. RS20 (.125")(3,17 mm) wall galvanized steel tubing, 11 GA. (.120")(3,05 mm) flat steel and 1/8" (3,17 mm) thick HRPO steel sheet. Finish: ProShield®, color specified.

**Trim:** Permalene®, color specified.

**Screen:** Made from 11 GA. (.125")(3,17 mm) thick aluminum sheet. Finish: ProShield®, color specified.

**Drum Head:** Translucent, UV stabilized polycarbonate with a matte textured surface on one side.

**Fasteners:** Primary fasteners shall be socketed and pinned tamperproof in design, stainless steel (SST) per ASTM F 879 unless otherwise indicated (see specific product installation/specifications).

**Installation Time:** DB - Approx. 3 man hours  
SM - Approx. 2 1/2 man hours

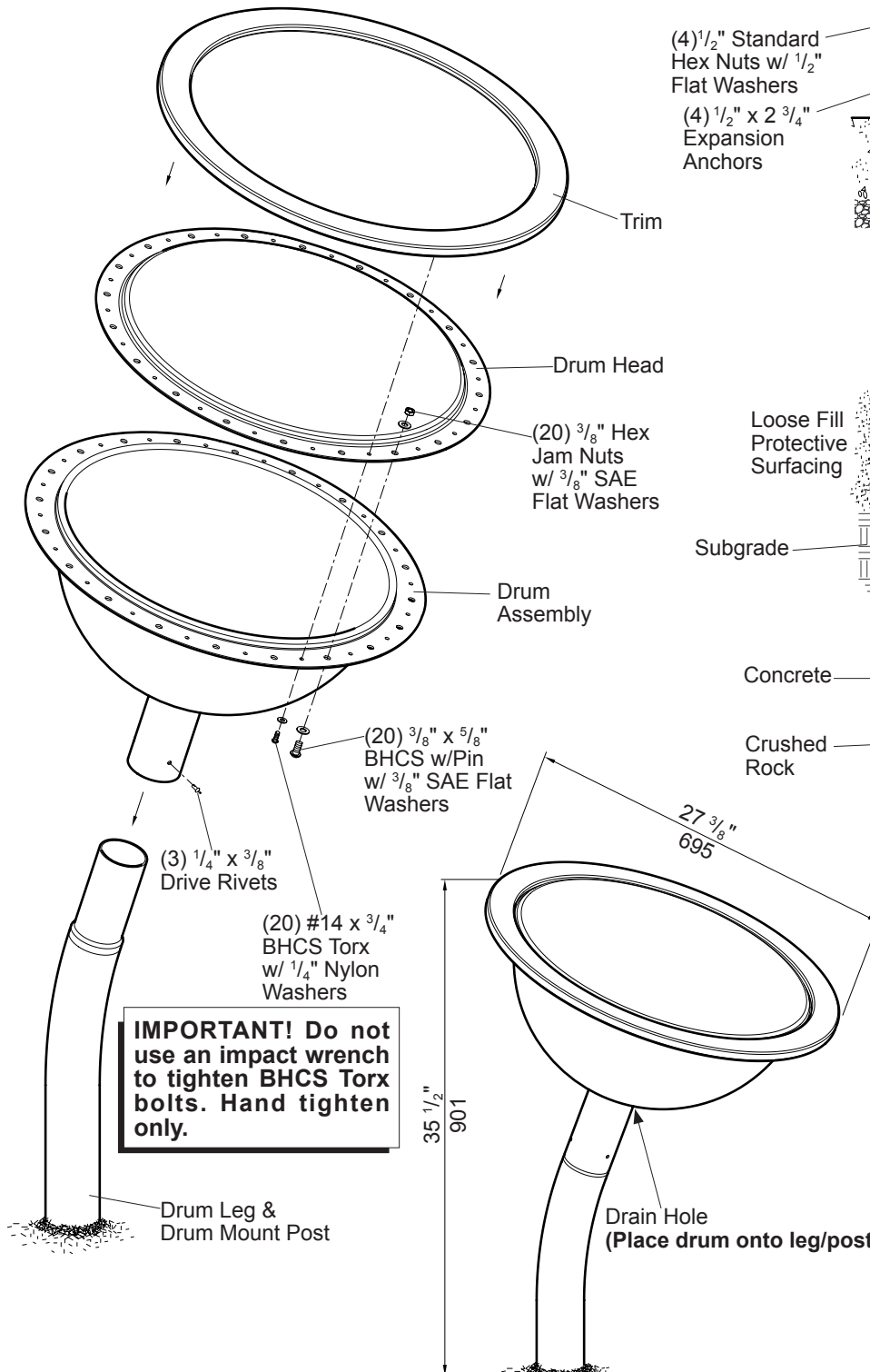
**Concrete Req.:** DB - Approx. 1.78 cu. ft.

**Weight:** DB -54 lbs.  
SM -49 lbs.

## Installation Instructions

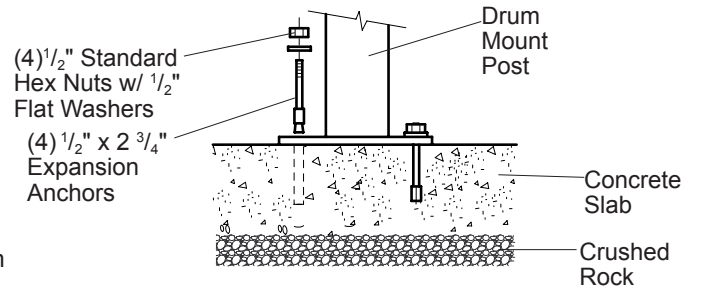
- 1) **(Direct Bury)** Dig footing as shown.
- 2) **(Direct Bury)** With lower portion of drum leg plumb and in final position, pour concrete footing. Allow concrete footing to cure for a minimum of 24 hours before attaching drum assembly, drum head and trim to drum leg.  
  
**(Surface Mount)** Drill 1/2" x 3" deep holes through drum mount post plate using hammer drill and 1/2" masonry bit. Tap expansion anchors into drilled holes. Fasten drum mount post plate to expansion anchors using 1/2" standard hex nuts with 1/2" flat washers.
- 3) Place drum onto leg. Drill through holes in drum assembly and into drum leg with a 1/4" or "F" (only) drill bit. Insert 1/4" x 3/8" drive rivets into holes and hammer rivet pins in until flush with head.
- 4) Attach drum head and trim to top assembly, as shown. Refer to the Drum Assembly Detail.
- 5) Attach screen to drum top assembly. Refer to the Screen Attachment Detail.

**DETAIL  
DRUM ASSEMBLY**

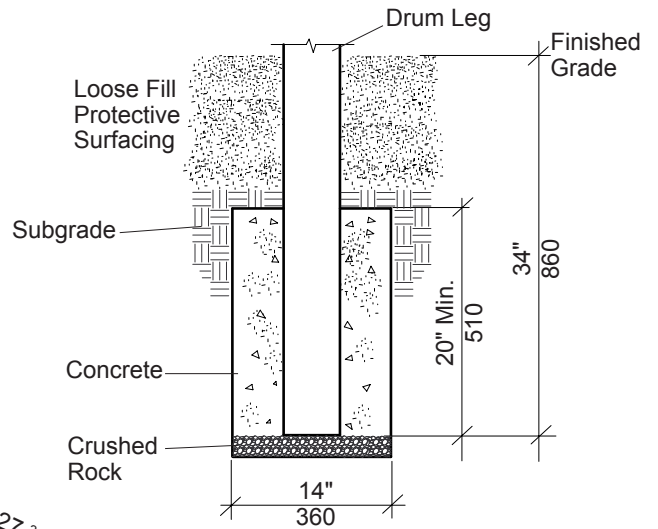


**IMPORTANT! Do not use an impact wrench to tighten BHCS Torx bolts. Hand tighten only.**

**DETAIL  
SURFACE MOUNT**



**DETAIL  
DIRECT BURY**





# Sensory Play 214445 Kettle Drum

## Parts List

Part#	Description	Qty.
213935	Kettle Drum Leg, DB, Specify Color.....	1
204405	Kettle Drum Mount Post, SM, Specify Color .....	1
211950	Kettle Drum Assembly, Specify Color.....	1
203968	Drum Head .....	1
204404	Kettle Drum Permalene Trim, Specify Color .....	1
<b>217004</b>	<b>Kettle Drum Hardware Package .....</b>	<b>1</b>
100195	3/8" x 5/8" BHCS w/Pin, SST .....	20
100365	3/8" SAE Flat Washer, SST.....	40
128296	3/8" Hex Jam Nut, SST .....	20
216760	#14 x 3/4" BHCS Torx, SST .....	20
133368	1/4" NylonWasher, SST .....	20
127463	T-27 TPP Hex Bit (Torx), SST .....	1
100611	1/4" x 3/8" Drive Rivet, AL/SST .....	3
<b>121348</b>	<b>4-Hole Surface Mount Hardware Package .....</b>	<b>1</b>
100266	1/2" x 2 3/4" Standard Hex Nut, SST .....	4
100322	1/2" Standard Hex Nut, SST .....	4
100363	1/2" Flat Washer, SST .....	4

DB = Direct Bury  
SM = Surface Mount

## Specifications

**Trim:** Permalene®, color specified.

**Drum Leg:** Made from 3.500" (88,9 mm) O.D. RS20 (.125")(3,17 mm) wall galvanized steel tubing. Finish: ProShield®, color specified.

**Drum Assembly:** Weldment comprised of 3.500" (88,9 mm) O.D. RS20 (.125")(3,17 mm) wall galvanized steel tubing and 11 GA. (.120")(3,05 mm) flat steel. Finish: ProShield®, color specified.

**Drum Head:** Translucent, UV stabilized polycarbonate with a matte textured surface on one side.

**Fasteners:** Primary fasteners shall be socketed and pinned tamperproof in design, stainless steel (SST) per ASTM F 879 unless otherwise indicated (see specific product installation/specifications).

**Installation Time:** DB - Approx. 3 man hours  
SM - Approx. 2 1/2 man hours

**Concrete Req.:** DB - Approx. 1.78 cu. ft.

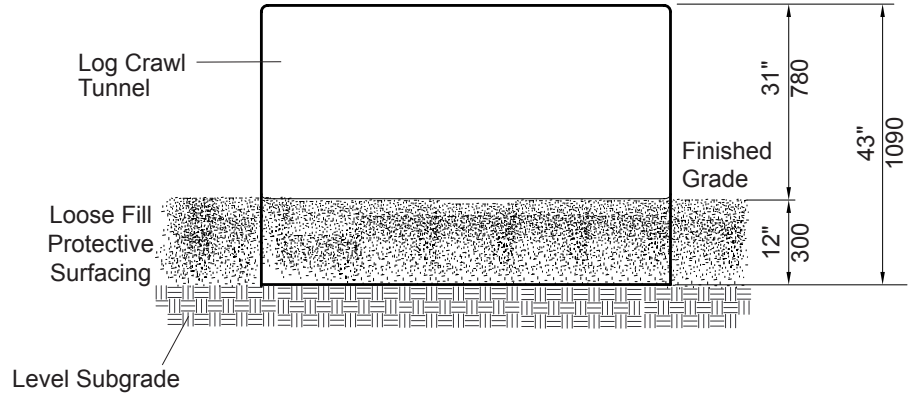
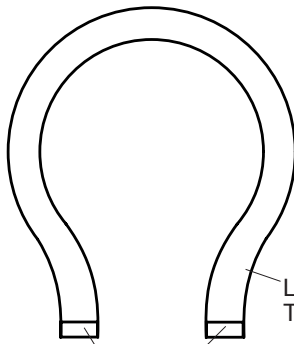
**Weight:** DB -66 lbs.  
SM - 59 lbs.

## Installation Instructions

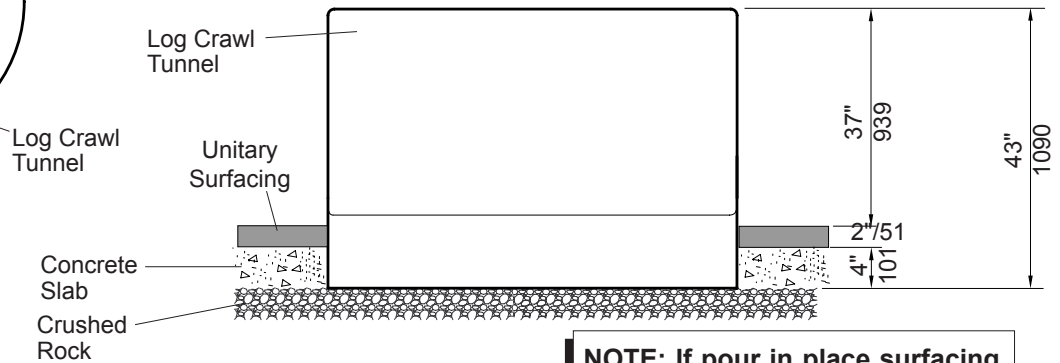
- 1) **(Direct Bury)** Dig footing as shown.
- 2) **(Direct Bury)** With lower portion of drum leg plumb and in final position, pour concrete footing. Allow concrete footing to cure for a minimum of 24 hours before attaching drum assembly, drum head and trim to drum leg.  
**(Surface Mount)** Drill 1/2" x 3" deep holes through drum mount post plate using hammer drill and 1/2" masonry bit. Tap expansion anchors into drilled holes. Fasten drum mount post plate to expansion anchors using 1/2" standard hex nuts with 1/2" flat washers.
- 3) Place drum onto leg/post with drain hole at lowest point. Drill through holes in drum assembly and into drum leg/post with a 1/4" or "F" (only) drill bit. Insert 1/4" x 3/8" drive rivets into holes and hammer rivet pins in until flush with head.
- 4) Attach drum head and trim to drum assembly, as shown. Refer to the Drum Assembly Detail.

**Loose Fill Protective Surfacing**

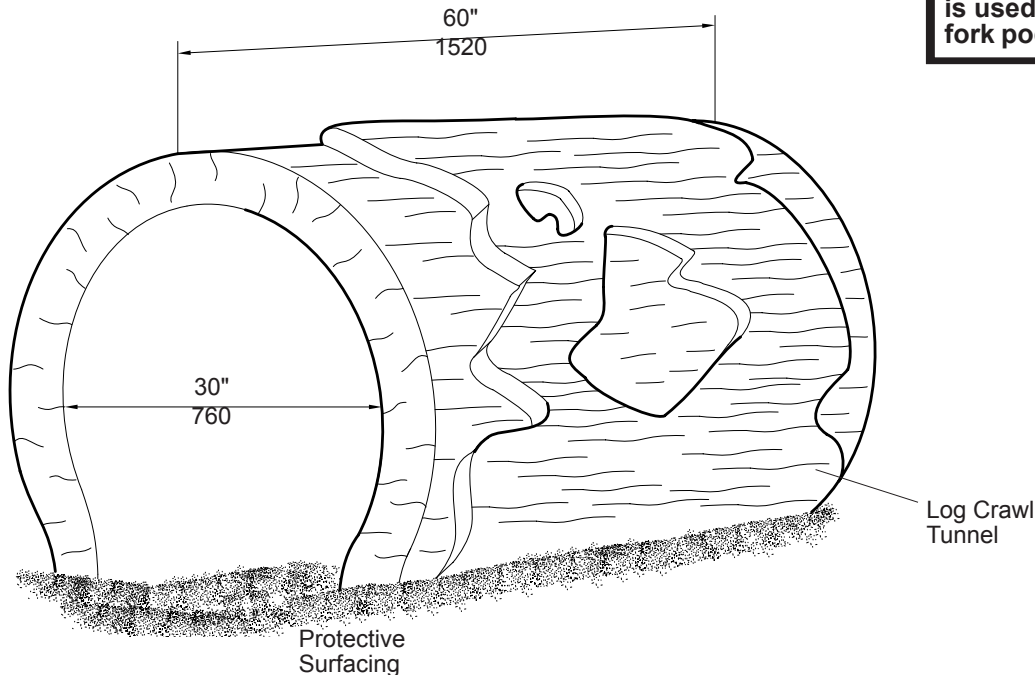
**DETAIL  
END VIEW**



**Unitary Surfacing**



**NOTE: If pour in place surfacing is used, blend surfacing to cover fork pockets.**



**Play Naturally™**

**More Fun**

**173594 Log Crawl Tunnel**



# More Fun 173594 Log Crawl Tunnel

## Parts List

Part#	Description	Qty.
175710	Log Crawl Tunnel.....	1

## Specifications

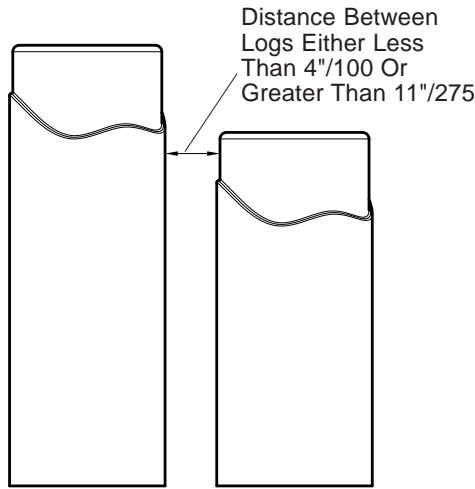
**Log Crawl Tunnel Assembly:** Weldment comprised of 1.900" (48,26 mm) O.D. RS20 (.090"-.100") (2,29 mm-2,54 mm) wall galvanized steel tubing, <sup>3</sup>/<sub>16</sub>" HRPO steel plate and 7" x 3" x <sup>3</sup>/<sub>16</sub>" (178 mm x 76 mm x 4,75 mm) wall rectangular tube. **(Log Crawl Tunnel assembled)** Glass reinforced wet cast solid pour concrete product. Finish: Latex paint made for concrete, natural colors.

**Installation Time:** Approx. 1/4 man hour  
**Weight:** 2000 lbs.  
**Min. Use Zone:** 6' (1830 mm)  
**Actual Size:** Log measures 60" long x 43" high (1520 mm x 1090 mm high)  
**Fall Height:** 41" (1040 mm) Max.

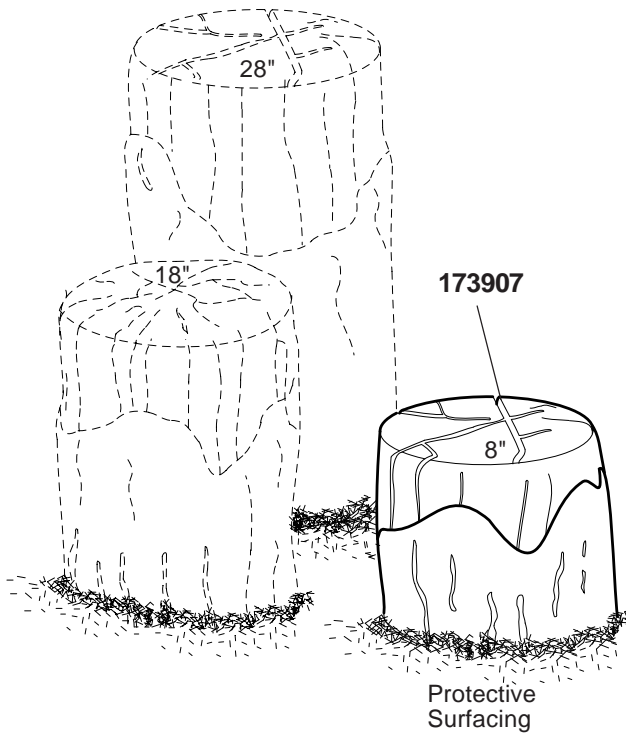
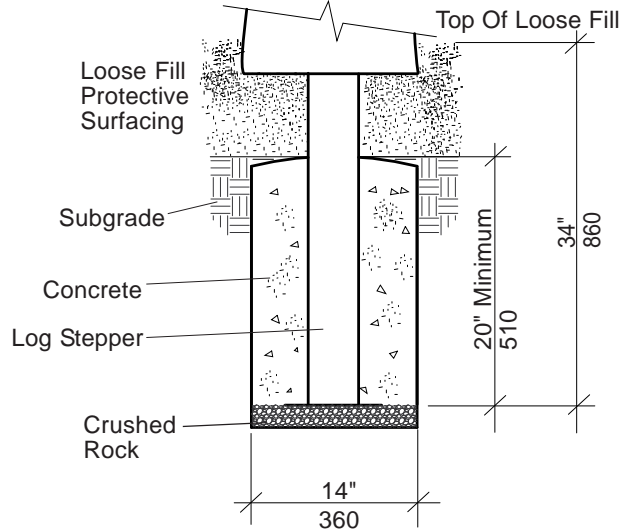
## Installation Instructions

- 1) The log crawl tunnel must be installed over an area of firm stable soil.  
**Warning: Never crawl under any part of The Log Crawl Tunnel especially when it is only supported by a forklift.**
- 2) To unload the log crawl tunnel, a "Lull" type material handler with at least an 4,000 lb. capacity is recommended. Maximum fork extension size is 2 1/2" high x 6 1/2" wide with no maximum length. **NOTE: At least 2 people are recommended for the log crawl tunnel installation. One person to operate the material handling equipment and one person to spot for the operator.**
- 3) The log crawl tunnel should be placed on firm stable soil. Pick up the log crawl tunnel by inserting the material handling forks into the forklift pockets. Be very careful to keep the log crawl tunnel level to the ground when raising or lowering. Do not contact the concrete face of the log crawl tunnel with material handler forks, chipping can occur.
- 4) Install protective surfacing before users are allowed to play on the structure.
- 5) **NOTE: After installation if Touch-up/Repairs are needed, contact Landscape Structures at 1-888-574-4678.**

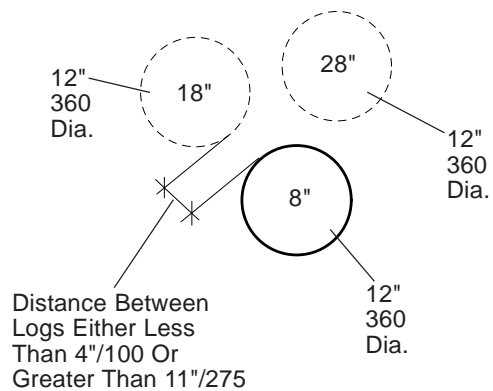
**DETAIL  
 LOG STEPPER  
 SPACING**



**DETAIL  
 DIRECT BURY**



**PLAN VIEW/FOOTING LAYOUT  
 (Layout Varies - See Your Plan)**



**Play Naturally™**

- 173907 8" Height (Shown)
- 173908 18" Height
- 173909 28" Height

**Climbers**

**Log Steppers**

## Parts List

Part#	Description	Qty.
200691	8" Log Stepper (DB), Natural .....	*
200692	18" Log Stepper (DB), Natural .....	*
200693	28" Log Stepper (DB), Natural .....	*

**DB = Direct Bury**

\* = Quantity Determined By Your Order

## Specifications

**Log Stepper Assy.:** **(Footer Post)** Weldment comprised of 5" O.D. x 11 GA. (.120") wall galvanized steel tubing and  $\frac{3}{16}$ " HRPO steel plate. Finish: ProShield, color specified.  
**(Log Stepper-fully assembled)** Glass reinforced wet cast solid pour concrete product. Finish: Latex paint made for concrete, natural colors.

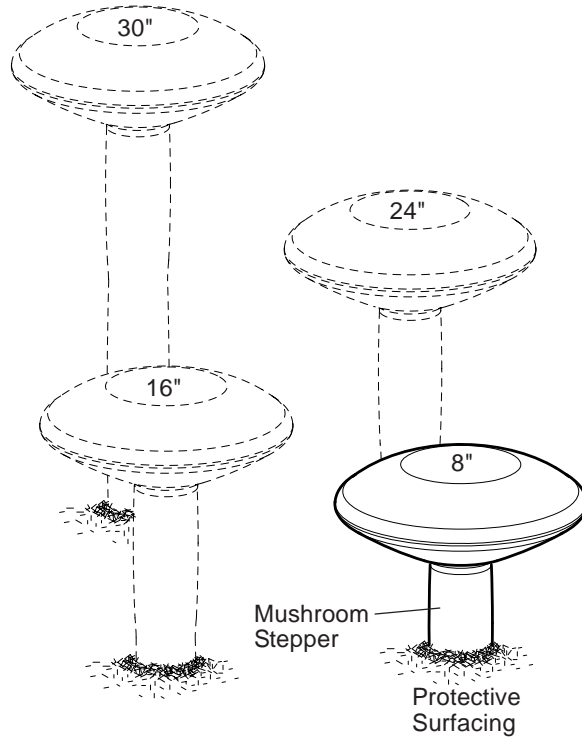
**Installation Time:** Approx.  $\frac{1}{2}$  man hour each

**Concrete Req.:** Approx. 1.78 cu. ft. each

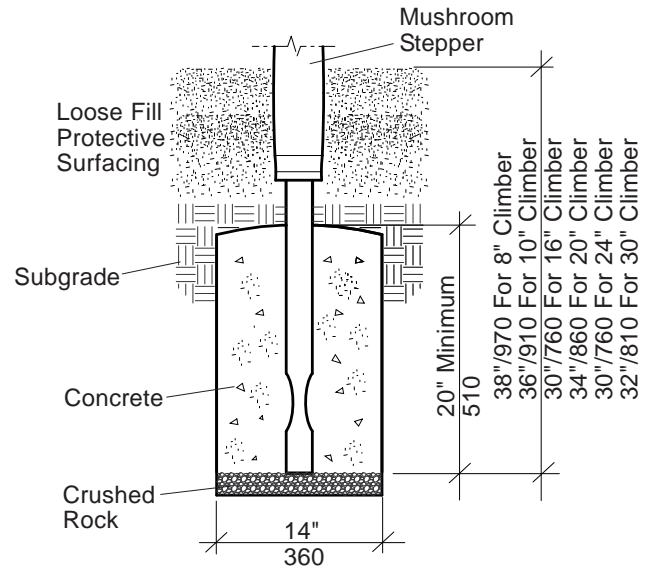
**Weight:**  
 8" - 162 lbs.  
 18" - 230 lbs.  
 28" - 424 lbs.

## Installation Instructions

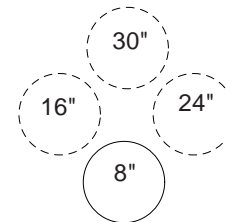
- 1) **(Direct Bury)** Dig footing as shown. See your Plan View/Footing Layout.
- 2) To unload the log steppers and place in footing holes, a "Lull" type material handler and strap are recommended. Position log steppers in footing holes at dimensions shown, and prop in plumb position. With log steppers and handrail plumb, pour concrete footings. Allow concrete footings to cure for a minimum of 72 hours before users are allowed to play on the structure.
- 3) Install protective surfacing before users are allowed to play on the structure.



**DETAIL  
DIRECT BURY**



**PLAN VIEW/FOOTING LAYOUT**  
(Layout Varies - See Your Plan)



- 171568 8" Height (Shown)
- 171569 10" Height
- 171570 16" Height
- 171571 20" Height
- 171572 24" Height
- 171573 30" Height

*Play Naturally™*

**Climbers**

**Mushroom Steppers**





# Climbers Mushroom Steppers

## Parts List

Part#	Description	Qty.
206827	GFRM Mushroom 8"-16" (DB) .....	*
206828	GFRM Mushroom 20"-24" (DB) .....	*
206829	GFRM Mushroom 30"-32" (DB) .....	*

DB = Direct Bury

\* = Quantity Determined By Your Order

## Specifications

**GFRM Mushroom Assembly:** (Support) Comprised of 2  $\frac{3}{8}$ " O.D. RS40 (.130"-.140" wall) galvanized steel tubing. Finish: ProShield®. (Mushroom Stepper) Glass reinforced wet cast solid pour concrete product. Finish: Latex paint made for concrete, natural colors.

**Installation Time:** Approx.  $\frac{3}{4}$  man hour each

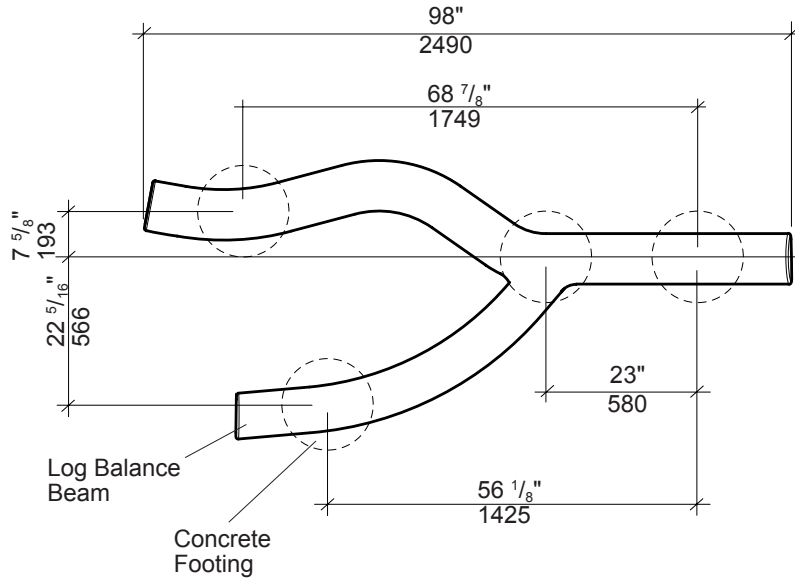
**Concrete Req.:** Approx. 1.78 cu. ft. each

**Weight:**  
 8" - 333 lbs.  
 10" - 333 lbs.  
 16" - 333 lbs.  
 20" - 337 lbs.  
 24" - 337 lbs.  
 30" - 342 lbs.

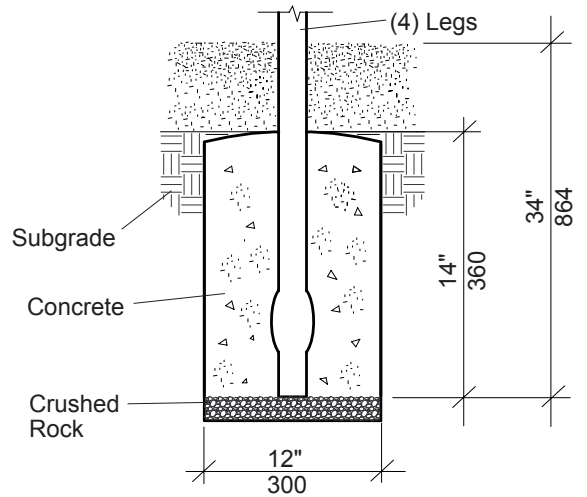
## Installation Instructions

- 1) **(Direct Bury)** Dig footing as shown. Refer to your Site Plan For Footing Locations.
- 2) To unload the Mushroom Stepper and place in footing hole, a "Lull" type material handler and strap are recommended. Position Mushroom Stepper in footing hole, and prop in plumb position. With Mushroom Stepper plumb, pour concrete footing. Allow concrete footings to cure for a minimum of 72 hours before users are allowed to play on the structure.
- 3) Install protective surfacing before users are allowed to play on the structure.
- 4) **NOTE: After installation if Touch-up/Repairs are needed, contact Landscape Structures at 1-888-574-4678.**

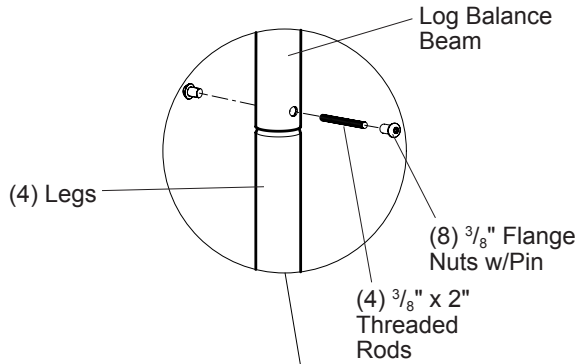
**PLAN VIEW/FOOTING LAYOUT**



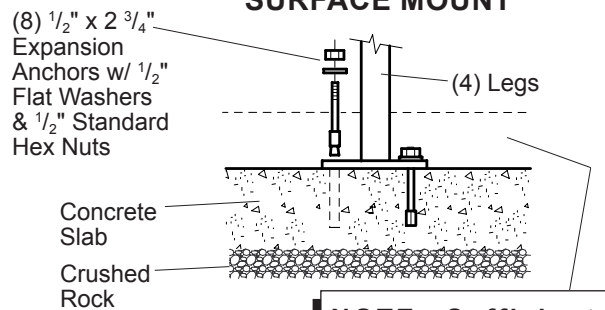
**DETAIL  
DIRECT BURY**



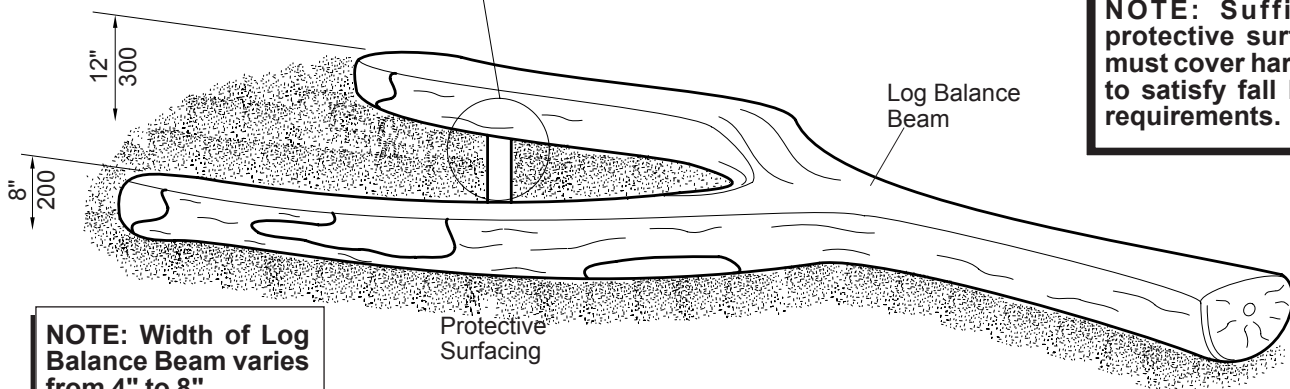
**DETAIL  
LEG ATTACHMENT**



**DETAIL  
SURFACE MOUNT**



**NOTE: Sufficient protective surfacing must cover hardware to satisfy fall height requirements.**



**NOTE: Width of Log Balance Beam varies from 4" to 8".**

**Play Naturally™**

**Sports & Fitness 173596 Log Balance Beam**

## Parts List

Part#	Description	Qty.
175712	Log Balance Beam .....	1
175706	Leg, SM, Brown .....	4
175707	Leg, DB, Brown .....	4
<b>175717</b>	<b>Log Balance Beam Hardware Package</b> .....	<b>1</b>
100353	3/8" Flange Nut w/Pin, SST .....	8
116942	3/8" x 2" Threaded Rod, SST .....	4
<b>111392</b>	<b>2-Hole (SM) Hardware Package</b> .....	<b>4</b>
100266	1/2" x 2 3/4" Expansion Anchor .....	8
100322	1/2" Standard Hex Nut, SST .....	8
100363	1/2" Flat Washer, SST .....	8

DB = Direct Bury

SM = Surface Mount

## Specifications

### Log Balance Beam

**Assembly:** Weldment comprised of 1.900" O.D. RS20 (.090"-.100" wall) galvanized steel tubing and 2.375" O.D. RS20 (.095"-.105" wall) galvanized steel tubing. Finish: ProShield, brown in color. (Log-fully assembled) Glass reinforced wet cast solid pour concrete product. Finish: Latex paint made for concrete, natural colors.

**Leg:** Fabricated from 2.375" O.D. RS20 (.095"-.105" wall) galvanized steel tubing. Finish: ProShield, brown in color.

**Fasteners:** Primary fasteners shall be socketed and pinned tamperproof in design, stainless steel (SST) per ASTM F 879 unless otherwise indicated (see specific product installation/specifications).

**Installation Time:** Approx. 2 man hours

**Concrete:** Approx. 3.66 cu. ft.

**Weight:** 387 lbs.

**Min. Use Zone:** 6' (1830 mm)

**Actual Size:** Log measures 98" long x 42" wide  
(2490 mm x 1070 mm wide)

**Fall Height:** 12" (200 mm)

## Installation Instructions

1) **(Direct Bury)** - Dig footing holes, spaced as shown. Attach legs to log balance beam, using 3/8" x 2" threaded rods and 3/8" flange nuts with pin. Place log balance beam in footing holes and temporarily brace in plumb and level position. Pour concrete footings and let cure for a minimum of 72 hours before users are allowed to play on the structure.

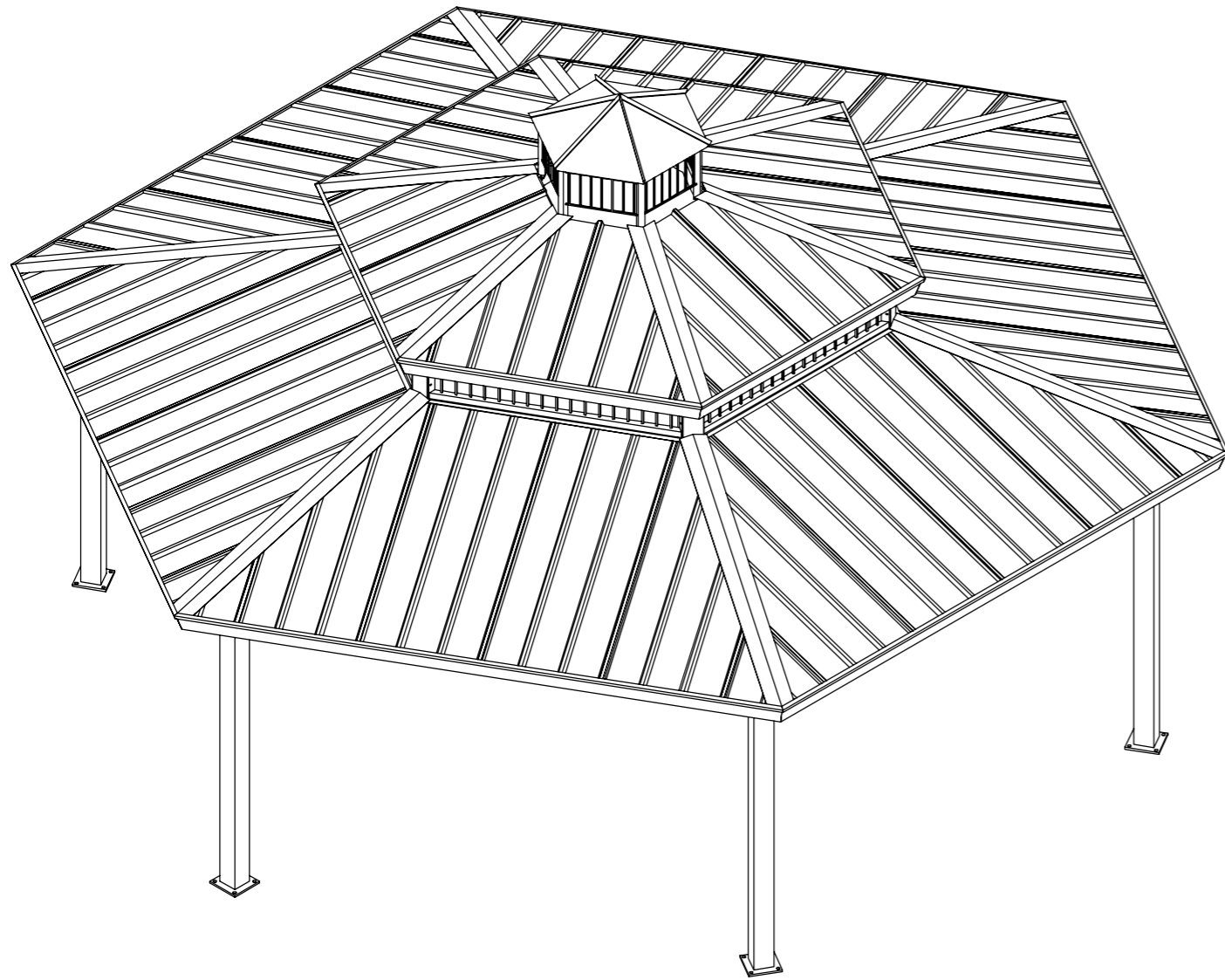
**(Surface Mount)** - Attach legs to log balance beam, using 3/8" x 2" threaded rods and 3/8" flange nuts with pin. Set log balance beam in proper position and mark anchor bolt locations on concrete slab through holes in anchor plates. Move log balance beam aside and drill 1/2" x 3" deep holes in marked locations on concrete slab using 1/2" masonry bit and hammer drill. Reposition log balance beam over drilled holes and tap expansion anchors into holes. Fasten using and 1/2" standard hex nuts with 1/2" flat washers.

2) Install protective surfacing before users are allowed to play on the structure.

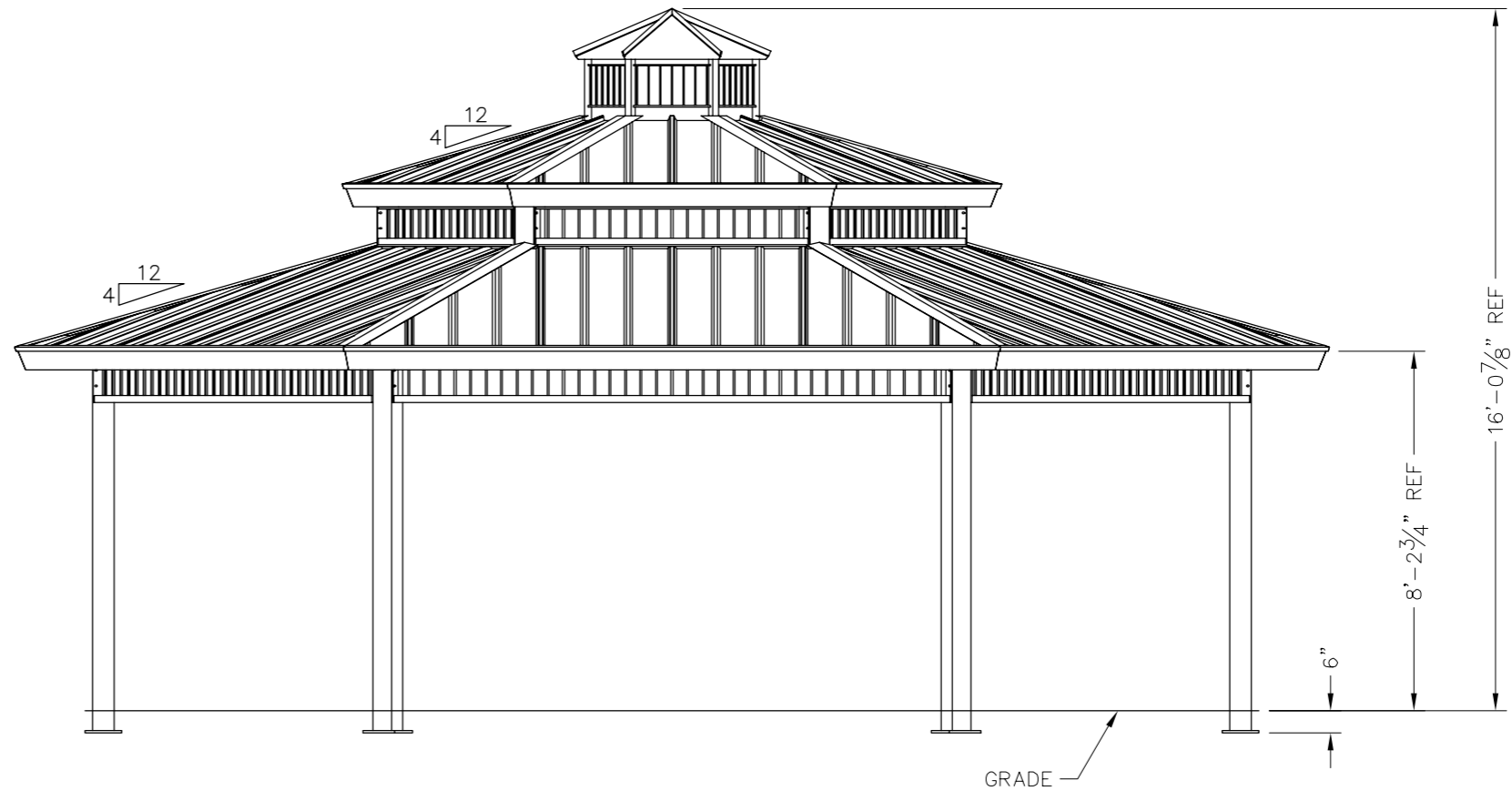
3) **NOTE: After installation if Touch-up/Repairs are needed, contact Landscape Structures at 1-888-574-4678.**

# **APPENDIX B**

## **PRELIMINARY GAZEBO STRUCTURE DRAWINGS**



PRELIMINARY: NOT FOR CONSTRUCTION



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 800.748.0985  
 616.396.0944 FX

Elevation

DRAWN BY:	ACP
DATE:	6/27/2016
JOB NO.:	STANDARD
REVISION:	A
BUILDING TYPE:	HX30TM2C-P4
PROJECT NAME:	

SHEET  
 1.0

DWG: \Company\Engineering\Standards\Shelters\HX\30\TM2C-P4-30-100-35\Drawings\Preliminary\HX30TM2C-P4-30-100-35~44944.DWG



THESE FOUNDATION LOADS ARE FOR ESTIMATING PURPOSE ONLY.  
THE ACTUAL LOADS WILL BE DETERMINED IN THE FINAL ENGINEERING

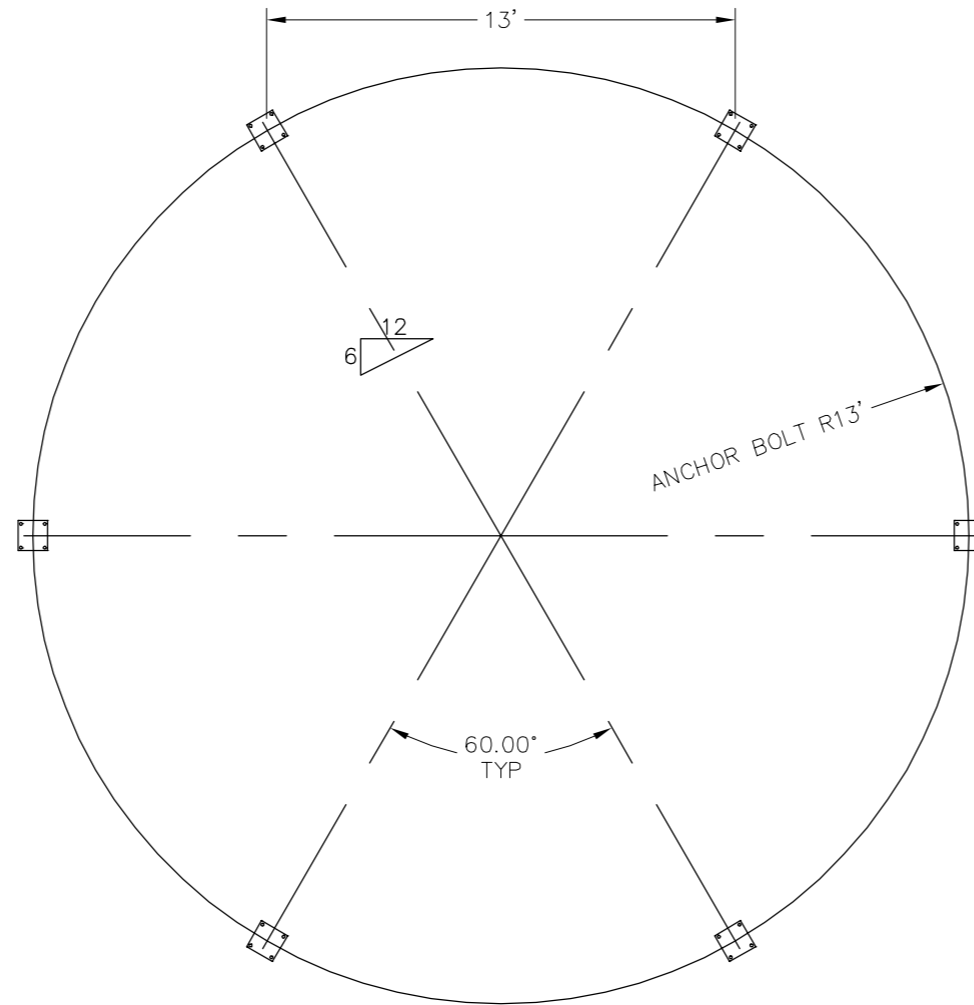
**NOTES:**

- TABLE SHOWS UNFACTORED SERVICE LOADS
- A FOUNDATION DESIGN HAS NOT BEEN PERFORMED BY ICON SHELTER SYSTEMS INC.
- A LICENSED ENGINEER FAMILIAR WITH SOIL CONDITIONS AT CONSTRUCTION SITE MUST PERFORM A FOUNDATION DESIGN.
- THE STRUCTURE HAS BEEN ENGINEERED AS AN OPEN STRUCTURE.
- CONSULT ICON SHELTER SYSTEMS INC. IF THE STRUCTURE IS TO BE ENCLOSED.
- COORDINATES ARE LOCAL TO THE COLUMN

**DEFINITIONS:**

- DL = SERVICE LEVEL DEAD LOAD REACTION WITH THE GREATEST AXIAL LOAD
- SL = SERVICE LEVEL SNOW LOAD REACTION WITH THE GREATEST AXIAL LOAD
- W-UL = SERVICE LEVEL WIND LOAD REACTION WITH THE GREATEST UPLIFT LOAD
- W-Y = SERVICE LEVEL WIND LOAD REACTION WITH THE GREATEST MAGNITUDE OF SHEAR IN THE LOCAL Y DIRECTION
- W-Z = SERVICE LEVEL WIND LOAD REACTION WITH THE GREATEST SHEAR VALUE ACTING IN THE SAME DIRECTION AS THE DL SHEAR LOAD
- E-Y = SERVICE LEVEL SEISMIC LOAD REACTION WITH THE GREATEST MAGNITUDE OF SHEAR IN THE LOCAL Y DIRECTION
- E-Z = SERVICE LEVEL SEISMIC LOAD REACTION WITH THE GREATEST MAGNITUDE OF SHEAR IN THE LOCAL Z DIRECTION

LOADS TO FOUNDATION (KIPS, IN-KIPS)	FOUNDATION LOADS				
	AXIAL (Fx)	SHEAR (Fy)	SHEAR (Fz)	MOMENT (My)	MOMENT (Mz)
DL	4.02	0.00	0.16	-5.62	0.00
SL	2.68	0.00	0.23	-8.90	0.13
W-UPLIFT	-4.25	-0.35	-0.50	5.63	-13.44
W-FY	-2.70	-0.59	-0.17	-5.49	-14.49
W-FZ	-2.95	-0.54	-0.63	23.63	-7.64
E-FY	0.00	-0.80	0.00	0.00	-26.15
E-Z	-0.61	0.00	-1.02	43.37	0.00

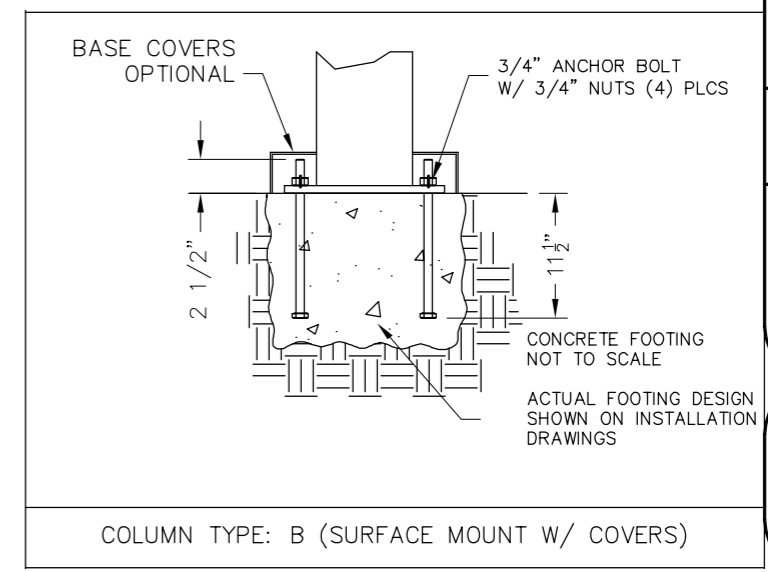


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Anchor Bolt Layout

DRAWN BY:	ACP
DATE:	6/27/2016
JOB NO.:	STANDARD
REVISION:	/
BUILDING TYPE:	HX30TM2C-P4
PROJECT NAME:	



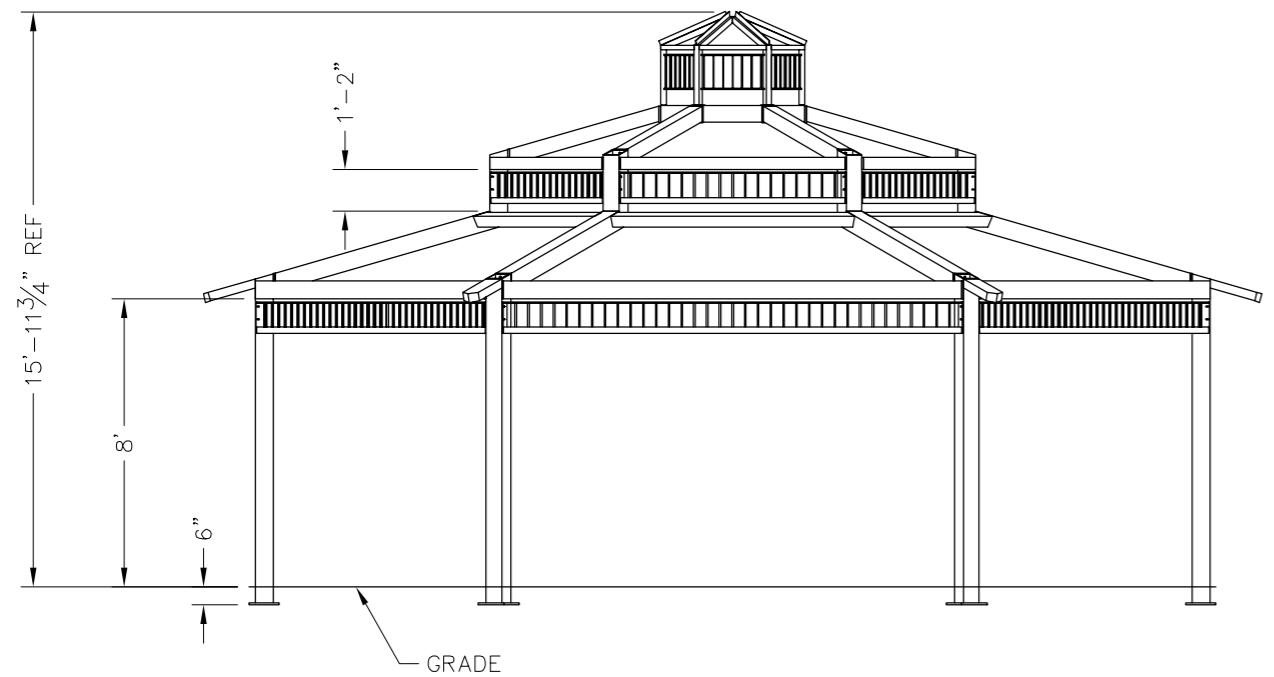
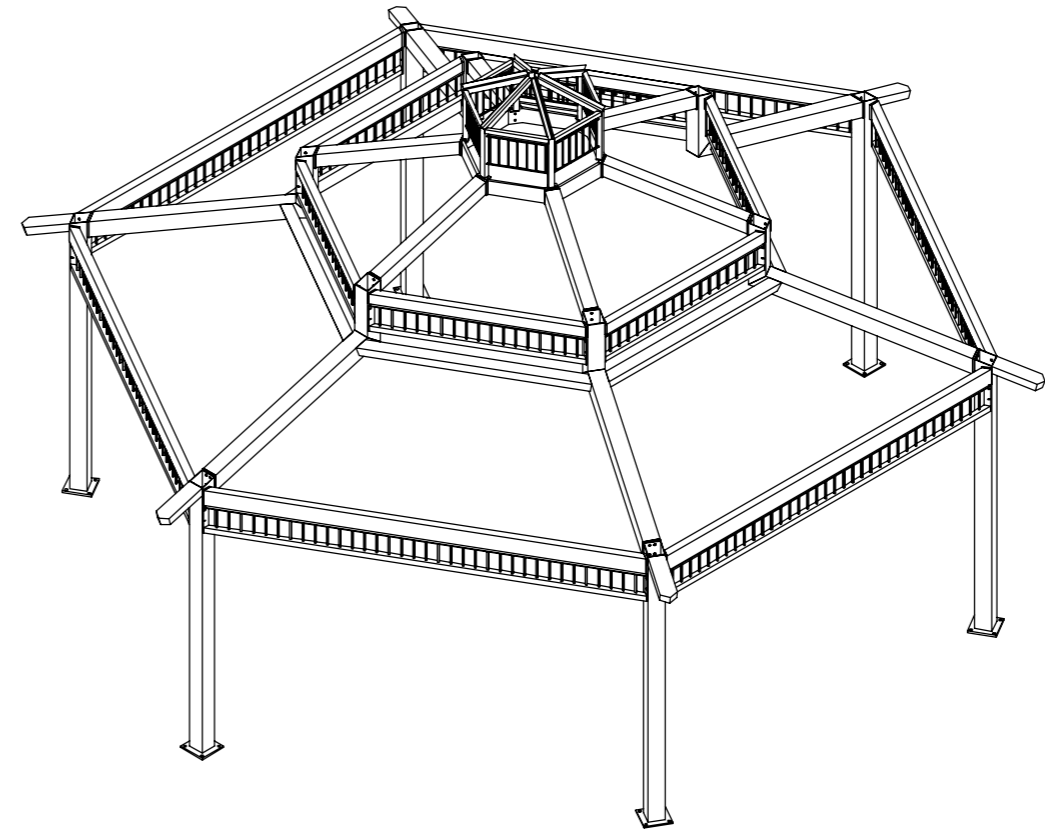
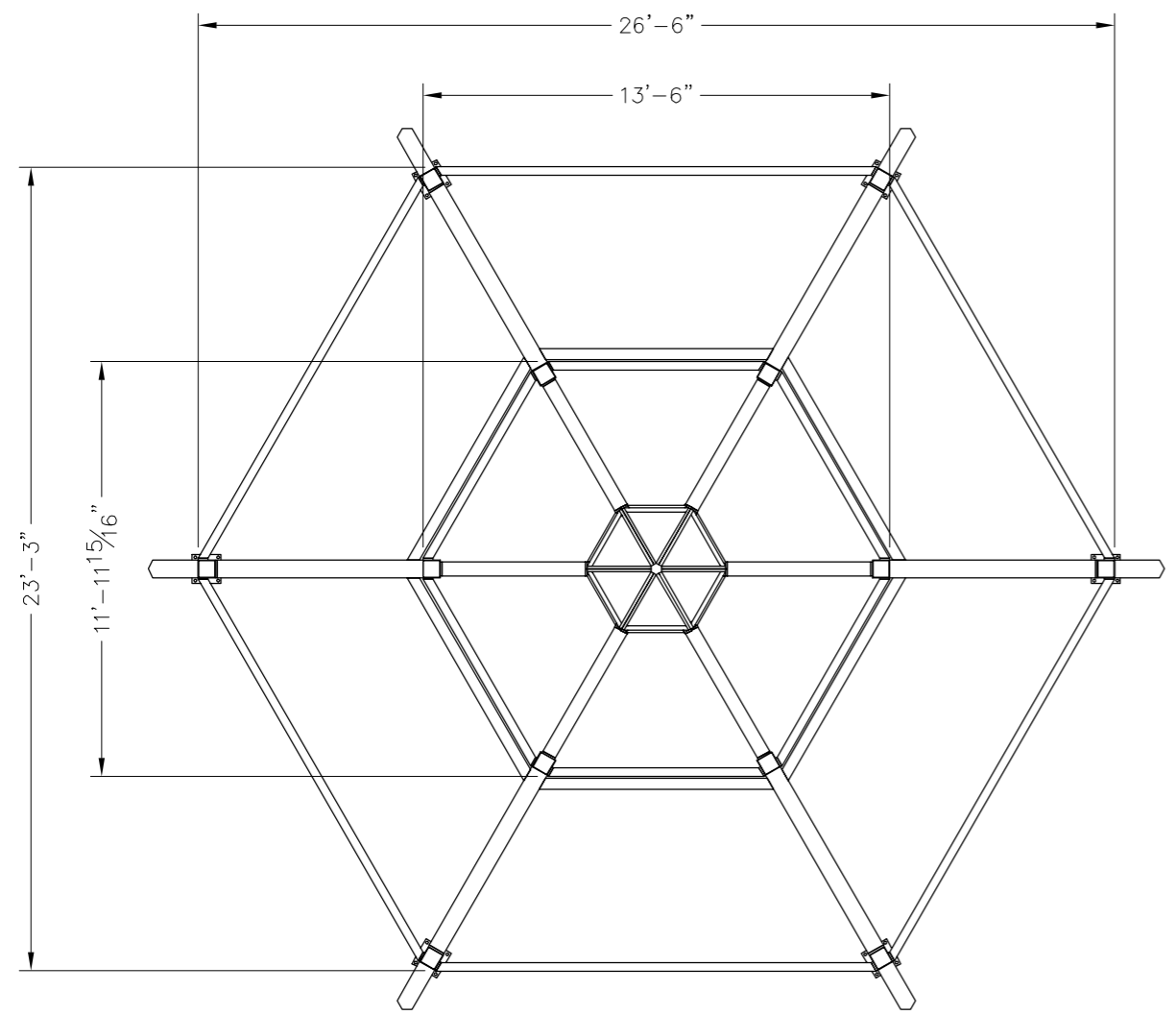
COLUMN TYPE: B (SURFACE MOUNT W/ COVERS)

SHEET  
2.0

DWG: Company\Engineering\Standards\Shelters\HX\30\TM2C-P4-30-100-35\Drawings\Preliminary\HX30TM2C-P4-30-100-35~44944.DWG

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Frame

DRAWN BY:	ACP
DATE:	6/27/2016
JOB NO.:	STANDARD
REVISION:	A
BUILDING TYPE:	HX30TM2C-P4
PROJECT NAME:	

ALL STRUCTURAL COMPONENTS WILL BE:  
 TUBE: ASTM A500 GRADE B  
 PLATE: ASTM A36  
 BOLTS: ASTM A325  
 NUTS: ASTM A563  
 WELDING: GMAW

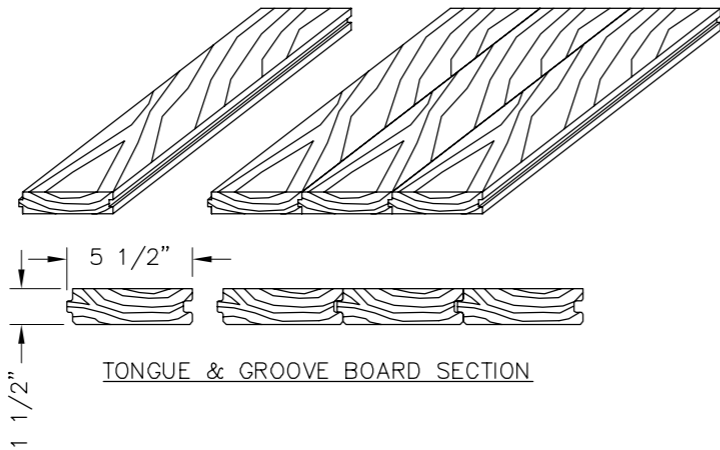
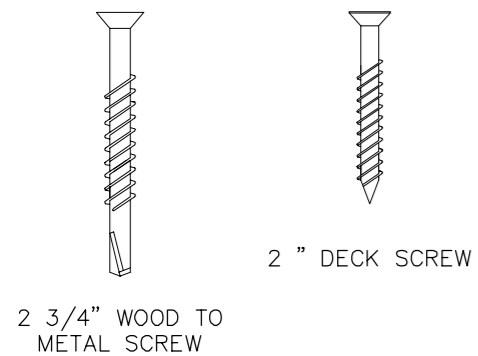
NOTE:  
 COLUMN SIZE: HSS 6x6x3/16

SHEET  
 3.0

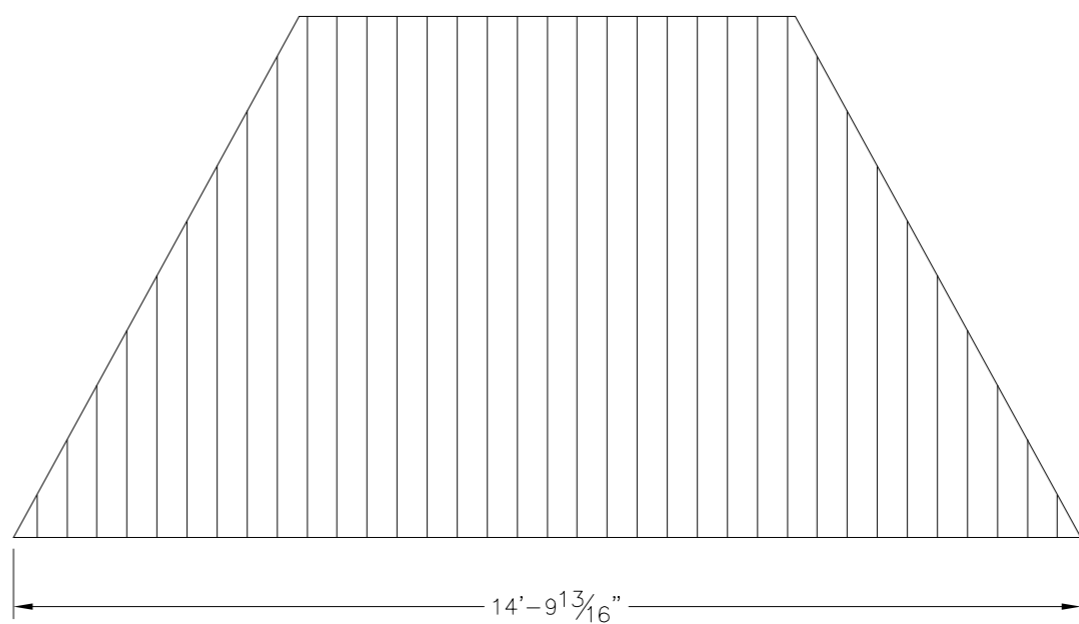
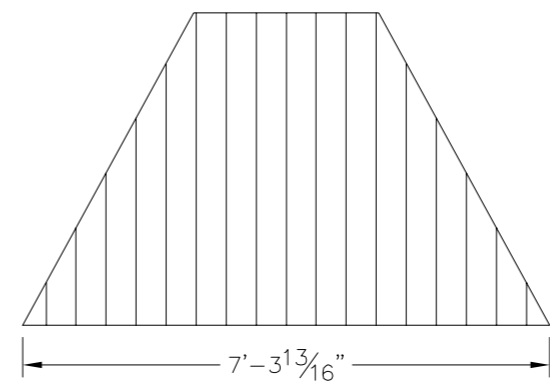
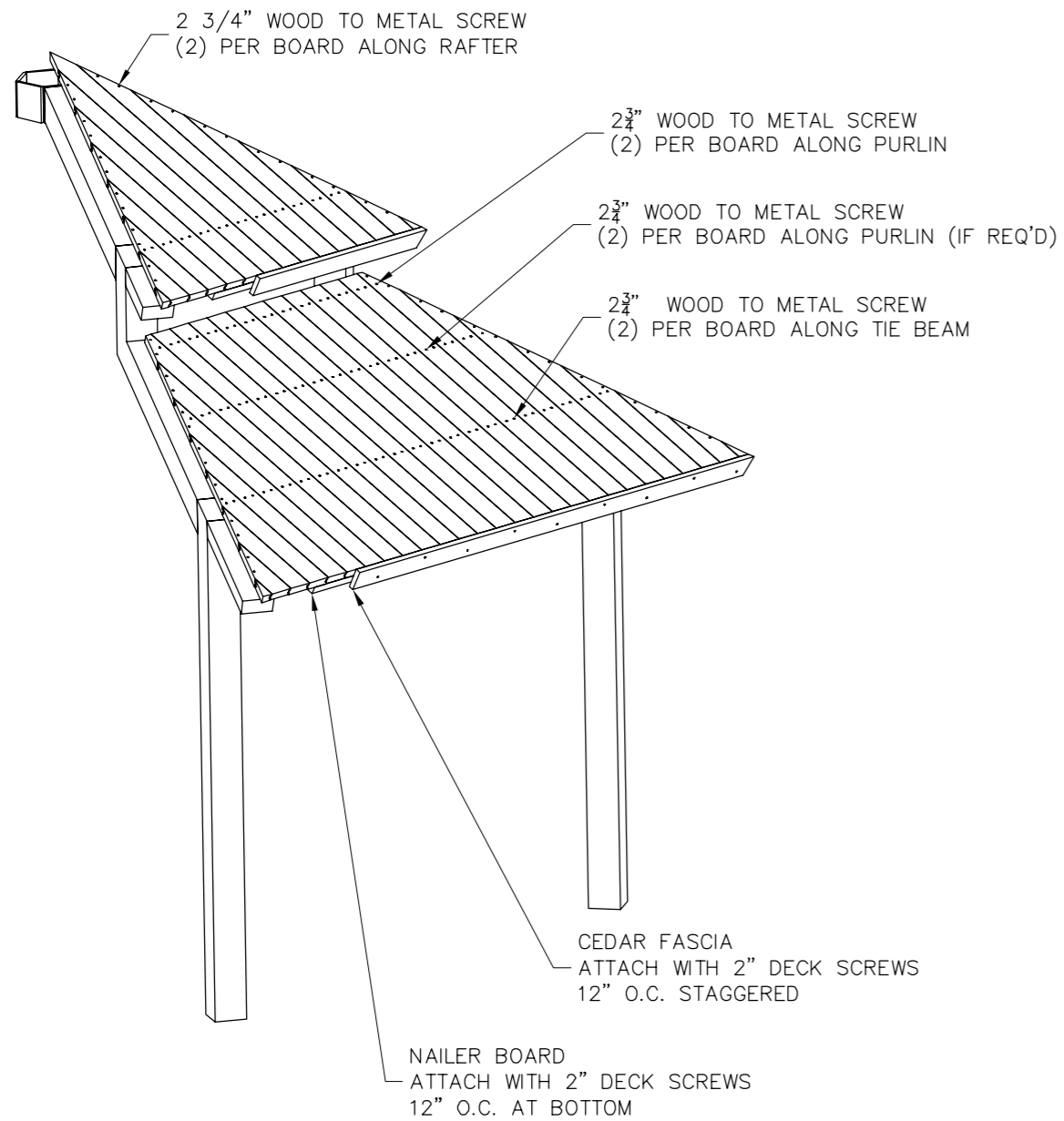
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Engineering\Acad\Standards\Blocks\Titles\ICONPRET.qd-73-01-42

FASTENERS



NOTE: STANDARD DETAILS SHOWN  
ACTUAL BUILDING MAY VARY



TONGUE & GROOVE  
PRIMARY ROOF NOT IN CONTRACT

PRELIMINARY: NOT FOR  
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Roof Layout

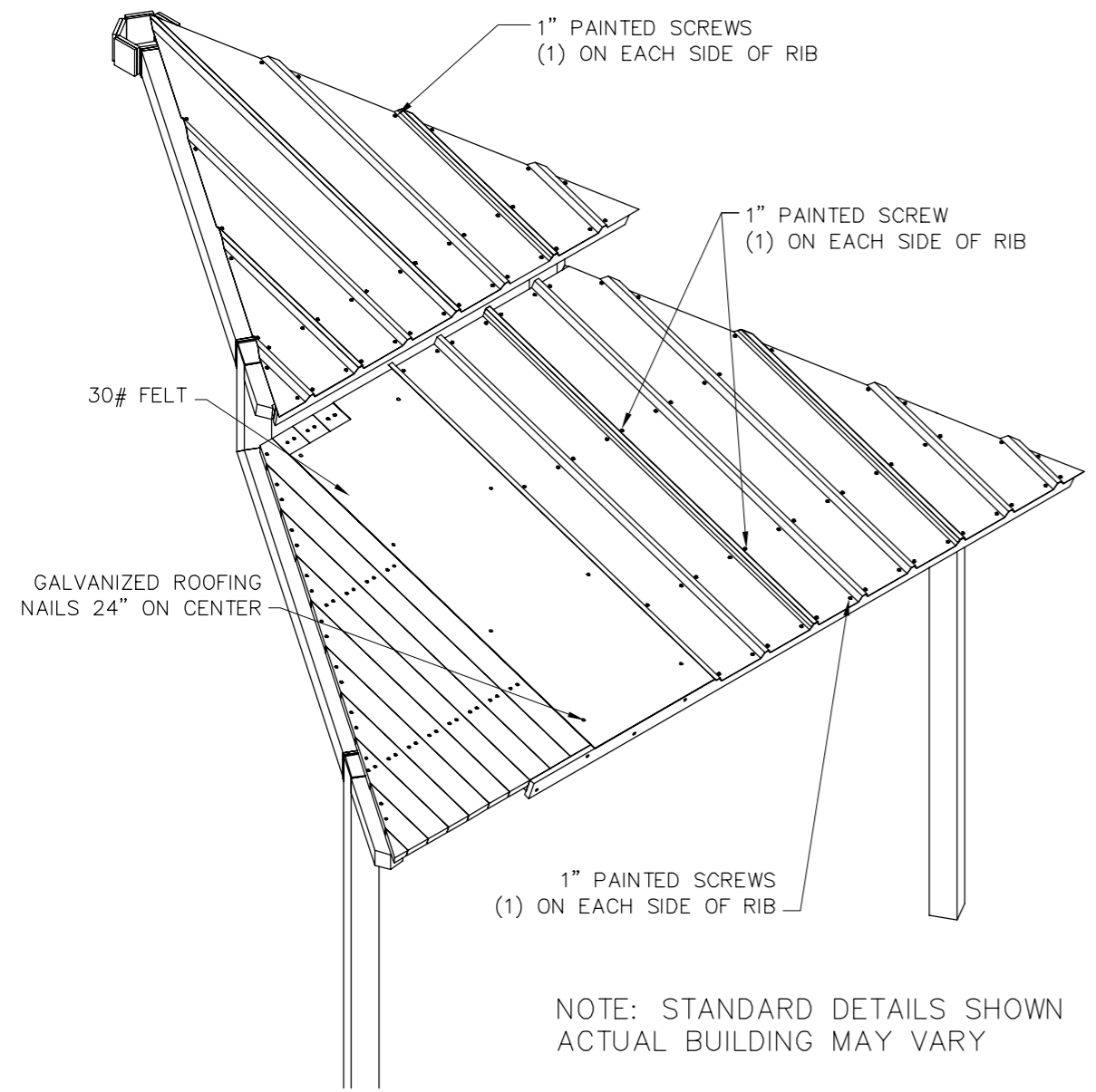
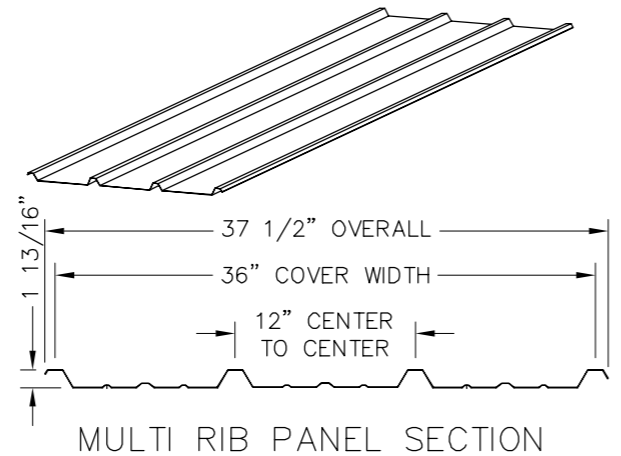
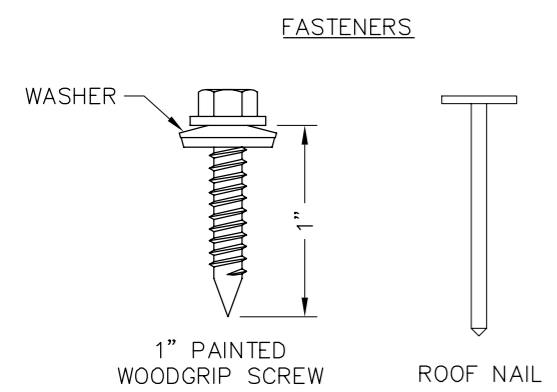
DRAWN BY:	ACP
DATE:	6/27/2016
JOB NO.:	STANDARD
REVISION:	A
BUILDING TYPE:	HX30TM2C-P4
PROJECT NAME:	

SHEET  
4.0

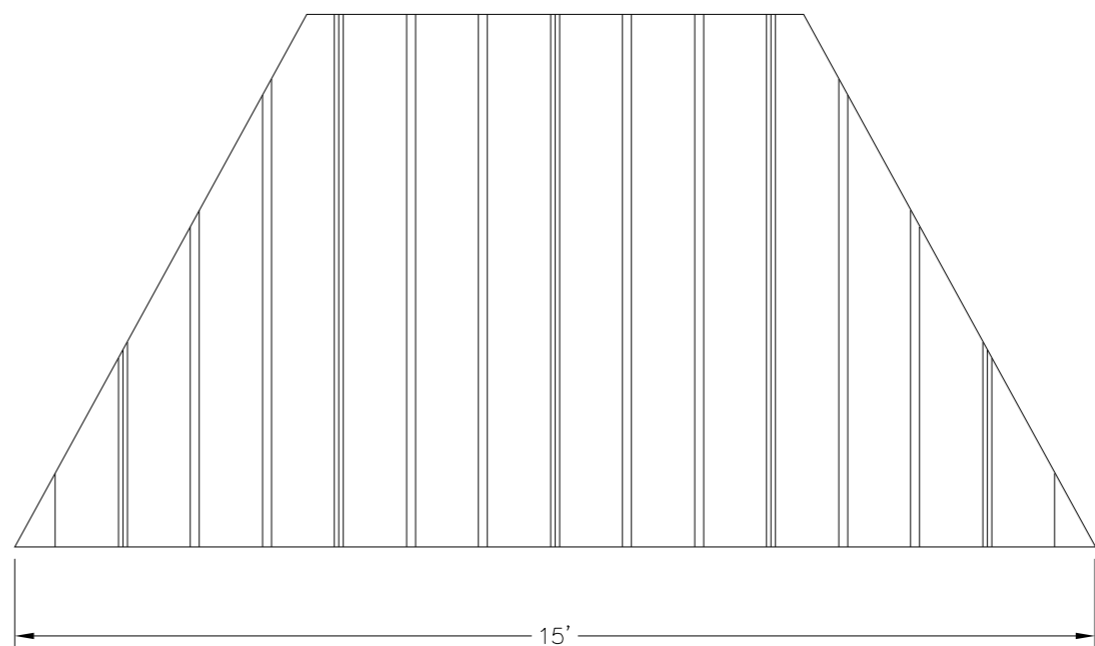
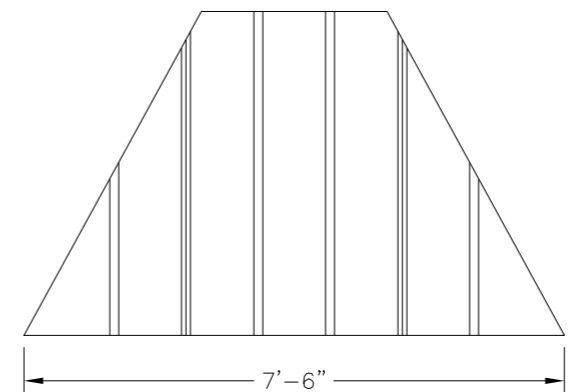
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PRELIMINARY: NOT FOR CONSTRUCTION



NOTE: STANDARD DETAILS SHOWN  
ACTUAL BUILDING MAY VARY



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Roof Layout

DRAWN BY:	ACP
DATE:	6/27/2016
JOB NO.:	STANDARD
REVISION:	A
BUILDING TYPE:	HX30TM2C-P4
PROJECT NAME:	

DWG: \Company\Engineering\Standards\Shelters\HX\30\TM2C-P4-30-100-35\Drawings\Preliminary\HX30TM2C-P4-30-100-35~44944.DWG

== CONTRACT DRAWINGS ==

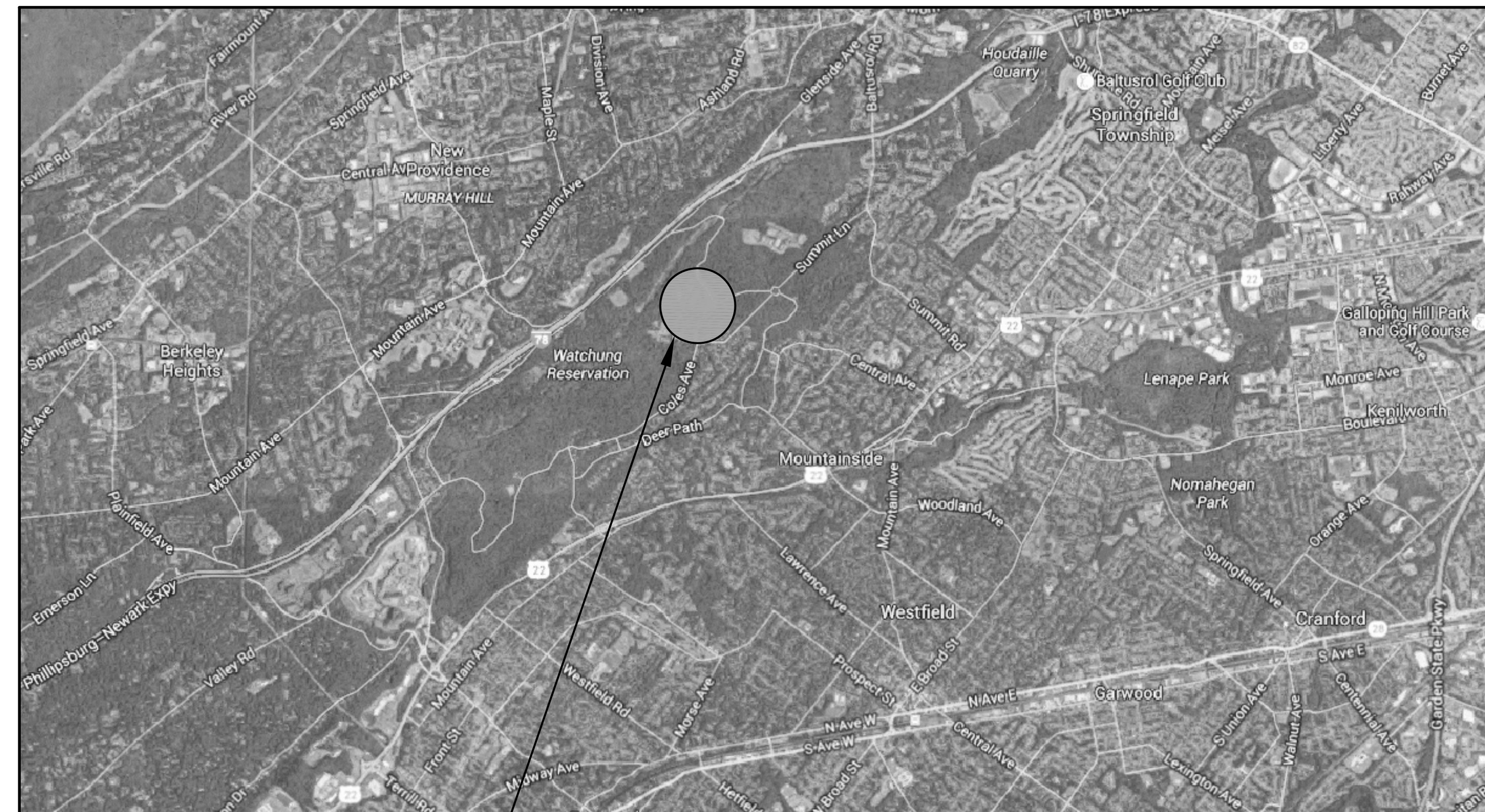
# SENSORY TRAIL IMPROVEMENTS WATCHUNG RESERVATION

## BOROUGH OF MOUNTAINSIDE UNION COUNTY, NEW JERSEY

SEPTEMBER 2016  
UNION COUNTY PROJECT NO.: 2016-006, BA NO.: 43-2016


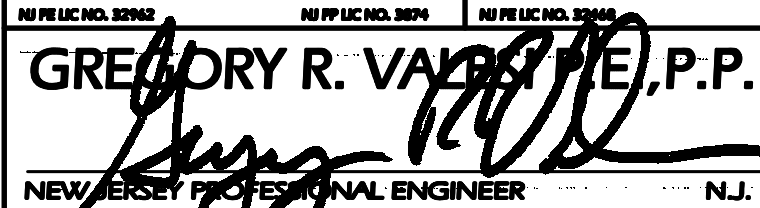
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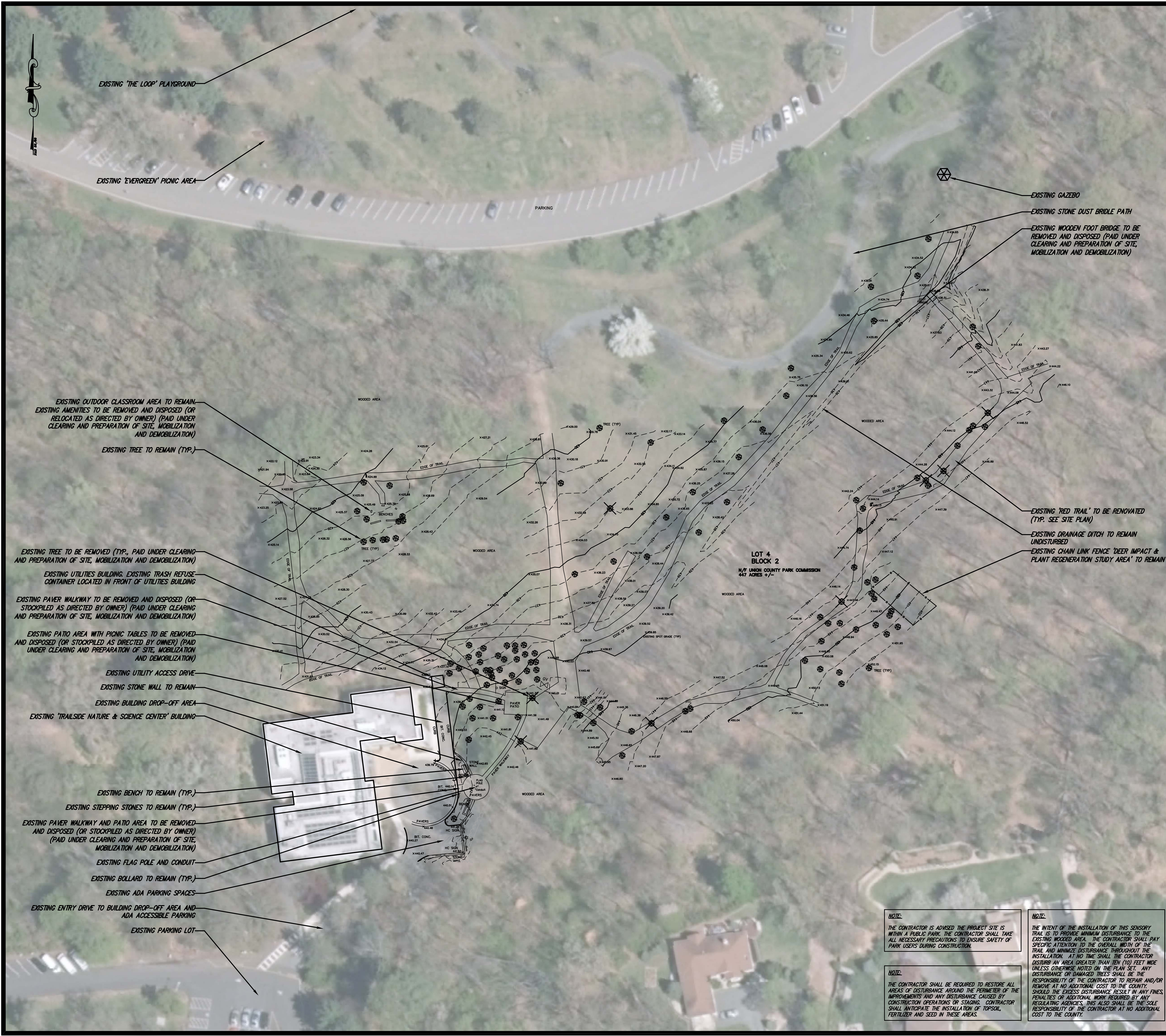
Sheet No.	Description
1	COVER & INDEX SHEET
2	EXISTING CONDITIONS & DEMOLITION PLAN
3	OVERALL SITE PLAN
4	SITE & LANDSCAPE PLAN ENLARGEMENTS
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**PROJECT LOCATION**  
N.T.S.

PROJECT LOCATION

1	REVISED FOR PROJECT BID	10/14/16	DGP	SEL
No.	DESCRIPTION OF REVISION	DATE	DRAWN	CHECKED
BOROUGH OF MOUNTAINSIDE UNION COUNTY, NEW JERSEY <b>SENSORY TRAIL IMPROVEMENTS</b> <b>WATCHUNG RESERVATION</b> COVER & INDEX SHEET				
 <b>CWE ASSOCIATES</b> CONSULTING AND MUNICIPAL ENGINEERS <small>2041 BORDENTOWN AVENUE, PARLIN, NEW JERSEY 08859 440 SOUTH ROUTE 9 SOUTH, HOBOKEN, NEW JERSEY 07030-1014</small>				
JOHN H. ALLGAR P.E., P.P. <small>(1989-2011) NJ P.E. NO. 32962</small>	DAVID J. SAMUEL P.E., P.P. <small>NJ P.E. NO. 32969</small>	JOHN J. STEFANI P.E., L.S. & P.P. <small>NJ P.E. NO. 32971</small>		
JAY B. CORNELL P.E., P.P. <small>NJ P.E. NO. 32962</small>	MICHAEL J. MCCLELLAND P.E., P.P. <small>NJ P.E. NO. 32969</small>	GREGORY R. VALES P.E., P.P. <small>NJ P.E. NO. 34488</small>		
GREGORY R. VALES, P.P.  NEW JERSEY PROFESSIONAL ENGINEER N.J. LIC. 34458			SCALE AS SHOWN	DRAWN BY DGP
			CHECKED BY TT	DATE SEP 2016
			SHEET 1 OF 10	DRAWING NO. UN206.01



- GENERAL CONSTRUCTION NOTES:**
1. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS NECESSARY FOR CONSTRUCTION IN ACCORDANCE WITH EXISTING LOCAL, COUNTY OR STATE REGULATIONS, OR ANY OTHER AGENCY HAVING JURISDICTION IN THESE MATTERS.
  2. THE CONTRACTOR IS RESPONSIBLE FOR AND SHALL VERIFY ALL DIMENSIONS AND DETAILS BEFORE PROCEEDING WITH WORK; ANY DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ENGINEER.
  3. ALL REGRADED AREAS AT THE SITE WHICH ARE NOT DESIGNATED AS PAVED OR GRAVEL AREAS SHALL BE TOPSOILED AND SEEDED AND SHALL BE STABILIZED IN ACCORDANCE WITH STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY AND THE CONTRACT SPECIFICATIONS.
  4. THE CONTRACTOR SHALL MAINTAIN THE FLOW OF ALL STREAMS, DRAINAGE DITCHES, STORM SEWERS AND SANITARY SEWERS AT ALL TIMES BY A MEANS ACCEPTABLE TO THE ENGINEER AND ALL THE RESPONSIBLE AGENCIES.
  5. THE CONTRACTOR SHALL MAINTAIN ALL UTILITY SERVICE FLOWS AND PRESSURES UNLESS WRITTEN APPROVAL BY THE RESPONSIBLE UTILITY PERMITS HIM TO DO OTHERWISE.
  6. EXISTING UTILITY INFORMATION SHOWN HEREON HAS BEEN COLLECTED FROM VARIOUS SOURCES AND IS NOT GUARANTEED AS TO ACCURACY OR COMPLETENESS. THE CONTRACTOR SHALL VERIFY ALL INFORMATION TO HIS SATISFACTION PRIOR TO EXCAVATION. WHERE EXISTING UTILITIES ARE TO BE CROSSED BY PROPOSED CONSTRUCTION, TEST PITS SHALL BE DUG BY THE CONTRACTOR PRIOR TO CONSTRUCTION TO ASCERTAIN EXISTING INVERTS, MATERIALS AND SIZES. TEST PIT INFORMATION SHALL BE GIVEN TO THE ENGINEER PRIOR TO CONSTRUCTION TO PERMIT ADJUSTMENTS AS REQUIRED TO AVOID CONFLICTS.
  7. THE CONTRACTOR SHALL NOTIFY THE UNDERSIGNED PROFESSIONAL IMMEDIATELY IF ANY FIELD CONDITIONS ENCOUNTERED DIFFER MATERIALLY FROM THOSE REPRESENTED HEREON, AND/OR IF SUCH CONDITIONS, IN THE CONTRACTOR'S OPINION, WOULD OR COULD RENDER THE DESIGNS SHOWN HEREON INAPPROPRIATE OR INEFFECTIVE.
  8. ALL GRADING OPERATIONS SHALL PROVIDE FOR POSITIVE DRAINAGE AWAY FROM ALL STRUCTURES AND ELIMINATE PONDING AREAS.
  9. THE COORDINATION OF THE LOCATION OR RELOCATION WHERE REQUIRED OF TELEPHONE, ELECTRIC, GAS AND WATER FACILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR AND SAME SHALL BE COORDINATED TO INSURE COMPLETION WITHIN THE TIME PERMITTED.
  10. THE CONTRACTOR IS RESPONSIBLE TO MAINTAIN MEANS OF SAFE INGRESS AND EGRESS TO VISITORS THROUGHOUT THE COURSE OF THE WORK AND TO PROVIDE FOR THE SAFE MAINTENANCE AND PROTECTION OF TRAFFIC.
  11. THE CONTRACTOR IS ADVISED THAT HE SHALL EXERCISE EXTREME CARE WHEN WORKING NEAR EXISTING WATER, SEWER AND GAS MAINS IN THE PROJECT AREA.
  12. AT CERTAIN TIMES, THE SITE MAY BE OCCUPIED BY SEVERAL CONTRACTORS AND IT IS, THEREFORE, REQUIRED FOR ANY AND ALL CONTRACTORS OCCUPYING THE SITE TO COOPERATE WITH ONE ANOTHER. NO DELAYS RESULTING FROM MULTIPLE CONTRACTORS WORKING ON THE SITE WILL BE CONSIDERED.
  13. THE CONTRACTOR WILL NOT BE PERMITTED TO STOCKPILE EXCAVATED MATERIALS OVER ANY UTILITY LINES. THE STOCKPILED MATERIALS SHOULD BE PLACED SUFFICIENTLY AWAY FROM THE EDGE OF ANY EXCAVATION TO PREVENT CAVING OF THE TRENCH WALL AND TO PERMIT SAFE ACCESS ALONG THE TRENCH. WITH SHEETED TRENCHES, A MINIMUM OF FIVE (5) FEET FROM THE EDGE OF SHEETING TO TOE OF SOIL BANK MUST BE MAINTAINED.
  14. THE CONTRACTOR SHALL TAKE EVERY PRECAUTION NECESSARY TO PRECLUDE DAMAGE TO EXISTING STRUCTURES, FACILITIES, AND UTILITIES DUE TO LOSS OF LATERAL SUPPORT AND/OR CONSTRUCTION LOADINGS.
  15. THE CONTRACTOR SHALL COMPLY WITH ALL REQUIREMENTS OF THE STATE OF NEW JERSEY WORKER HEALTH AND SAFETY ACT (NJAC 12:110 ET SEQ) AS AMENDED AND THE UNITED STATES OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA), (29 CFR 1910), AS AMENDED WITH REGARD TO WORKER AND JOB SITE SAFETY.
  16. THE CONTRACTOR MUST ARRANGE TO HAVE ALL UNDERGROUND MARKED OUT BY THE RESPECTIVE UTILITY COMPANIES PRIOR TO EXCAVATION.
  17. THE CONTRACTOR'S ATTENTION IS DRAWN TO THE SPECIAL PROVISIONS SECTION OF THE SPECIFICATIONS RELATED TO THE SPECIFIC REQUIREMENTS AND PROVISIONS FOR THIS PROJECT.
  18. IF AND WHERE REQUIRED, IMPORTED FILL SHALL BE CLEAN, FREE OF DEBRIS BANK RUN SAND AS DEFINED BY CONTRACT SPECIFICATIONS.
  19. THE CONTRACTOR'S LICENSED SURVEYOR SHALL BE RESPONSIBLE TO PROVIDE THE CONSTRUCTION STAKE-OUT FOR THE PROJECT. CONTROL TO BE PROVIDED BY DESIGN ENGINEER.
  20. ANY WORK FOR WHICH THERE IS NOT A SPECIFIC BID ITEM SHALL BE INCLUDED UNDER "CLEARING AND PREPARATION OF SITE, MOBILIZATION AND DEMOBILIZATION".

**CONSTRUCT**  
 1 LS Clearing and Preparation of Site, Mobilization, and Demobilization

**NOTE:**  
 THE CONTRACTOR IS ADVISED THE PROJECT SITE IS WITHIN A PUBLIC PARK. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO ENSURE SAFETY OF PARK USERS DURING CONSTRUCTION.

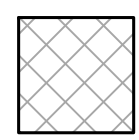
**NOTE:**  
 THE INTENT OF THE INSTALLATION OF THIS SENSORY TRAIL IS TO PROVIDE MINIMUM DISTURBANCE TO THE EXISTING WOODED AREA. THE CONTRACTOR SHALL PAY SPECIFIC ATTENTION TO THE OVERALL WIDTH OF THE TRAIL AND MINIMIZE DISTURBANCE THROUGHOUT THE INSTALLATION. AT NO TIME SHALL THE CONTRACTOR DISTURB AN AREA GREATER THAN TEN (10) FEET WIDE UNLESS OTHERWISE NOTED ON THE PLAN SET. ANY DISTURBANCE OR DAMAGED TREES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR AND/OR REMOVE AT NO ADDITIONAL COST TO THE COUNTY. SHOULD THE EXCESS DISTURBANCE RESULT IN ANY FINES, PENALTIES OR ADDITIONAL WORK REQUIRED BY ANY REGULATING AGENCIES, THIS ALSO SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AT NO ADDITIONAL COST TO THE COUNTY.

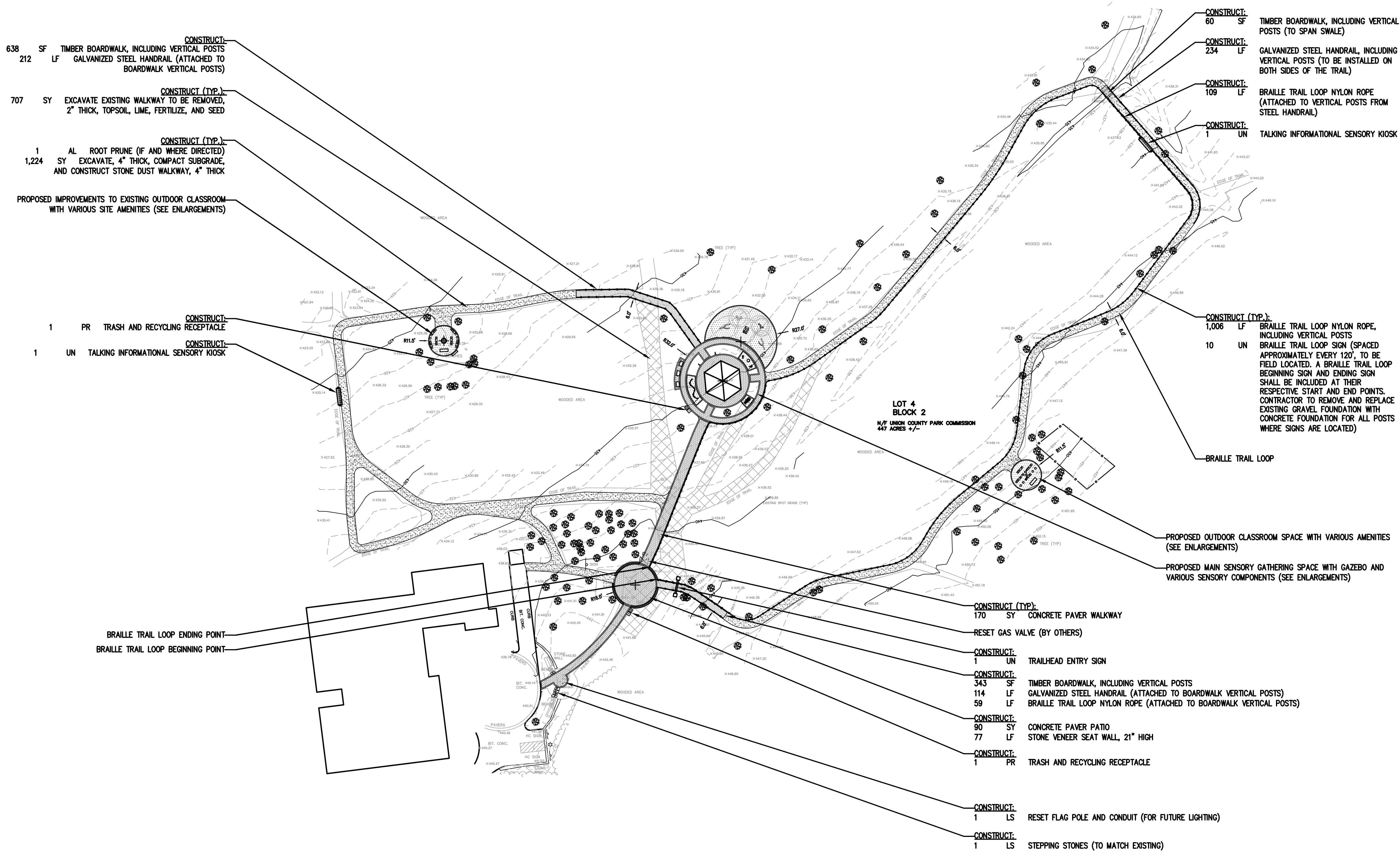
**NOTE:**  
 THE CONTRACTOR SHALL BE REQUIRED TO RESTORE ALL AREAS OF DISTURBANCE AROUND THE PERIMETER OF THE IMPROVEMENTS AND ANY DISTURBANCE CAUSED BY CONSTRUCTION OPERATIONS OR STAGING. CONTRACTOR SHALL ANTICIPATE THE INSTALLATION OF TOPSOIL, FERTILIZER AND SEED IN THESE AREAS.

No.	DESCRIPTION OF REVISION	DATE	DRAWN	CHECKED
	BOROUGH OF MOUNTAINSIDE UNION COUNTY, NEW JERSEY <b>SENSORY TRAIL IMPROVEMENTS</b> <b>WATCHUNG RESERVATION</b> EXISTING CONDITIONS & DEMOLITION PLAN			
241 BORDENTOWN AVENUE, PARLIN, NEW JERSEY 08859-1440 ROUTE 9 SOUTH, HOBOKEN, NEW JERSEY 07030-1914				
JOHN H. ALLGAR P.E., P.P. (P. 188-1891)	DANIEL J. SAMUEL P.E., P.P. (P. 188-1891)	JOHN J. STEFANI P.E., L.S. & P.P. (P. 188-1891)		
JAY B. CORNELL P.E., P.P. (P. 188-1891)	MICHAEL J. MCLELAND P.E., P.P. (P. 188-1891)	GREGORY R. VALES P.E., P.P. (P. 188-1891)		
<b>GREGORY R. VALES P.E., P.P.</b> 				
NEW JERSEY PROFESSIONAL ENGINEER N.J. LIC. 34456				
SCALE <b>1" = 40'</b>		COUNTY <b>DGP</b>		
DESIGNED BY <b>DGP</b>		CHECKED BY <b>TT</b>		
DATE <b>SEP 2016</b>		SHEET <b>2 OF 10</b>		
DRAWING NO. <b>UN206.01</b> EX-COND ZU				



**LEGEND:**

 EXCAVATE EXISTING WALKWAY TO BE REMOVED, 2" THICK, TOPSOIL, LIME, FERTILIZE, AND SEED



- 638 SF TIMBER BOARDWALK, INCLUDING VERTICAL POSTS
- 212 LF GALVANIZED STEEL HANDRAIL (ATTACHED TO BOARDWALK VERTICAL POSTS)
- 707 SY EXCAVATE EXISTING WALKWAY TO BE REMOVED, 2" THICK, TOPSOIL, LIME, FERTILIZE, AND SEED
- 1 AL ROOT PRUNE (IF AND WHERE DIRECTED)
- 1,224 SY EXCAVATE, 4" THICK, COMPACT SUBGRADE, AND CONSTRUCT STONE DUST WALKWAY, 4" THICK

PROPOSED IMPROVEMENTS TO EXISTING OUTDOOR CLASSROOM WITH VARIOUS SITE AMENITIES (SEE ENLARGEMENTS)

- 1 PR TRASH AND RECYCLING RECEPTACLE
- 1 UN TALKING INFORMATIONAL SENSORY KIOSK

- CONSTRUCT: 60 SF TIMBER BOARDWALK, INCLUDING VERTICAL POSTS (TO SPAN SWALE)
- CONSTRUCT: 234 LF GALVANIZED STEEL HANDRAIL, INCLUDING VERTICAL POSTS (TO BE INSTALLED ON BOTH SIDES OF THE TRAIL)
- CONSTRUCT: 109 LF BRAILLE TRAIL LOOP NYLON ROPE (ATTACHED TO VERTICAL POSTS FROM STEEL HANDRAIL)
- CONSTRUCT: 1 UN TALKING INFORMATIONAL SENSORY KIOSK

- CONSTRUCT (TYP.): 1,006 LF BRAILLE TRAIL LOOP NYLON ROPE, INCLUDING VERTICAL POSTS
- 10 UN BRAILLE TRAIL LOOP SIGN (SPACED APPROXIMATELY EVERY 120', TO BE FIELD LOCATED. A BRAILLE TRAIL LOOP BEGINNING SIGN AND ENDING SIGN SHALL BE INCLUDED AT THEIR RESPECTIVE START AND END POINTS. CONTRACTOR TO REMOVE AND REPLACE EXISTING GRAVEL FOUNDATION WITH CONCRETE FOUNDATION FOR ALL POSTS WHERE SIGNS ARE LOCATED)

- CONSTRUCT (TYP.): 170 SY CONCRETE PAVER WALKWAY
- RESET GAS VALVE (BY OTHERS)
- CONSTRUCT: 1 UN TRAILHEAD ENTRY SIGN
- CONSTRUCT: 343 SF TIMBER BOARDWALK, INCLUDING VERTICAL POSTS
- 114 LF GALVANIZED STEEL HANDRAIL (ATTACHED TO BOARDWALK VERTICAL POSTS)
- 59 LF BRAILLE TRAIL LOOP NYLON ROPE (ATTACHED TO BOARDWALK VERTICAL POSTS)
- CONSTRUCT: 90 SY CONCRETE PAVER PATIO
- 77 LF STONE VENEER SEAT WALL, 21" HIGH
- CONSTRUCT: 1 PR TRASH AND RECYCLING RECEPTACLE
- CONSTRUCT: 1 LS RESET FLAG POLE AND CONDUIT (FOR FUTURE LIGHTING)
- CONSTRUCT: 1 LS STEPPING STONES (TO MATCH EXISTING)

**NOTE:**  
THE CONTRACTOR IS ADVISED THE PROJECT SITE IS WITHIN A PUBLIC PARK. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO ENSURE SAFETY OF PARK USERS DURING CONSTRUCTION.

**NOTE:**  
CONTRACTOR IS ADVISED MINIMAL DISTURBANCE IS ANTICIPATED ALONG THE ENTIRE LENGTH OF THE SENSORY TRAIL. CONTRACTOR SHALL MAINTAIN EXISTING GRADING OF THE TRAIL AND SURROUNDING AREAS, UNLESS OTHERWISE NOTED ON THE PLAN SET.

**NOTE:**  
THE CONTRACTOR SHALL BE REQUIRED TO RESTORE ALL AREAS OF DISTURBANCE AROUND THE PERIMETER OF THE IMPROVEMENTS AND ANY DISTURBANCE CAUSED BY CONSTRUCTION OPERATIONS OR STAGING. CONTRACTOR SHALL ANTICIPATE THE INSTALLATION OF TOPSOIL, FERTILIZER AND SEED IN THESE AREAS.

**NOTE:**  
THE LOCATION OF THE SENSORY TRAIL IS APPROXIMATE AND SHALL BE FINALIZED IN THE FIELD DURING CONSTRUCTION. THE INTENT IS TO UTILIZE THE EXISTING TRAIL ALIGNMENT AS A GUIDE, HOWEVER THE FINAL LOCATION CAN SHIFT WHERE NECESSARY TO LIMIT DISTURBANCE AND TREE REMOVAL.

**NOTE:**  
THE INTENT OF THE INSTALLATION OF THIS SENSORY TRAIL IS TO PROVIDE MINIMAL DISTURBANCE TO THE EXISTING WOODED AREA. THE CONTRACTOR SHALL PAY SPECIFIC ATTENTION TO THE OVERALL WIDTH OF THE TRAIL AND MINIMIZE DISTURBANCE THROUGHOUT THE INSTALLATION. AT NO TIME SHALL THE CONTRACTOR DISTURB AN AREA GREATER THAN TEN (10) FEET WIDE UNLESS OTHERWISE NOTED ON THE PLAN SET. ANY DISTURBANCE OR DAMAGED TREES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR AND/OR REMOVE AT NO ADDITIONAL COST TO THE COUNTY. SHOULD THE EXCESS DISTURBANCE RESULT IN ANY FINES, PENALTIES OR ADDITIONAL WORK REQUIRED BY ANY REGULATING AGENCIES, THIS ALSO SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AT NO ADDITIONAL COST TO THE COUNTY.

**CONSTRUCT**

- 707 SY Excavate Existing Walkway to be Removed, 2" Thick, Topsoil, Lime, Fertilize, and Seed
- 1 AL Root Prune (if and where directed)
- 1,224 SY Excavate, 4" Thick, Compact Subgrade, and Construct Stone Dust Walkway, 4" Thick, Including Filter Fabric
- 2 UN Talking Informational Sensory Kiosk, including Concrete Foundations
- 1 LS Stepping Stones (to match existing)
- 1 LS Reset Flag Pole and Conduit (for future lighting)
- 2 PR Trash and Recycling Receptacle, including Concrete Foundations
- 77 LF Stone Veneer Seat Wall, 21" High, including Concrete Footing
- 90 SY Concrete Paver Patio, including Sub-base
- 170 SY Concrete Paver Walkway, including Sub-base
- 1,041 SF Timber Boardwalk, including Vertical Posts and Concrete Foundations
- 234 LF Galvanized Steel Handrail including Vertical Posts and Concrete Foundations
- 326 LF Galvanized Steel Handrail

**CONSTRUCT, ALTERNATE-1**

- 1,006 LF Braille Trail Loop Nylon Rope, including Vertical Posts and Gravel Foundations

**CONSTRUCT, ALTERNATE-2**


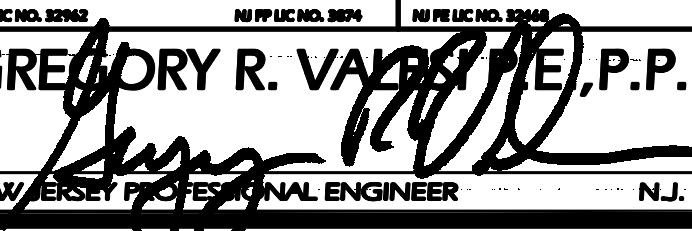
- 168 LF Braille Trail Loop Nylon Rope

**CONSTRUCT, ALTERNATE-3**

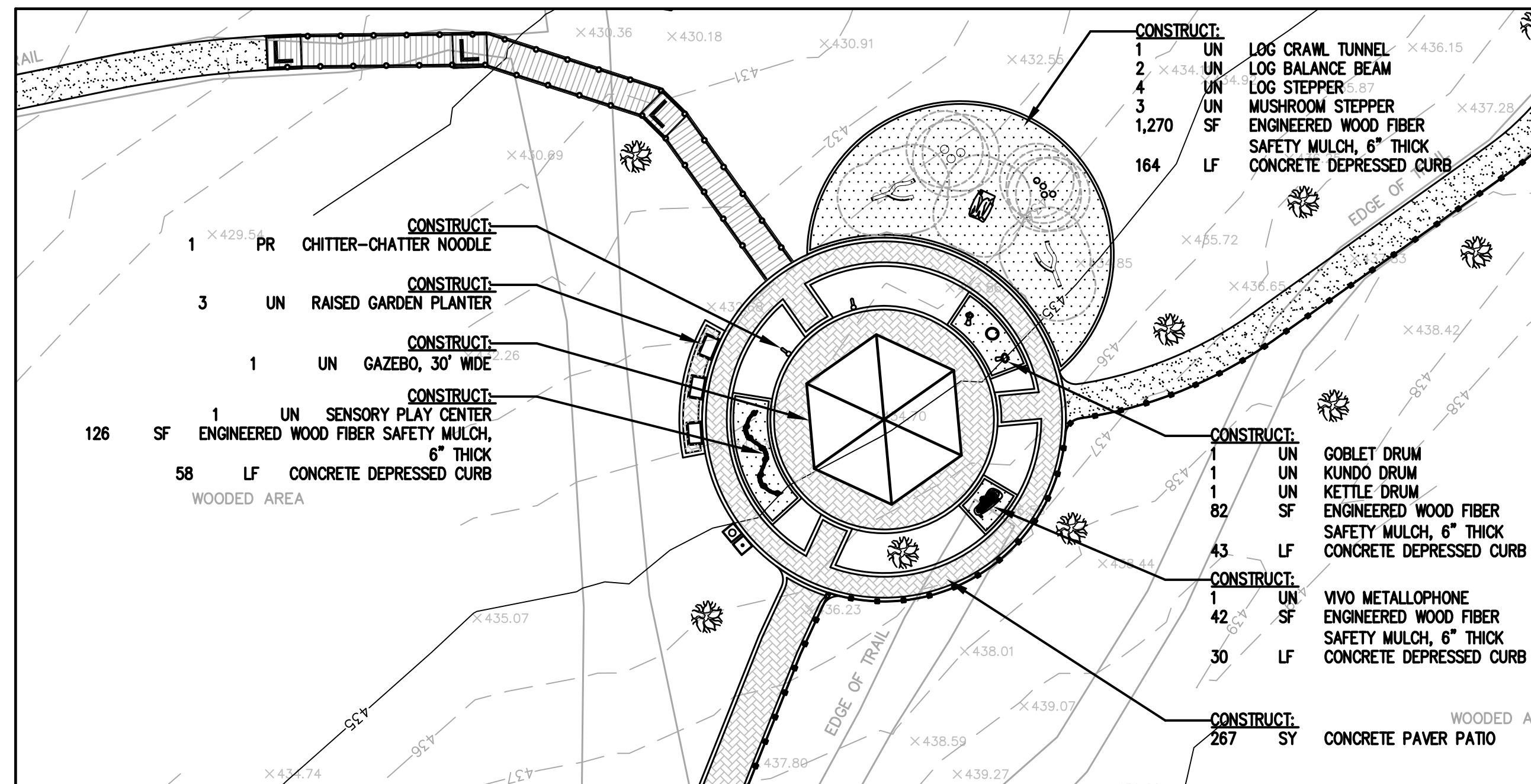
- 10 UN Braille Trail Loop Sign, including Concrete Foundation

**CONSTRUCT, ALTERNATE-4**

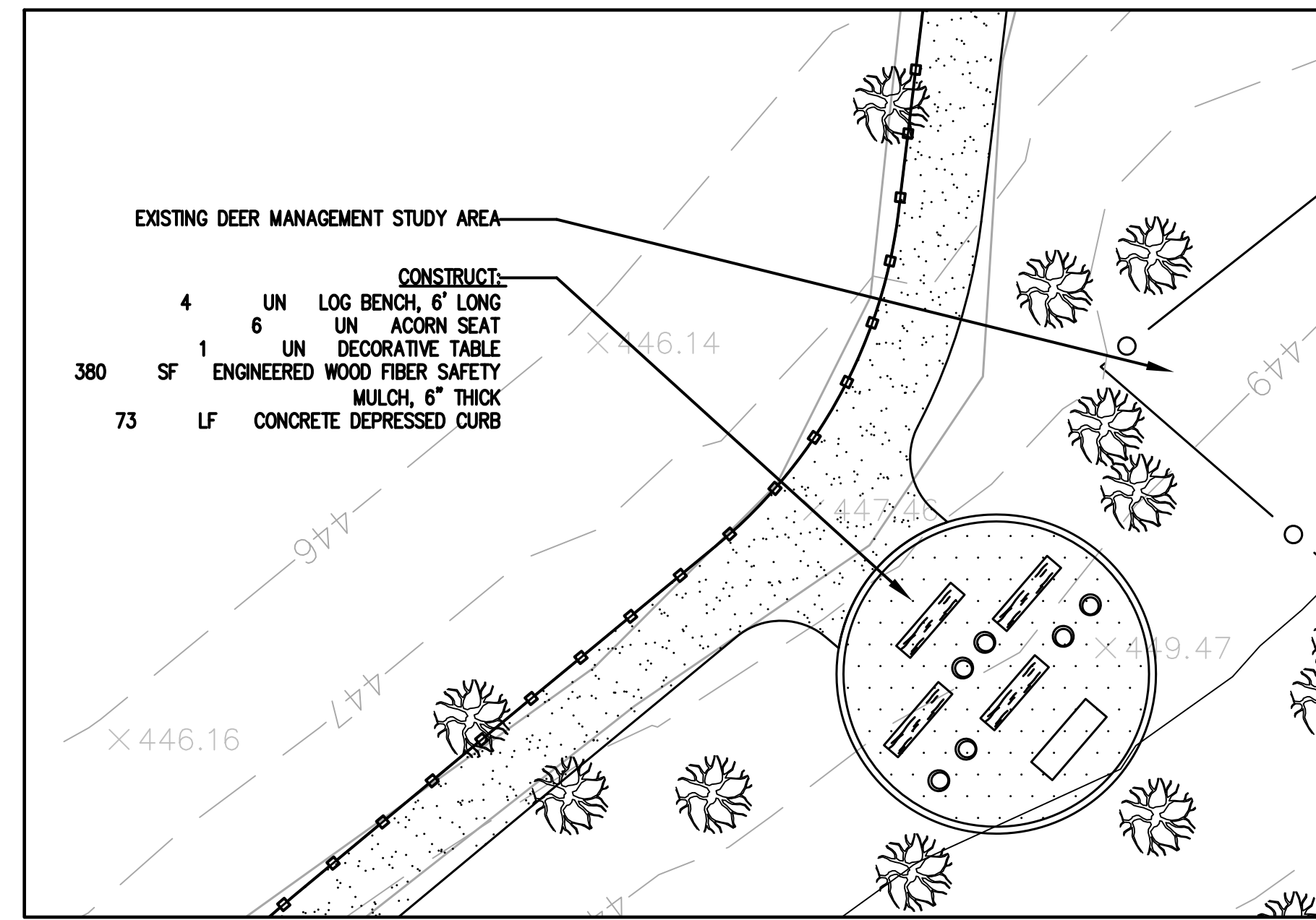
- 1 UN Trailhead Entry Sign, including Concrete Foundations

No.	DESCRIPTION OF REVISION	DATE	DRAWN	CHECKED
BOROUGH OF MOUNTAINSIDE UNION COUNTY, NEW JERSEY <b>SENSORY TRAIL IMPROVEMENTS</b> <b>WATCHUNG RESERVATION</b> OVERALL SITE PLAN				
 <b>CONSULTING AND MUNICIPAL ENGINEERS</b> <small>3941 BORDENTOWN AVENUE, PARLIN, NEW JERSEY 08859 - 440 ROUTE 9 SOUTH, HOBOKEN, NEW JERSEY 07030-1914</small>				
JOHN H. ALLGAR P.E., P.P. <small>(1981-2011) NO P.E. NO. 32969</small>	DAVID J. SAMUEL P.E., P.P. <small>NO P.E. NO. 32969</small>	JOHN J. STEFANI P.E., L.S. & P.P. <small>NO P.E. NO. 32921 NO P.E. NO. 32969</small>		
JAY B. CORNELL P.E., P.P. <small>NO P.E. NO. 32969</small>	MICHAEL J. McCLELLAND P.E., P.P. <small>NO P.E. NO. 32969</small>	GREGORY R. VALES P.E., P.P. <small>NO P.E. NO. 34488 NO P.E. NO. 4281</small>		
<b>GREGORY R. VALES, P.P.</b>  <small>NEW JERSEY PROFESSIONAL ENGINEER N.J. LIC. 34458</small>			SCALE <b>1" = 40'</b>	DESIGN BY <b>DGP</b>
			DESIGNED BY <b>DGP</b>	CHECKED BY <b>TT</b>
			DATE <b>SEP 2016</b>	SHEET <b>3 OF 10</b>

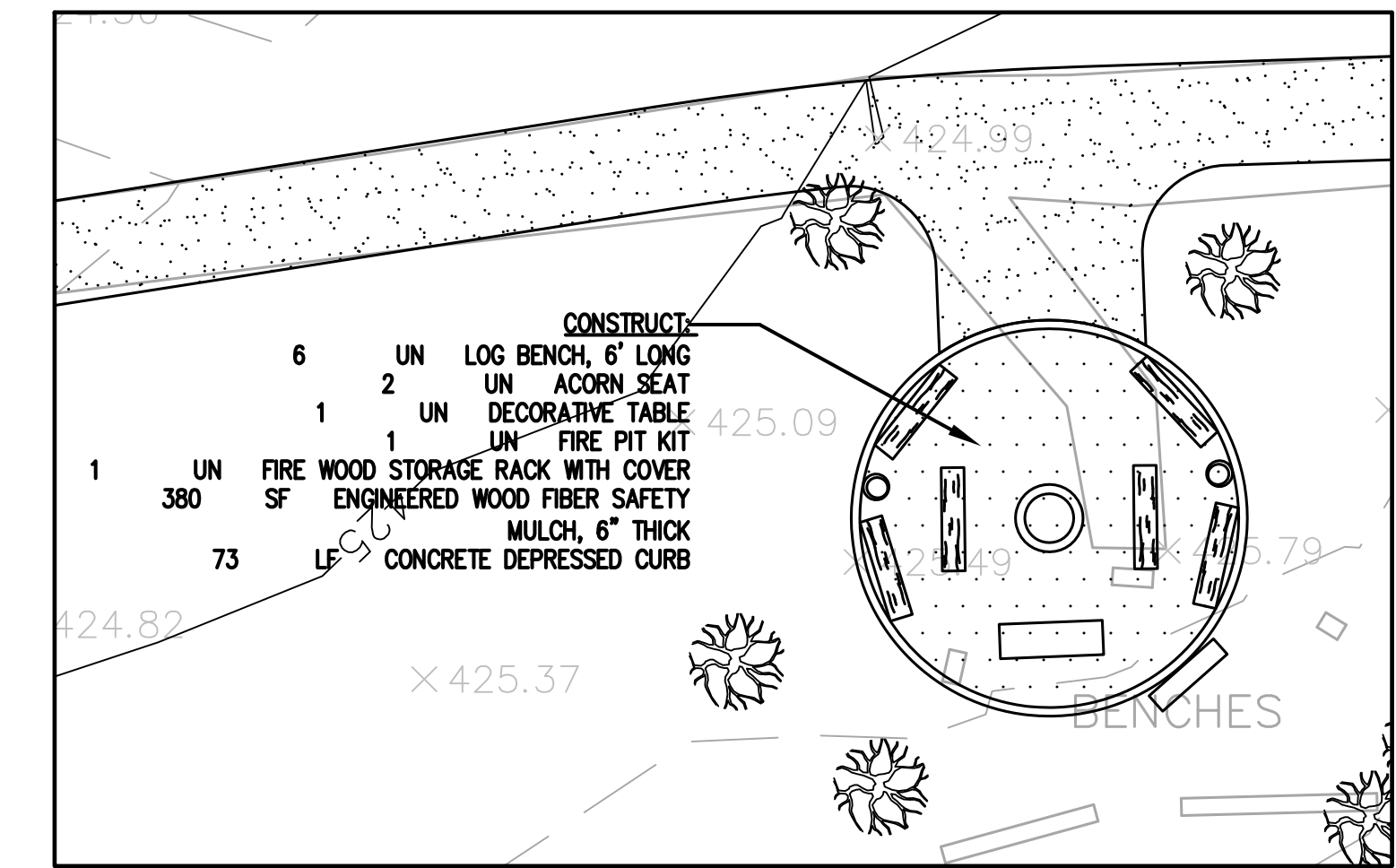
DATE TIME: SITE  
 DRAWING NO.: 3U  
 PROJECT NO.: UN206.01



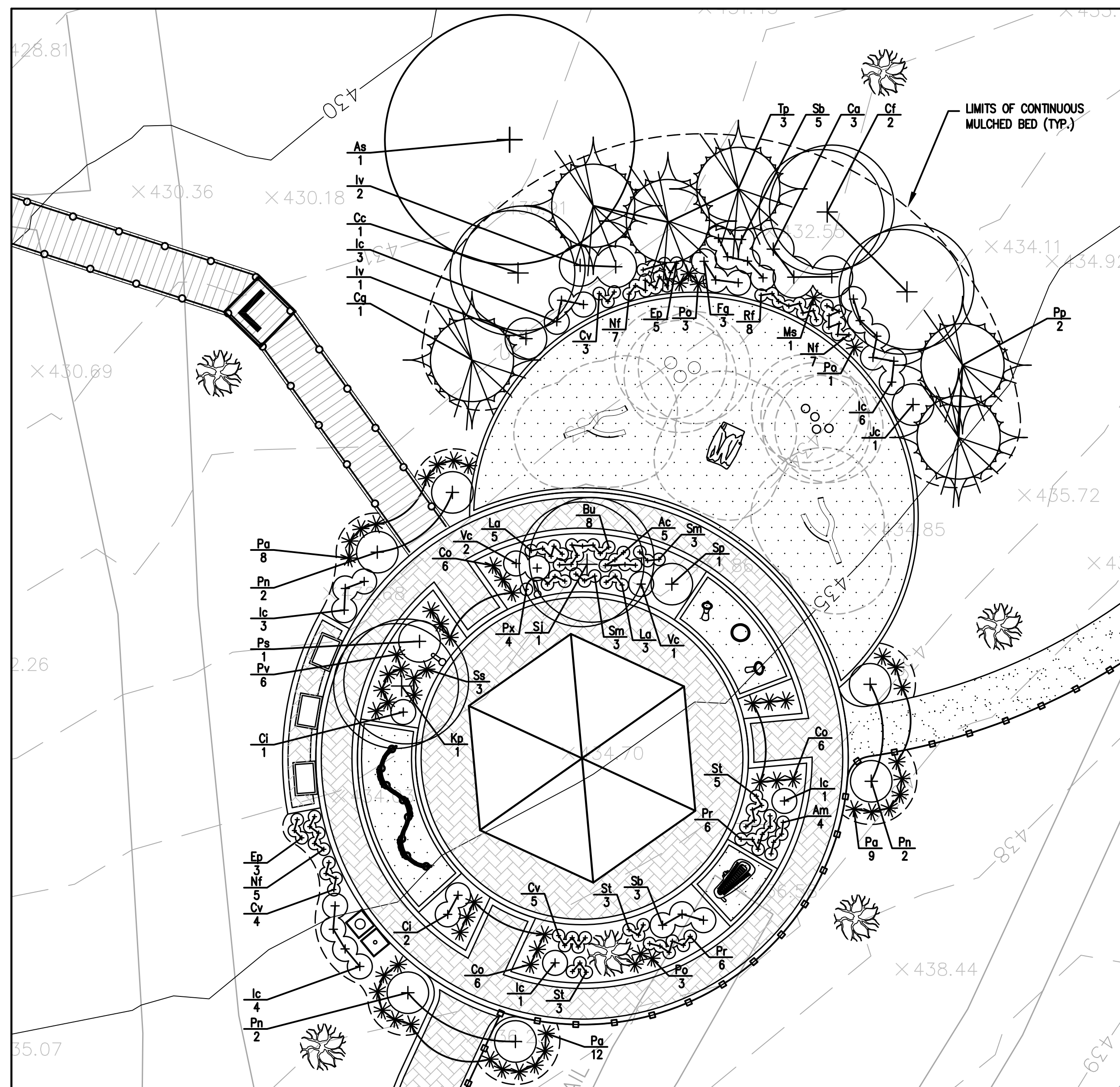
**MAIN SENSORY GATHERING SPACE**  
SCALE: 1" = 20'-0"



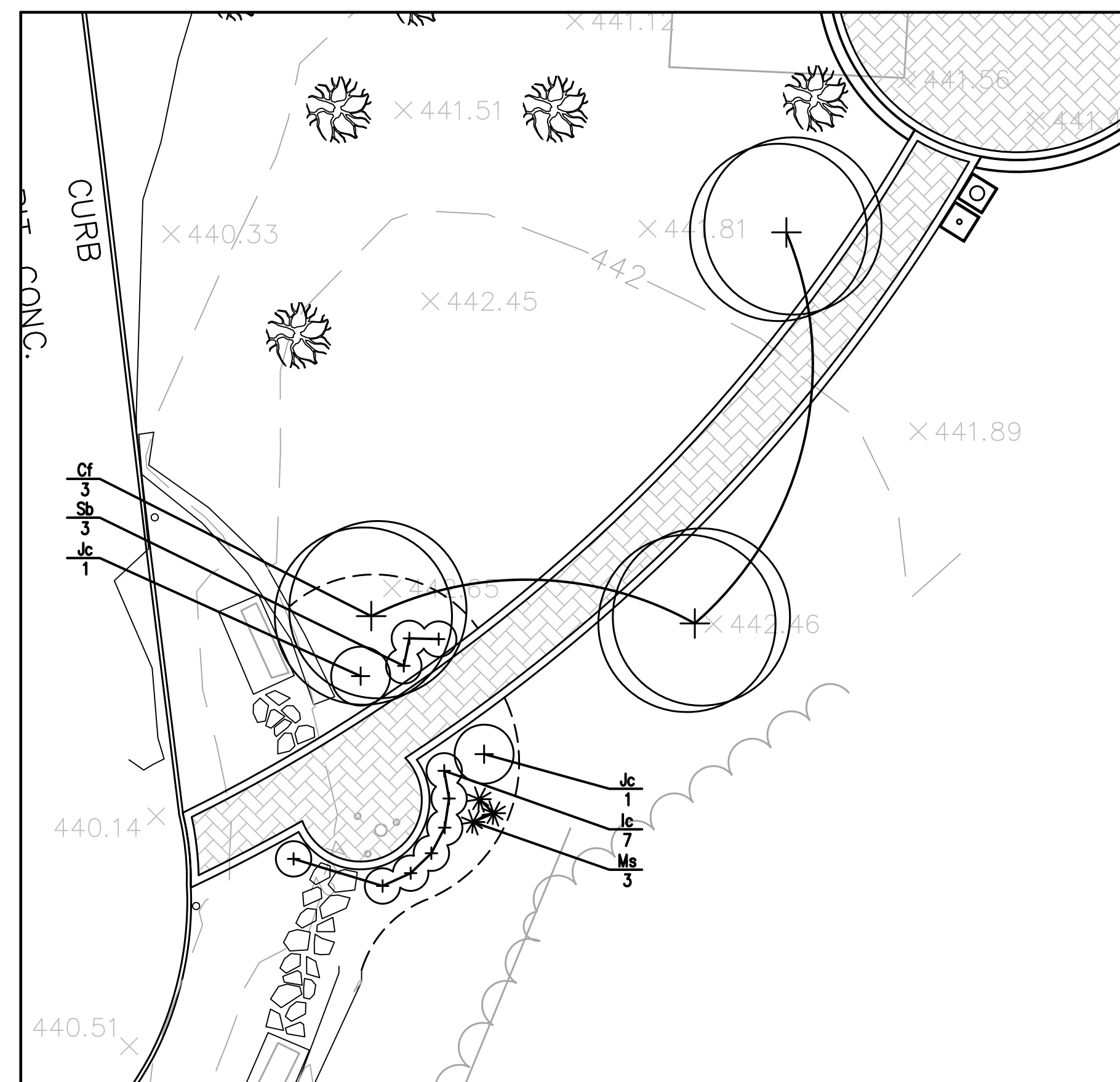
**OUTDOOR CLASSROOM AREA (NEAR EXISTING DEER MANAGEMENT STUDY AREA)**  
SCALE: 1" = 10'-0"



**EXISTING OUTDOOR CLASSROOM AREA**  
SCALE: 1" = 10'-0"



**MAIN SENSORY GATHERING SPACE LANDSCAPE PLAN**  
SCALE: 1" = 10'-0"



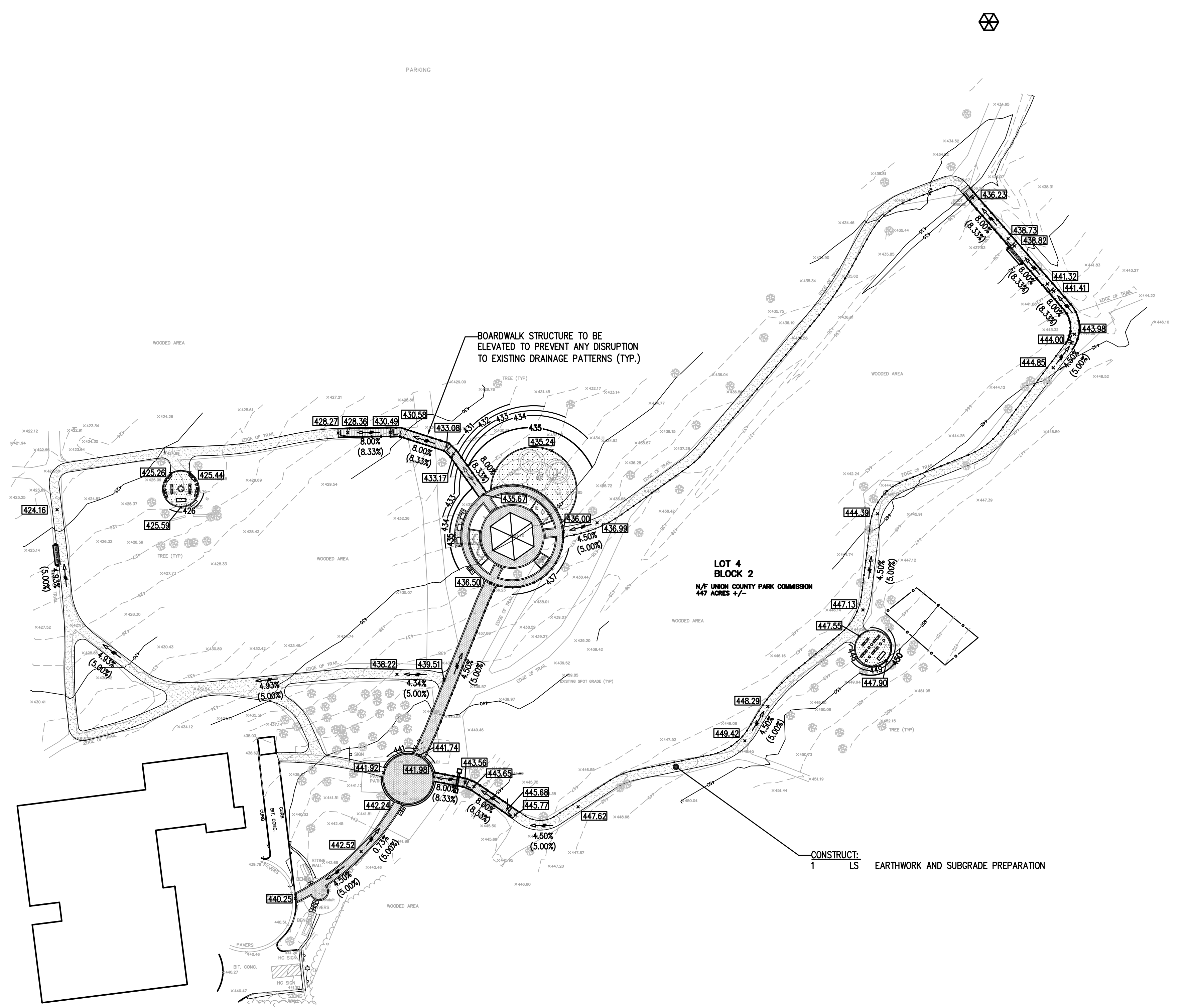
**MAIN ENTRY SPACE LANDSCAPE PLAN**  
SCALE: 1" = 10'-0"

**NOTE:**  
CONTRACTOR SHALL PROVIDE A MINIMUM OF SIX (6) INCHES OF SCREENED TOPSOIL WITHIN ALL PLANTING AREAS. ANY AREAS OF COMPACTED FILL OR SUBGRADE SHALL BE TILED AND LOGGED PRIOR TO THE INSTALLATION OF THE TOPSOIL.

SEE SHEET 10 OF 10 FOR PLANT SCHEDULE AND INSTALLATION NOTES AND DETAILS.

- CONSTRUCT**
- 441 LF Concrete Depressed Curb
  - 267 SY Concrete Paver Patio, including Sub-base
  - 2,280 SF Engineered Wood Fiber Safety Mulch, 6" Thick
  - 3 UN Raised Garden Planter
  - 1 UN Gazebo, 30' Wide, including Concrete Foundations
  - 1 PR Chitter-Chatter Noodle, including Concrete Foundations
  - 1 UN Sensory Play Center, including Concrete Foundations
  - 1 UN Log Crawl Tunnel, including Concrete Foundations
  - 2 UN Log Balance Beam, including Concrete Foundations
  - 4 UN Log Stepper, including Concrete Foundations
  - 3 UN Mushroom Stepper, including Concrete Foundations
  - 1 UN Goblet Drum, including Concrete Foundations
  - 1 UN Kundo Drum, including Concrete Foundations
  - 1 UN Kettle Drum, including Concrete Foundations
  - 1 UN Viva Metallophone, including Concrete Foundations
  - 10 UN Log Bench, 6' Long, including Concrete Foundations
  - 8 UN Acorn Seat, including Concrete Foundations
  - 2 UN Decorative Table, including Concrete Foundations
  - 1 UN Fire Pit Kit, including Sub-base
  - 1 UN Fire Wood Storage Rack with Cover, including 4" Thick Concrete Pad

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BOROUGH OF MOUNTAINSIDE UNION COUNTY, NEW JERSEY <b>SENSORY TRAIL IMPROVEMENTS</b> <b>WATCHUNG RESERVATION</b> SITE & LANDSCAPE PLAN ENLARGEMENTS				
 <b>CONSULTING AND MUNICIPAL ENGINEERS</b> <small>3941 BORDENTOWN AVENUE, PARLIN, NEW JERSEY 08859   440 ROUTE 9 SOUTH, HOBOKEN, NEW JERSEY 07030-1914</small>				
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JAY B. CORNELL, P.E., P.P.	MICHAEL J. McCLELLAND, P.E., P.P.	GREGORY R. VALES, P.E., P.P.		
<b>GREGORY R. VALES, P.E., P.P.</b> <small>DESIGNED BY</small>			<small>SCALE</small> <b>AS SHOWN</b>	<small>DRAWN BY</small> <b>DGP</b>
<small>NEW JERSEY PROFESSIONAL ENGINEER</small>			<small>CHECKED BY</small> <b>TT</b>	<small>DATE</small> <b>SEP 2016</b>
<small>N.J. LIC. 34456</small>			<small>4 OF 10</small>	<small>UNZ06.01</small>



**NOTE:**  
THE CONTRACTOR IS ADVISED THE PROJECT SITE IS WITHIN A PUBLIC PARK. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO ENSURE SAFETY OF PARK USERS DURING CONSTRUCTION.

**NOTE:**  
CONTRACTOR IS ADVISED MINIMAL DISTURBANCE IS ANTICIPATED ALONG THE ENTIRE LENGTH OF THE SENSORY TRAIL. CONTRACTOR SHALL MAINTAIN EXISTING GRADING OF THE TRAIL AND SURROUNDING AREAS, UNLESS OTHERWISE NOTED ON THE PLAN SET.

**NOTE:**  
THE CONTRACTOR SHALL BE REQUIRED TO RESTORE ALL AREAS OF DISTURBANCE AROUND THE PERIMETER OF THE IMPROVEMENTS AND ANY DISTURBANCE CAUSED BY CONSTRUCTION OPERATIONS OR STAGING. CONTRACTOR SHALL ANTICIPATE THE INSTALLATION OF TOPSOIL, FERTILIZER AND SEED IN THESE AREAS.

**NOTE:**  
UNLESS OTHERWISE NOTED, THE TRAIL SHALL NOT EXCEED THE (5) PERCENT RUNNING SLOPE AND TWO (2) PERCENT CROSS SLOPE.

**NOTE:**  
THE CONTRACTOR SHALL ENSURE FINAL CONSTRUCTION OF THE TRAIL AND BOARDWALK STRUCTURES COMPLY WITH ADA REQUIREMENTS FOR AN ACCESSIBLE TRAIL.

**NOTE:**  
THE INTENT OF THE INSTALLATION OF THIS SENSORY TRAIL IS TO PROVIDE MINIMAL DISTURBANCE TO THE EXISTING WOODED AREA. THE CONTRACTOR SHALL PAY SPECIFIC ATTENTION TO THE OVERALL WIDTH OF THE TRAIL AND MINIMIZE DISTURBANCE THROUGHOUT THE INSTALLATION. AT NO TIME SHALL THE CONTRACTOR DISTURB AN AREA GREATER THAN TEN (10) FEET WIDE UNLESS OTHERWISE NOTED ON THE PLAN SET. ANY DISTURBANCE OR DAMAGED TREES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR AND/OR REMOVE AT NO ADDITIONAL COST TO THE COUNTY. SHOULD THE EXCESS DISTURBANCE RESULT IN ANY FINES, PENALTIES OR ADDITIONAL WORK REQUIRED BY ANY REGULATING AGENCIES, THIS ALSO SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AT NO ADDITIONAL COST TO THE COUNTY.

LOT 4  
BLOCK 2  
N/F UNION COUNTY PARK COMMISSION  
447 ACRES +/-

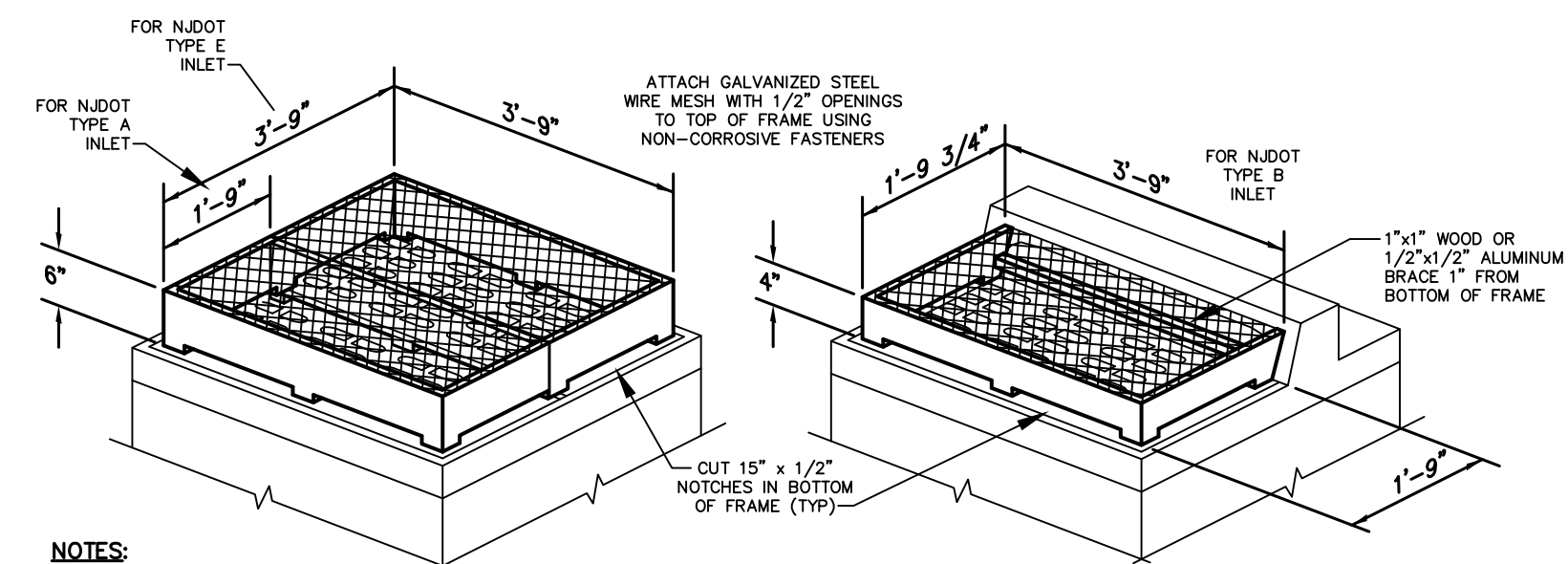
CONSTRUCT:  
1 LS EARTHWORK AND SUBGRADE PREPARATION

**CONSTRUCT**

- 1 LS Earthwork and Subgrade Preparation, including all Cuts, Fills, Import Fill, Compaction, Grading, Removal of Excess/Unsuitable Soils, and all Incidental Work

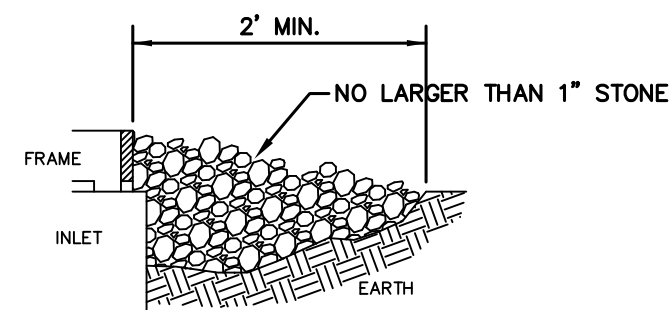
No.	DESCRIPTION OF REVISION	DATE	DRAWN	CHECKED
BOROUGH OF MOUNTAINSIDE UNION COUNTY, NEW JERSEY <b>SENSORY TRAIL IMPROVEMENTS</b> <b>WATCHUNG RESERVATION</b> GRADING & DRAINAGE PLAN				
 <b>CONSULTING AND MUNICIPAL ENGINEERS</b> <small>3941 BORDENTOWN AVENUE, PARLIN, NEW JERSEY 08859   440 ROUTE 9 SOUTH, HOBOKEN, NEW JERSEY 07030-1914</small>				
JOHN H. ALLGAR P.E., P.P. <small>(P.E. LIC. NO. 2807)</small>	DAVID J. SAMUEL P.E., P.P. <small>(P.E. LIC. NO. 2809)</small>	JOHN J. STEFANI P.E., L.S. & P.P. <small>(P.E. LIC. NO. 2807)</small>		
JAY B. CORNELL P.E., P.P. <small>(P.E. LIC. NO. 3262)</small>	MICHAEL J. McCLELLAND P.E., P.P. <small>(P.E. LIC. NO. 3264)</small>	GREGORY R. VALES P.E., P.P. <small>(P.E. LIC. NO. 3448)</small>		
<b>GREGORY R. VALES P.E., P.P.</b>  <small>NEW JERSEY PROFESSIONAL ENGINEER N.J. LIC. 34458</small>			SCALE <b>1" = 40'</b>	DESIGNED BY <b>DGP</b>
			CHECKED BY <b>TT</b>	DATE <b>SEP 2016</b>
			SHEET <b>5 OF 10</b>	DATE <b>SEP 2016</b>

DRAWING NO. UNZ06.01  
 SHEET NO. 5U  
 DATE: 5U

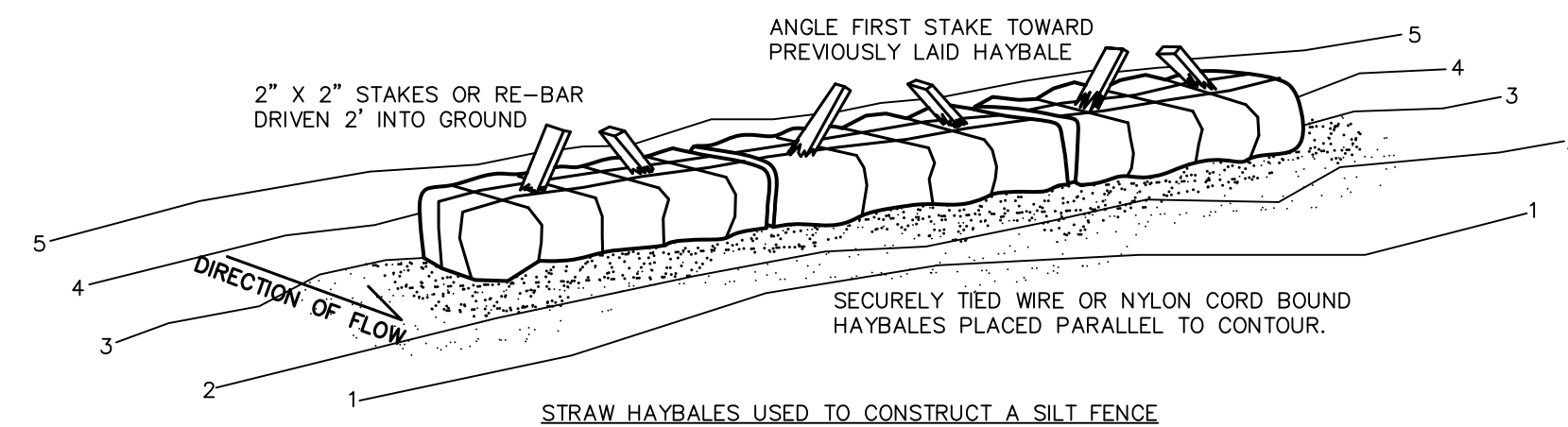


**NOTES:**

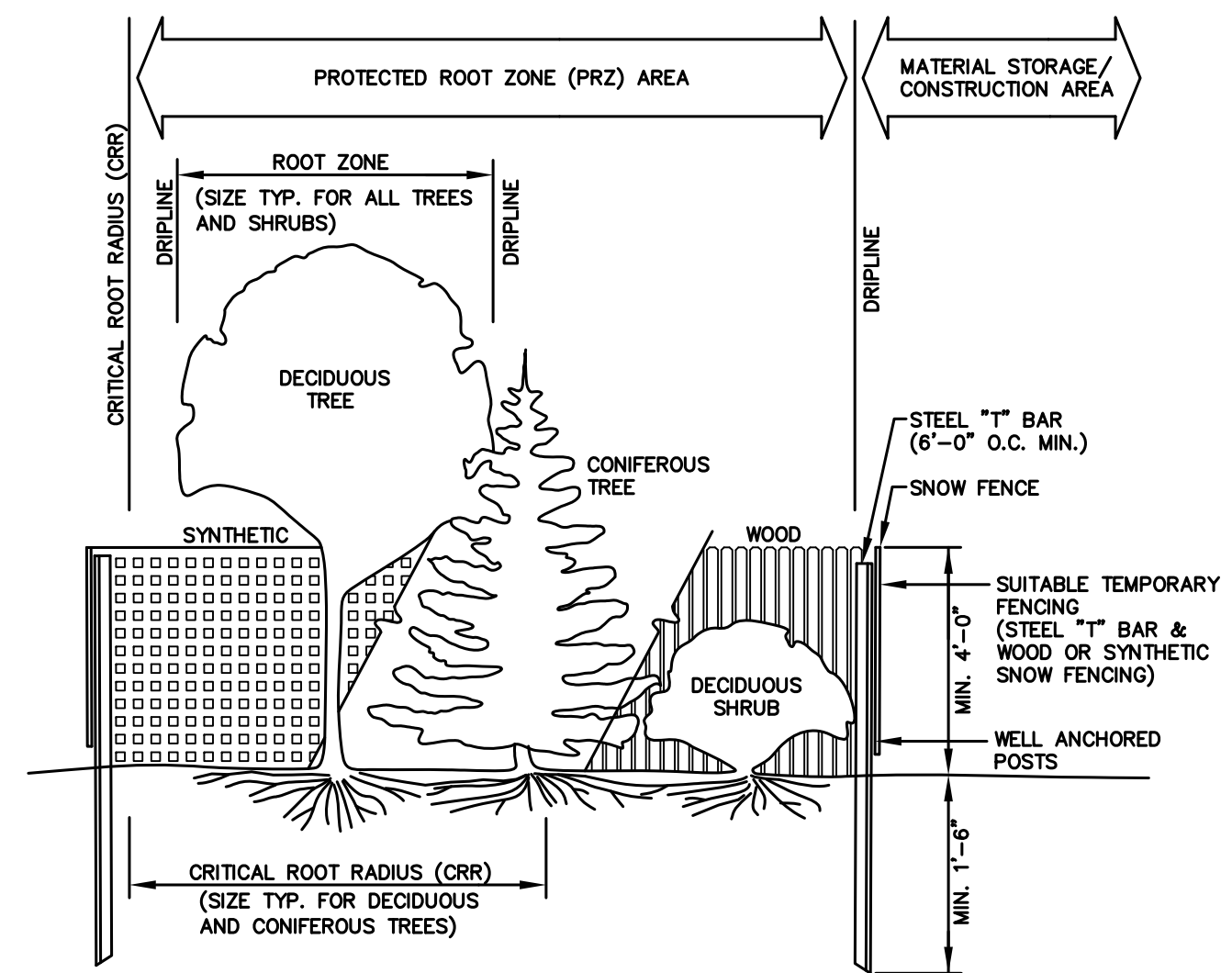
1. FRAMES ARE TO BE CONSTRUCTED FROM WOOD OR ALUMINUM MATERIAL.
2. FRAME THICKNESS WILL BE 1" FOR WOOD OR 1/2" FOR ALUMINUM.
3. WOOD FRAMES WILL BE ASSEMBLED USING GALVANIZED SCREWS.
4. ALUMINUM FRAMES WILL BE WELDED ALL AROUND.
5. PLACE NO LARGER THAN 1" STONE AROUND OUTSIDE OF FRAME FROM TOP OF FRAME TO A MINIMUM OF 2 FEET FROM THE FRAME
6. NO STONE SHALL BE PLACED UPON THE WIRE MESH.
7. STONE THICKNESS SHALL BE AS REQUIRED TO REACH TOP OF FRAME.



**INLET PROTECTION DETAIL**  
N.T.S.



**STRAW HAYBALE DETAILS**  
N.T.S.



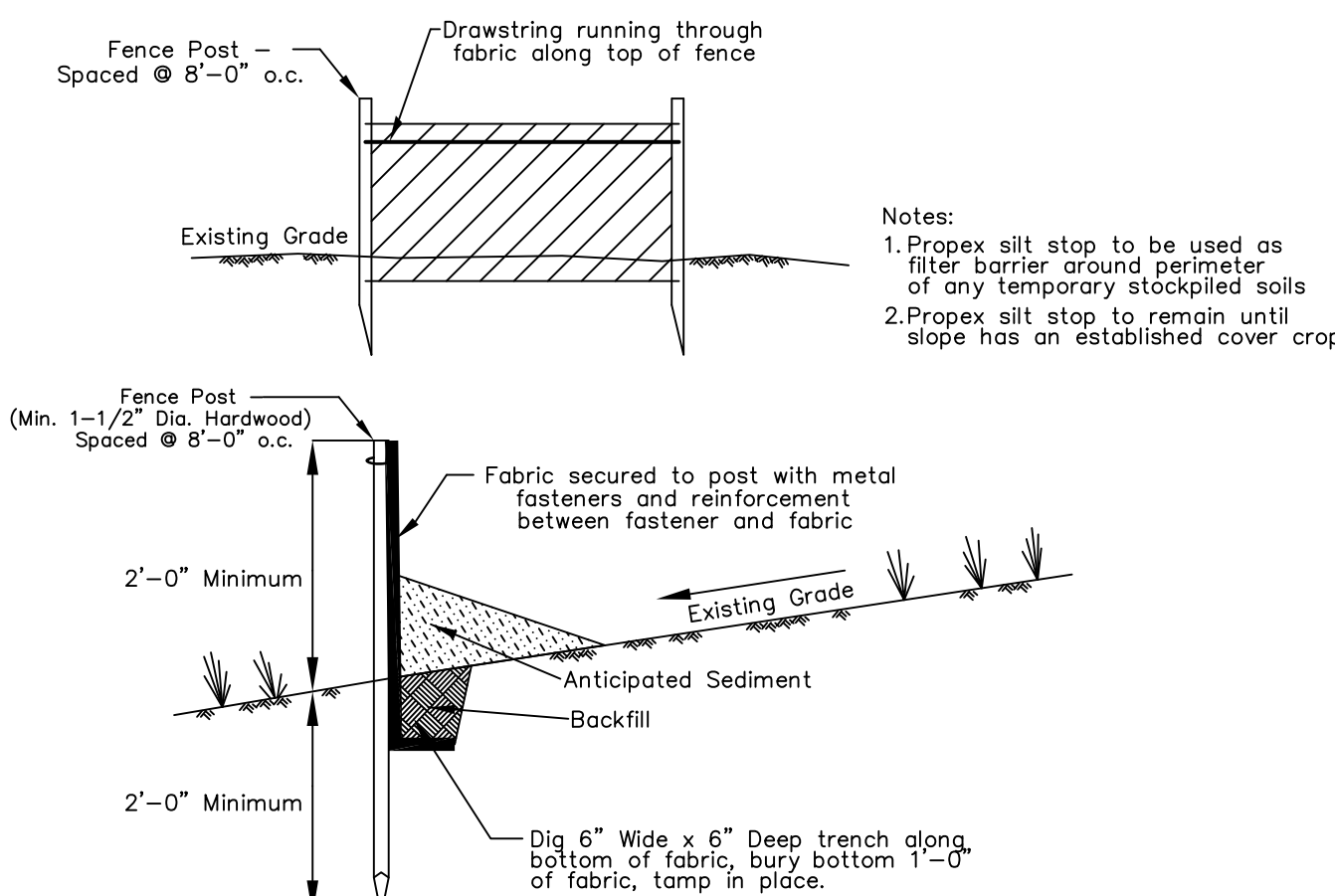
**CROSS SECTION OF TYPICAL PLANT GROUPING**

Estimate a tree's Protect Root Zone (PRZ) by calculating the Critical Root Radius (CRR):

1. Measure the DBH (diameter of tree at breast height, 4.5 feet above ground on the uphill side of tree) in inches.
  2. Multiply measured DBH by 1.5 or 1.0. Express the result in feet.
- DBH x 1.5: *Critical Root Radius* for older, unhealthy, or sensitive species.  
DBH x 1.0: *Critical Root Radius* for younger, healthy or tolerant species.

As the major part of the root systems of the plant(s) to be protected are within the critical root radius / dripline zone, this entire area should be fenced off (to a maximum height of 4'-0") prior to construction and removed thereafter. For maximum protection, no vehicle trespass, excavation, fill, waste discharge or material storage should be allowed in this zone.

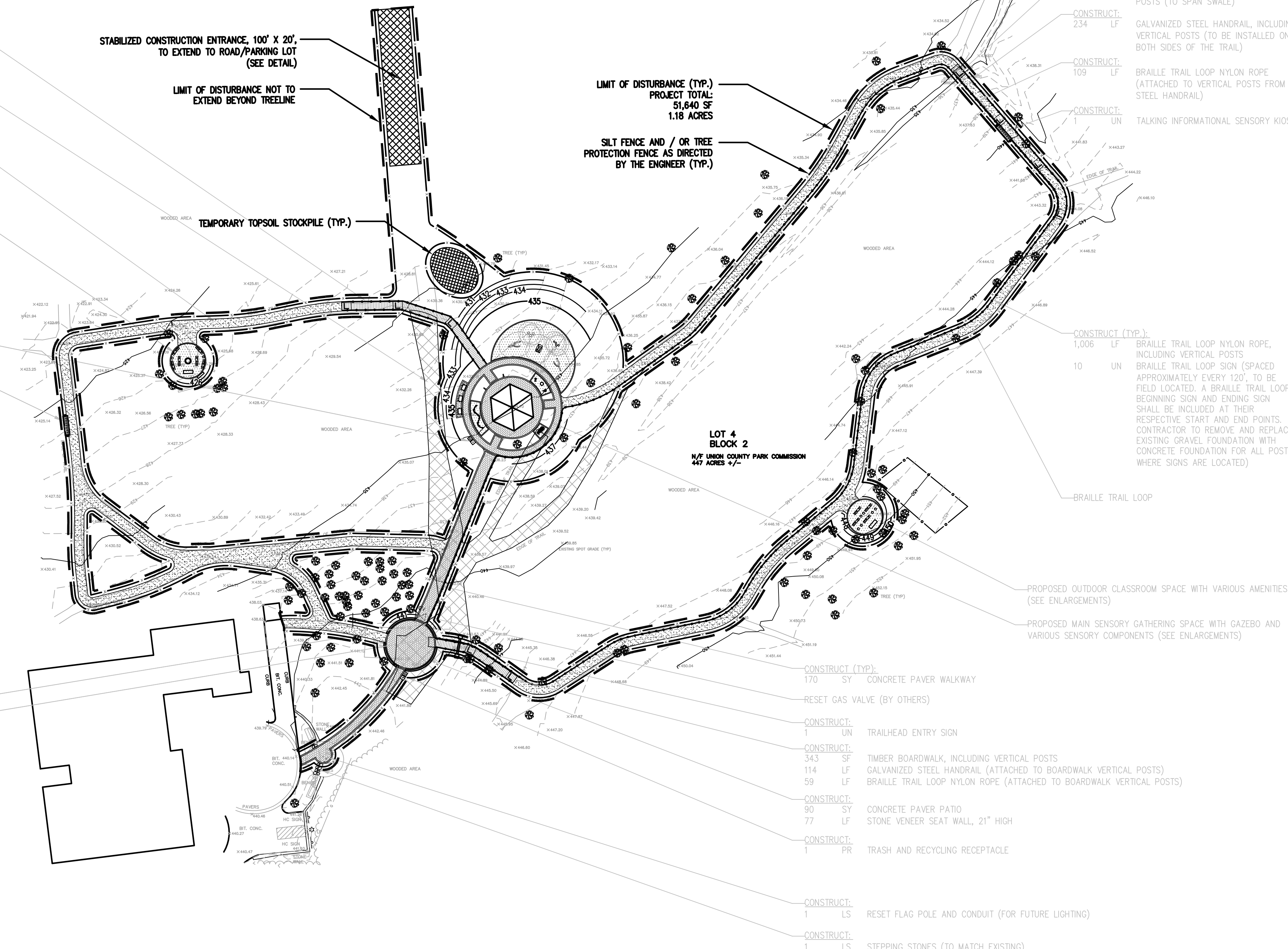
**TREE PROTECTION DETAIL**  
N.T.S.



**SILT FENCE SEDIMENT BARRIER DETAIL**  
N.T.S.

- NOTE:**  
SEE SHEET 7 OF 10 FOR ADDITIONAL SOIL EROSION & SEDIMENT CONTROL DETAILS AND NOTES.
- NOTE:**  
THE CONTRACTOR IS ADVISED THE PROJECT SITE IS WITHIN A PUBLIC PARK. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO ENSURE SAFETY OF PARK USERS DURING CONSTRUCTION.
- NOTE:**  
THE CONTRACTOR SHALL BE REQUIRED TO RESTORE ALL AREAS OF DISTURBANCE AROUND THE PERIMETER OF THE IMPROVEMENTS AND ANY DISTURBANCE CAUSED BY CONSTRUCTION OPERATIONS OR STAGING. CONTRACTOR SHALL ANTICIPATE THE INSTALLATION OF TOPSOIL, FERTILIZER AND SEED IN THESE AREAS.

- 638 SF CONSTRUCT: TIMBER BOARDWALK, INCLUDING VERTICAL POSTS
  - 212 LF GALVANIZED STEEL HANDRAIL (ATTACHED TO BOARDWALK VERTICAL POSTS)
  - 707 SY CONSTRUCT (TYP.): EXCAVATE EXISTING WALKWAY TO BE REMOVED, 2" THICK, TOPSOIL, LIME, FERTILIZE, AND SEED
  - 1 AL CONSTRUCT (TYP.): ROOT PRUNE (IF AND WHERE DIRECTED)
  - 1,224 SY EXCAVATE, 4" THICK, COMPACT SUBGRADE, AND CONSTRUCT STONE DUST WALKWAY, 4" THICK
- PROPOSED IMPROVEMENTS TO EXISTING OUTDOOR CLASSROOM WITH VARIOUS SITE AMENITIES (SEE ENLARGEMENTS)



**LOT 4 BLOCK 2**  
N/E UNION COUNTY PARK COMMISSION  
447 ACRES +/-

- 60 SF CONSTRUCT: TIMBER BOARDWALK, INCLUDING VERTICAL POSTS (TO SPAN SWALE)
- 234 LF GALVANIZED STEEL HANDRAIL, INCLUDING VERTICAL POSTS (TO BE INSTALLED ON BOTH SIDES OF THE TRAIL)
- 109 LF CONSTRUCT: BRAILLE TRAIL LOOP NYLON ROPE (ATTACHED TO VERTICAL POSTS FROM STEEL HANDRAIL)
- 1 UN CONSTRUCT: TALKING INFORMATIONAL SENSORY KIOSK
- 1,006 LF CONSTRUCT (TYP.): BRAILLE TRAIL LOOP NYLON ROPE, INCLUDING VERTICAL POSTS
- 10 UN CONSTRUCT: BRAILLE TRAIL LOOP SIGN (SPACED APPROXIMATELY EVERY 120', TO BE FIELD LOCATED. A BRAILLE TRAIL LOOP BEGINNING SIGN AND ENDING SIGN SHALL BE INCLUDED AT THEIR RESPECTIVE START AND END POINTS. CONTRACTOR TO REMOVE AND REPLACE EXISTING GRAVEL FOUNDATION WITH CONCRETE FOUNDATION FOR ALL POSTS WHERE SIGNS ARE LOCATED)

- 1 PR CONSTRUCT: TRASH AND RECYCLING RECEPTACLE
- 1 UN CONSTRUCT: TALKING INFORMATIONAL SENSORY KIOSK

- 170 SY CONSTRUCT (TYP.): CONCRETE PAVEMENT WALKWAY
- RESET GAS VALVE (BY OTHERS)
- 1 UN CONSTRUCT: TRAILHEAD ENTRY SIGN
- 343 SF CONSTRUCT: TIMBER BOARDWALK, INCLUDING VERTICAL POSTS
- 114 LF CONSTRUCT: GALVANIZED STEEL HANDRAIL (ATTACHED TO BOARDWALK VERTICAL POSTS)
- 59 LF CONSTRUCT: BRAILLE TRAIL LOOP NYLON ROPE (ATTACHED TO BOARDWALK VERTICAL POSTS)
- 90 SY CONSTRUCT: CONCRETE PAVEMENT PATIO
- 77 LF CONSTRUCT: STONE VENEER SEAT WALL, 21" HIGH
- 1 PR CONSTRUCT: TRASH AND RECYCLING RECEPTACLE
- 1 LS CONSTRUCT: RESET FLAG POLE AND CONDUIT (FOR FUTURE LIGHTING)
- 1 LS CONSTRUCT: STEPPING STONES (TO MATCH EXISTING)

No.	DESCRIPTION OF REVISION	DATE	DRAWN	CHECKED
BOROUGH OF MOUNTAINSIDE UNION COUNTY, NEW JERSEY <b>SENSORY TRAIL IMPROVEMENTS</b> <b>WATCHUNG RESERVATION</b> SOIL EROSION & SEDIMENT CONTROL PLAN & DETAILS				
 <b>CONSULTING AND MUNICIPAL ENGINEERS</b> <small>3941 BORDENTOWN AVENUE, PARLIN, NEW JERSEY 08859-1400 ROUTE 9 SOUTH, HOBOKEN, NEW JERSEY 07030-1914</small>				
JOHN H. ALLGAR P.E., P.P.	DAVID J. SAMUEL P.E., P.P.	JOHN J. STEFANI P.E., L.S. & P.P.		
JAY B. CORNELL P.E., P.P.	MICHAEL J. McCLELLAND P.E., P.P.	GREGORY R. VALES P.E., P.P.		
<b>GREGORY R. VALES, P.P.</b> <small>NEW JERSEY PROFESSIONAL ENGINEER N.J. LIC. 34456</small>			DESIGNED BY <b>DGP</b>	DRAWN BY <b>TT</b>
			SCALE <b>1" = 40'</b>	SHEET <b>6 OF 10</b>

DRAWING NO. UNZ06.01  
 SHEET NO. 6U  
 DATE: SEP 2016

**SOIL EROSION AND SEDIMENT CONTROL NOTES:**

- The Somerset-Union Soil Conservation District shall be notified in writing 48 hours in advance of any land disturbing activity.
- All Soil Erosion and Sediment Control practices shall be installed prior to any major soil disturbance, or in their proper sequence and maintained until permanent protection is established.
- Any Disturbed areas that will be left exposed more than 30 days and not subject to construction traffic, will immediately receive a temporary seeding. If the season prevents the establishment of a temporary cover, the disturbed areas will be mulched with straw, or equivalent material, at a rate of two (2) tons per acre, according to NJ State Standards.
- Permanent Vegetation shall be seeded or sodded on all exposed areas within ten (10) days after final grading. Mulch will be used for protection until seeding is established.
- All work shall be done in accordance with the NJ State Standards for Soil Erosion and Sediment Control in New Jersey.

- A sub-base course will be applied immediately following rough grading and installation of improvements in order to stabilize streets, roads, driveway and parking areas. In areas where no utilities are present, the sub-base shall be installed within 15 days or preliminary grading.
- Immediately following initial disturbance or rough grading of critical areas subject to erosion (i.e. steep slopes, roadway embankments) will receive a temporary seeding in combination with straw mulch or a suitable equivalent, at a rate of two (2) tons per acre, according to the NJ State Standards.
- Any steep slopes receiving pipeline installation will be backfilled and stabilized daily, on the installation proceeds (i.e. slopes greater than 3:1).
- Traffic control Standards require the installation of a 50x100x20 pad of 1 1/2" or 2" stone, at all construction driveways, immediately after initial site disturbance.

At the time when the site preparation for permanent vegetative stabilization is going to be accomplished, any soil that will not provide a suitable environment to support adequate vegetative ground cover, shall be removed or treated in such a way that will permanently adjust the soil conditions and render it suitable for vegetative ground cover. If the removal or treatment of the soil will not provide suitable conditions, non-vegetative means of permanent ground stabilization will have to be employed.

In that N.J.A.C. 4:24-39 et seq., requires that no Certificate of Occupancy be issued before the provisions of the Certified Plan for Soil Erosion and Sediment Control have been complied with for permanent measures, all site work for the plans and all work around individual lots in subdivisions, will have to be completed prior to the District issuing a Report of Compliance for the issuance of a Certificate of Occupancy by the Municipality.

Consult Outlet Protection must be installed at all required outfalls prior to the drainage system becoming operational.

Any changes to the Certified Soil Erosion and Sediment Control Plan will require the submission of revised Soil Erosion and Sediment Control Plans to the District for notification. The revised plans must meet all current NJ State Soil Erosion & Sediment Control Standards.

The Somerset-Union Soil Conservation District shall be notified of any changes in ownership.

Mulching to the NJ Standards is required for obtaining a Conditional Report of Compliance. Conditions are only issued when the season prohibits seeding.

Contractor is responsible for keeping all adjacent roads clean during life of construction project.

The developer shall be responsible for remedying any erosion or sediment problems that arise as a result of ongoing construction at the request of the Somerset-Union Soil Conservation District.

Hydro seeding is a two-step process. The first step includes seed, fertilizer, lime, etc., along with minimal amounts of mulch to promote consistency, good seed to soil contact, and give a visual indication of coverage. Upon completion of seeding operation, hydroseeding should be applied at a rate of 1500 lbs. per acre in second step. The use of hydroseeding, as opposed to straw, is limited to optimum seeding dates as listed in the NJ Standards.

Unfiltered dewatering is not permitted. Necessary precautions must be taken during all dewatering operations to minimize soil transfer. Any dewatering methods used must be in accordance with the Standard for Dewatering, a Certificate of Occupancy or Temporary Certificate of Occupancy, respectively.

**STANDARD FOR PERMANENT VEGETATIVE COVER FOR SOIL STABILIZATION**

**Methods and Materials**

**1. Site Preparation**

A. Grade as needed and feasible to permit the use of conventional equipment for seedbed preparation, seeding, mulch application, and mulch anchoring. All grading should be done in accordance with Standard for Land Grading.

B. Immediately prior to seeding and topsoil application, the subsoil shall be evaluated for compaction in accordance with the Standard for Land Grading.

C. Topsoil should be handled only when it is dry enough to work without damaging the soil structure. A uniform application to a depth of 5 inches (unsettled) is required on all sites. Topsoil shall be amended with organic matter, as needed, in accordance with the Standard for Land Grading.

D. Install needed erosion control practices or facilities such as diversions, grade stabilization structures, channel stabilization measures, sediment basins, and waterways.

**2. Seeded Preparation**

A. Uniformly apply ground limestone and fertilizer to topsoil which has been spread and firmed, according to soil test recommendations such as offered by Rutgers Cooperative Extension Soil sample mullers are available from the local Rutgers Cooperative Extension offices (http://njps.rutgers.edu/county/). Fertilizer shall be applied at the rate of 500 pounds per acre or 11 pounds per 1,000 square feet of 10-10-10 or equivalent with 50% water insoluble nitrogen unless a soil test indicates otherwise. Apply limestone at the rate of 2 tons/acre unless soil testing indicates otherwise. Calcium carbonate is the equivalent and standard for measuring the ability of liming materials to neutralize soil acidity and supply calcium and magnesium to grasses and legumes.

B. Work lime and fertilizer into the topsoil as nearly as practical to a depth of 4 inches with a disc, spring-tooth harrow, or other suitable equipment. The final harrowing or disking operation should be on the general contour. Continue tillage until a reasonable uniform seedbed is prepared.

C. High acid producing soil. Soils having a pH of 4 or less and containing iron sulfides shall be covered with a minimum of 1/4 inch of 5 or more before initiating seeded preparation. See Standard for Management of High Acid-Producing Soils for specific requirements.

**3. Seeding**

A. Select a mixture from Table 4-3 or use a mixture recommended by Rutgers Cooperative Extension or Natural Resources Conservation Service which is approved by the Soil Conservation District. Seed germination shall have been tested within 12 months of the planting date. No seed shall be accepted with a germination test date more than 12 months old unless retested.

1. Seeding rates specified are required when a report of compliance is requested prior to actual establishment of permanent vegetation. Up to 50% reduction in rates may be used when permanent vegetation is established prior to a report of compliance inspection. These rates apply to all methods of seeding. Establishing permanent vegetation means 80% vegetative coverage with the specified seed mixture for the seeded area and mowed once.

2. Warm-season mixtures are grasses and legumes which maximize growth at high temperatures, generally 85°F and above. Planting rates for warm-season grasses shall be the amount of Pure Live Seed (PLS) as determined by germination testing results.

3. Cool-season mixtures are grasses and legumes which maximize growth at temperatures below 85°F. Many grasses become active at 65°F. See Table 4-3, mixtures 7&14. Adjustment of planting rates to compensate for the amount of PLS is not required for cool season grasses.

B. Conventional Seeding is performed by applying seed uniformly by hand, cyclone (centrifugal) seeder, drop seeder, drill or outpacker seeder. Except for drilled, hydroseeded or outpacker seedings, seed shall be incorporated into the soil within 24 hours of seeded preparation to a depth of 1/4 to 1/2 inch, by raking or dragging. Depth of seed placement may be 1/4 inch deeper on coarse-textured soil.

C. After seeding, firming the soil with a corrugated roller will assure good seed-to-soil contact, restore capillarity, and improve seeding emergence. This is the preferred method. When performed on the contour, sheet erosion will be minimized and water conservation on site will be maximized.

D. Hydroseeding is a broadcast seeding method usually involving a truck or trailer-mounted tank, with an agitation system and hydraulic pump for mixing seed, water and fertilizer and spraying the mix onto the prepared seedbed. Mulch shall not be included in the tank with seed. Short-fibered mulch may be applied with a hydroseeder following seeding. (also see Section 4-Mulching below). Hydroseeding is not a preferred seeding method because seed and fertilizer are applied to the surface and not incorporated into the soil. When poor seed to soil contact occurs, there is a reduced seed germination and growth.

4. Mulching (See Mulching Specification for Permanent and Temporary Vegetative Cover for Soil Stabilization)

**5. Irrigation (where feasible)**

If soil moisture is deficient supply new seeding with adequate water (a minimum of 1/4 inch applied up to twice a day until vegetation is well established). This is especially true when seedings are made in anomalously dry or hot weather or on droughty sites.

**6. Topdressing**

Since soil organic matter content and slow release nitrogen fertilizer (water insoluble) are prescribed in Section 2A - Seeded Preparation in this Standard, no follow-up of topdressing is mandatory. An exception may be made where gross nitrogen deficiency exists in the soil to the extent that turf failure may develop. In that instance, topdress with 10-10-10 or equivalent at 300 pounds per acre or 7 pounds per 1,000 square feet every 3 to 5 weeks until the gross nitrogen deficiency in the turf is ameliorated.

**7. Establishing Permanent Vegetative Stabilization**

The quality of permanent vegetation rests with the contractor. The timing of seeding, preparing the seedbed, applying nutrients, mulch and other management are essential. The seed application rates in Table 4-3 are required when a Report of Compliance is requested prior to actual establishment of permanent vegetation. Up to 50% reduction in application rates may be used when permanent vegetation is established prior to requesting a Report of Compliance from the district. These rates apply to all methods of seeding. Establishing permanent vegetation means 80% vegetative cover (of the seeded species) and mowed once. Note this designation of mowed once does not guarantee the permanency of the turf should other maintenance factors be neglected or otherwise mismanaged, which shall not be mixed in the tank with seed. Use is limited to flatter slopes and during optimum seeding periods in spring and fall.

TABLE 4-3 (SELECTIONS AND RECOMMENDATIONS FROM TABLE 4-3)

PERMANENT SEED IN DETENTION BASIN MIXTURE:	PERMANENT SEED MIXTURE:
1. CONSISTING OF: (COOL SEASON SEED MIXTURE #7) 130 LBS/ACRE STRONG CREEPING RED FESCUE 50 LBS/ACRE KENTUCKY BLUEGRASS 20 LBS/ACRE PERENNIAL RYE GRASS OR 10 LBS/ACRE REDTOP 25 LBS/ACRE WHITE CRYCER 215 LBS/ACRE	CONSISTING OF: (COOL SEASON SEED MIXTURE #14) 265 LBS/ACRE TALL FESCUE 20 LBS/ACRE KENTUCKY BLUEGRASS (BLEND) 20 LBS/ACRE PERENNIAL RYE GRASS (BLEND) 305 LBS/ACRE
2. SEED MIX SHALL BE FRESH, CLEAN, NEW-CROP SEED WITH A GUARANTEED STATEMENT OF COMPOSITION.	
3. SEED TO BE PLANTED IN ACCORDANCE WITH THE STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY.	
4. SEED TO BE PLANTED TO ITS OPTIMUM DEPTH OF 1/2".	
5. SEEDING DATES: MARCH 1 - NOVEMBER 15.	

**STANDARD FOR TEMPORARY VEGETATIVE COVER FOR SOIL STABILIZATION**

**Methods and Materials**

**1. Site Preparation**

A. Grade as needed and feasible to permit the use of conventional equipment for seedbed preparation, seeding, mulch application, and mulch anchoring. All grading should be done in accordance with Standards for Land Grading.

B. Install needed erosion control practices or facilities such as diversions, grade stabilization structures, channel stabilization measures, sediment basins, and waterways.

C. Immediately prior to seeding, the surface should be scarified 6" to 12" where there has been soil compaction. This practice is permissible only where there is no danger to underground utilities (cables, irrigation systems, etc.).

**2. Seeded Preparation**

A. Apply ground limestone and fertilizer according to soil test recommendations such as offered by Rutgers Co-operative Extension. Soil sample mullers are available from the local Rutgers Cooperative Extension offices (http://njps.rutgers.edu/county/). Fertilizer shall be applied at the rate of 500 pounds per acre or 11 pounds per 1,000 square feet of 10-10-10 or equivalent with 50% water insoluble nitrogen unless a soil test indicates otherwise. Apply limestone at the rate of 2 tons/acre unless soil testing indicates otherwise. Calcium carbonate is the equivalent and standard for measuring the ability of liming materials to neutralize soil acidity and supply calcium and magnesium to grasses and legumes.

B. Work lime and fertilizer into the soil as nearly as practical to a depth of 4 inches with a disc, springtooth harrow, or other suitable equipment. The final harrowing or disking operation should be on the general contour. Continue tillage until a reasonable uniform seedbed is prepared.

C. Inspect seedbed just before seeding. If traffic has left the soil compacted, the area must be retitled in accordance with the above.

D. Soils high in sulfides or having a pH of 4 or less refer to Standard for Management of High Acid Producing Soils.

**3. Seeding**

A. Select seed from recommendations in Table 7-2.

B. Conventional Seeding. Apply seed uniformly by hand, cyclone (centrifugal) seeder, drop seeder, drill or outpacker seeder. Except for drilled, hydroseeded or outpacker seedings, seed shall be incorporated into the soil, to a depth of 1/4 to 1/2 inch, by raking or dragging. Depth of seed placement may be 1/4 inch deeper on coarse textured soil.

C. Hydroseeding is a broadcast seeding method usually involving a truck or trailer-mounted tank, with an agitation system and hydraulic pump for mixing seed, water and fertilizer and spraying the mix onto the prepared seedbed. Mulch shall not be included in the tank with seed. Short fibered mulch may be applied with a hydroseeder following seeding. (also see Section IV Mulching) Hydroseeding is not a preferred seeding method because seed and fertilizer are applied to the surface and not incorporated into the soil. Poor seed to soil contact occurs reducing seed germination and growth. Hydroseeding may be used for areas too steep for conventional equipment to traverse or too obstructed with rocks, stumps, etc.

D. After seeding, firming the soil with a corrugated roller will assure good seed-to-soil contact, restore capillarity, and improve seeding emergence. This is the preferred method. When performed on the contour, sheet erosion will be minimized and water conservation on site will be maximized.

**4. Mulching**

(See Mulching Specification for Permanent and Temporary Vegetative Cover for Soil Stabilization)

TABLE 7-2 (SELECTION AND RECOMMENDATIONS FROM TABLE 7-2)

TEMPORARY SEED MIXTURE:
1. CONSISTING OF PERENNIAL RYEGRASS (COOL SEASON GRASS #1) AT A RATE OF 1 LB./1000 S.F.
2. SEED MIX SHALL BE FRESH, CLEAN, NEW-CROP SEED WITH A GUARANTEED STATEMENT OF COMPOSITION.
3. SEED TO BE PLANTED IN ACCORDANCE WITH THE STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY.
4. SEED TO BE PLANTED TO ITS OPTIMUM DEPTH OF 1/2".
5. SEEDING DATES: MARCH 1 - MAY 15 AND AUGUST 15 - OCTOBER 1.

**MULCHING SPECIFICATION FOR PERMANENT AND TEMPORARY VEGETATIVE COVER FOR SOIL STABILIZATION**

Mulching is required on all seeding. Mulch will insure against erosion before grass is established and will promote faster and earlier establishment. The existence of vegetation sufficient to control soil erosion shall be deemed compliance with this mulching requirement.

A. Straw or Hay. Unretted small grain straw, hay free of seeds, applied at the rate of 1-1/2 to 2 tons per acre (70 to 90 pounds per 1,000 square feet), except that where a crimper is used instead of a liquid mulch-binder (tackifying or adhesive agent), the rate of application is 3 tons per acre. Mulch choppers-blowers must grind the mulch. Hay mulch is not recommended for establishing fine turf or lawns due to the presence of weed seed.

Application. Spread mulch uniformly by hand or mechanically so that approximately 85%-95% of the soil surface will be covered. For uniform distribution of hand-spread mulch, divide area into approximately 1,000 square foot sections and distribute 70 to 90 pounds within each section.

Anchoring shall be accomplished immediately after placement to minimize loss by wind or water. This may be done by one of the following methods, depending upon the size of the area, steepness of slopes, and costs.

1. Peg and Twine. Drive 8 to 10 inch wooden pegs to within 2 to 3 inches of the soil surface every 4 feet in all directions. Stakes may be driven before or after applying mulch. Secure mulch to soil surface by stretching twine between pegs in a criss-cross and a square pattern. Secure twine around each peg with two or more round turns.

2. Mulch Nettings. Staple paper, jute, cotton, or plastic nettings to the soil surface. Use a degradable netting if area is to be mowed.

3. Crimper (mulch anchoring tool). A tractor-drawn implement, somewhat like a disc harrow, especially designed to push or cut some of the broadcast long fiber mulch 3 to 4 inches into the soil so as to anchor it and leave part standing upright. This technique is limited to areas traversable by a tractor, which must operate on the contour of slopes. Straw mulch rate must be 3 tons per acre. No tackifying or adhesive agent is required.

4. Liquid Mulch-Binders - May be used to anchor hay or straw mulch.

a. Applications should be heavier at edges where wind may catch the mulch, in valleys, and at crests of banks. The remainder of the area should be uniform in appearance.

b. Use one of the following:

(1) Organic and Vegetable Based Binders - Naturally occurring, powder based, hydrophilic materials when mixed with water formulates a gel and when applied to mulch under satisfactory curing conditions will form membraned networks of insoluble polymers. The vegetable gel shall be physiologically harmless and not result in a phytotoxic effect or impede growth of turfgrass. Use of rates and weather conditions as recommended by the manufacturer to anchor mulch materials. Many new products are available, some of which may need further evaluation for use in this state.

(2) Synthetic Binders - High polymer synthetic emulsion, miscible with water when diluted and following application to mulch, drying and curing shall no longer be soluble or dispersible in water. It shall be applied at rates recommended by the manufacturer and remain tacky until germination of grass.

Note: All names give above are registered trade names. This does not constitute a commendation of these products to the exclusion of other products.

B. Wood-fiber or paper-fiber mulch. Shall be made from wood, plant fibers or paper containing no growth or germination inhibiting materials, used at the rate of 1,500 pounds per acre (or as recommended by the project manufacturer) and may be applied by a hydroseeder. This mulch shall not be mixed in the tank with seed. Use is limited to flatter slopes and during optimum seeding periods in spring and fall.

C. Pelletized mulch. Compressed and extruded paper and/or wood fiber product, which may contain co-polymers, tackifiers, fertilizers and coloring agents. The dry pellets, when applied to a seeded area and watered, forms mulch mat. Pelletized mulch shall be applied in accordance with the manufacturer's recommendations. Mulch may be applied by hand or mechanical spreader at the rate of 80-75 lbs./1,000 square feet and activated with 0.2 to 0.4 inches of water. This material has been found to be beneficial for use on small lawn or renovation areas, seeded areas where seed-free mulch is desired or on sites where straw mulch and tackifier agent are not practical or desirable. Applying the full 0.2 to 0.4 inches of water after spreading pelletized mulch on the seed bed is extremely important for sufficient activation and expansion of the mulch to provide soil coverage.

**STANDARD FOR STABILIZATION WITH MULCH ONLY**

**METHODS AND MATERIALS:**

**1. SITE PREPARATION**

A. GRADE AS NEEDED AND FEASIBLE TO PERMIT THE USE OF CONVENTIONAL EQUIPMENT FOR SEEDBED PREPARATION, SEEDING, MULCH APPLICATION, AND MULCH ANCHORING. ALL GRADING SHOULD BE DONE IN ACCORDANCE WITH STANDARDS FOR LAND GRADING.

B. INSTALL NEEDED EROSION CONTROL PRACTICES OR FACILITIES SUCH AS DIVERSIONS, GRADE STABILIZATION MEASURES, SEDIMENT BASINS, AND WATERWAYS.

**2. PROTECTIVE MATERIALS**

A. UNROTTED SMALL-GRAIN STRAW OR SALT HAY AT 2.0 TO 2.5 TONS PER ACRE IS SPREAD UNIFORMLY AT 90 TO 115 POUNDS PER 1000 SQUARE FEET AND ANCHORED WITH A MULCH ANCHORING TOOL, LIQUID MULCH BINDERS, OR NETTING THE DOWN. OTHER SUITABLE MATERIALS MAY BE USED IF APPROVED BY THE SOIL CONSERVATION DISTRICT.

B. SYNTHETIC OR ORGANIC SOIL STABILIZERS MAY BE USED UNDER SUITABLE CONDITIONS AND IN QUANTITIES AS RECOMMENDED BY THE MANUFACTURER.

C. WOOD-FIBER OR PAPER FIBER MULCH AT THE RATE OF 1,500 POUNDS PER ACRE (OR ACCORDING TO THE MANUFACTURER'S REQUIREMENTS) MAY BE APPLIED BY A HYDROSEEDER.

D. MULCH NETTING, SUCH AS PAPER JUTE, EXCELSIOR, COTTON, OR PLASTIC, MAY BE USED.

E. WOODCHIPS APPLIED UNIFORMLY TO A MINIMUM DEPTH OF 2 INCHES MAY BE USED. WOODCHIPS WILL NOT BE USED ON AREAS WHERE FLOWING WATER COULD WASH THEM INTO AN INLET AND PLUG IT.

F. GRAVEL, CRUSHED STONE, OR SLAG AT THE RATE OF 9 CUBIC YARDS PER 1000 SQ. FT. APPLIED UNIFORMLY TO A MINIMUM DEPTH OF 3 INCHES MAY BE USED. SIZE 2 OR 3 (ASTM C-33) IS RECOMMENDED.

3. MULCH ANCHORING- SHOULD BE ACCOMPLISHED IMMEDIATELY AFTER PLACEMENT OF HAY OR STRAW MULCH TO MINIMIZE LOSS BY WIND AND EATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS, DEPENDING UPON THE SIZE OF THE AREA AND THE STEEPNESS OF SLOPES:

A. PEG AND TWINE-DRIVE 8 TO 10 INCH WOODEN PEGS TO WITHIN 2 TO 3 INCHES OF THE SOIL SURFACE EVERY 4 FEET IN ALL DIRECTIONS. STAKES MAY BE DRIVEN BEFORE OR AFTER APPLYING MULCH. SECURE MULCH TO SOIL SURFACE BY STRETCHING TWINE BETWEEN PEGS IN A CRISSCROSS AND A SQUARE PATTERN. SECURE TWINE AROUND EACH PEG WITH TWO OR MORE ROUND TURNS.

B. MULCH NETTINGS- STAPLE PAPER, COTTON, OR PLASTIC NETTINGS OVER MULCH. USE A DEGRADABLE NETTING IN AREAS TO BE MOWED. NETTING IS USUALLY AVAILABLE IN ROLLS 4 FEET WIDE AND UP TO 300 FEET LONG.

C. CRIMPER MULCH ANCHORING COULER TOOL - A TRACTOR-DRAWN IMPLEMENT ESPECIALLY DESIGNED TO PUNCH AND ANCHOR MULCH INTO THE SOIL SURFACE. THIS PRACTICE AFFORDS MAXIMUM EROSION CONTROL, BUT ITS USE IS LIMITED TO THOSE SLOPES UPON WHICH THE TRACTOR CAN OPERATE SAFELY. SOIL PENETRATION SHOULD BE ABOUT 3 TO 4 INCHES. ON SLOPING LAND, THE OPERATION SHOULD BE ON THE CONTOUR.

D. LIQUID MULCH-BINDERS

1. APPLICATIONS SHOULD BE HEAVIER AT EDGES WHERE WIND CATCHES THE MULCH, IN VALLEYS, AND AT CRESTS OF BANKS. REMAINDER OF AREA SHOULD BE UNIFORM IN APPEARANCE.

2. USE ONE OF THE FOLLOWING:

a. ORGANIC AND VEGETABLE BASED BINDERS - NATURALLY OCCURRING, POWDER BASED, HYDROPHILIC MATERIALS THAT MIXED WITH WATER FORMULATES A GEL AND WHEN APPLIED TO A MULCH UNDER SATISFACTORY CURING CONDITIONS WILL FORM MEMBRANED NETWORKS OF INSOLUBLE POLYMERS. THE VEGETABLE GEL SHALL BE PHYSIOLOGICALLY HARMLESS AND NOT RESULT IN A PHYTOXIC EFFECT OR IMPIDE GROWTH OF TURFGRASS. VEGETABLE BASED GELS SHALL BE APPLIED AT RATES AND WEATHER CONDITIONS RECOMMENDED BY THE MANUFACTURER.

b. SYNTHETIC BINDERS - HIGH POLYMER SYNTHETIC EMULSION, MISCIBLE WITH WATER WHEN DILUTED AND FOLLOWING APPLICATION TO MULCH, DRYING AND CURING SHALL NO LONGER BE SOLUBLE OR DISPERSIBLE IN WATER. IT SHALL BE APPLIED AT RATES AND WEATHER CONDITIONS RECOMMENDED BY THE MANUFACTURER AND REMAIN TACKY UNTIL GERMINATION OF GRASS.

**STANDARD FOR PERMANENT STABILIZATION WITH SOD**

**Methods and Materials**

1. High quality cultivated sod is preferred over native or pasture sod.

2. Sod should be free of broadleaf weeds and undesirable coarse and fine weed grasses.

3. Sod should be of uniform thickness, typically 5/8 inch, plus or minus 1/4 inch, at time of cutting (excludes top growth).

4. Sod should be vigorous and dense and be able to retain its own shape and weight when suspended vertically with a strip from the upper 10 percent of the strip. Broken pods and rolls or torn and uneven ends will not be acceptable.

5. For droughty sites, a sod of turf-type tall fescue or turf-type tall fescue mixed with Kentucky bluegrass is preferred to a 100% Kentucky bluegrass sod. Although not widely available, a sod of fine fescue is also acceptable for droughty sites.

6. Only moist, fresh, unheated sod should be used. Sod should be harvested, delivered, and installed within a period of 24 hours or less during summer months.

**STANDARD FOR PERMANENT STABILIZATION WITH SOD**

**1. Site Preparation**

A. Grade as needed and feasible to permit the use of conventional equipment for liming, fertilizing, incorporation of organic matter, and other soil preparation procedures. All grading should be done in accordance with Standard for Land Grading.

B. Topsoil should be handled only when it is dry enough to work without damaging the soil structure. A uniform application to a depth of 6 inches (unsettled) is required on all sites. See the Standard for Topsoiling for topsoil and amendment requirements.

C. Install needed erosion control practices or facilities such as diversions, grade stabilization structures, channel stabilization measures, sediment basins, and waterways.

**2. Soil Preparation**

A. Uniformly apply ground limestone, and fertilizer according to soil test recommendations such as offered by Rutgers Co-operative Extension. Soil sample mullers are available from the local Rutgers Cooperative Extension offices (http://njps.rutgers.edu/county/). Fertilizer shall be applied at the rate of 500 pounds per acre or 11 pounds per 1,000 square feet using 10-10-10 or equivalent with 50% water insoluble nitrogen unless a soil test indicates otherwise and incorporated into the surface 4 inches. If fertilizer is not incorporated, apply 1/2 the rate described above during seeded preparation and repeat another 1/2 rate application of the same fertilizer within 3 to 5 weeks after seeding. Apply limestone at the rate of 2 tons/acre unless soil testing indicates otherwise. Calcium carbonate is the equivalent and standard for measuring the ability of liming materials to neutralize soil acidity and supply calcium and magnesium to grasses and legumes.

B. Work lime, and fertilizer into the topsoil as nearly as practical to a depth of 4 inches with a disc, springtooth harrow, or other suitable equipment. The final harrowing or disking operation should be on the general contour. Continue tillage until a reasonable uniform, fine seedbed is prepared.

C. Remove from the surface all objects that would prevent good sod to topsoil contact and remove all other debris, such as wire, cable, tree roots, pieces of concrete, clods, lumps, or other unsuitable material.

D. Inspect site just before sodding. If traffic has left the soil compacted, the area must be retitled and firmed in accordance with the above.

**3. Sod Placement**

A. Sod strips should be laid on the contour, never up and down the slope, starting at the bottom of the slope and working up. On steep slopes, the use of loaders will facilitate the work and prevent damage to the sod. During periods of high temperature, lightly irrigate the soil immediately prior to laying the sod.

B. Place sod strips with snug, even joints (seams) that are staggered. Open spaces invite erosion.

C. Lightly roll or tamp sod immediately following placement to insure solid contact of root mat and soil surface. Do not overlap sod. All joints should be butted tightly to prevent voids which would cause drying of the roots and invasion of weeds.

D. On slopes greater than 3 to 1, secure sod soil surface with wood pegs, wire staples biodegradable plastic spikes, or split shingles (8 to 10 inches long by 3/4 inch wide).

E. Surface water cannot always be diverted from flowing over the face of the slope, but a coping strip of heavy jute or plastic netting, properly secured, along the crown of the slope and edges will provide extra protection against lifting and undercutting of sod. The same technique can be used to anchor sod in water-carrying channels and other critical areas. Wire staples must be used to anchor netting in channel work.

F. Immediately following installation, sod should be watered until water penetrates the soil layer beneath sod to a depth of 1 inch. Maintain optimum water for at least two weeks.

4. Topdressing - Since soil organic matter and slow release nitrogen fertilizer (water insoluble) are prescribed in Sections 1 and 2 in this Standard, a follow-up topdressing is not mandatory, except where gross nitrogen deficiency exists in the soil to the extent that turf failure may develop, topdressing shall then be applied. Topdress with 10-10-10 or equivalent at 400 pounds per acre or 7 pounds per 1,000 square feet every 3 to 5 weeks until the gross nitrogen deficiency in the turf is ameliorated.

**REVEGETATION MATTING INSTALLATION**

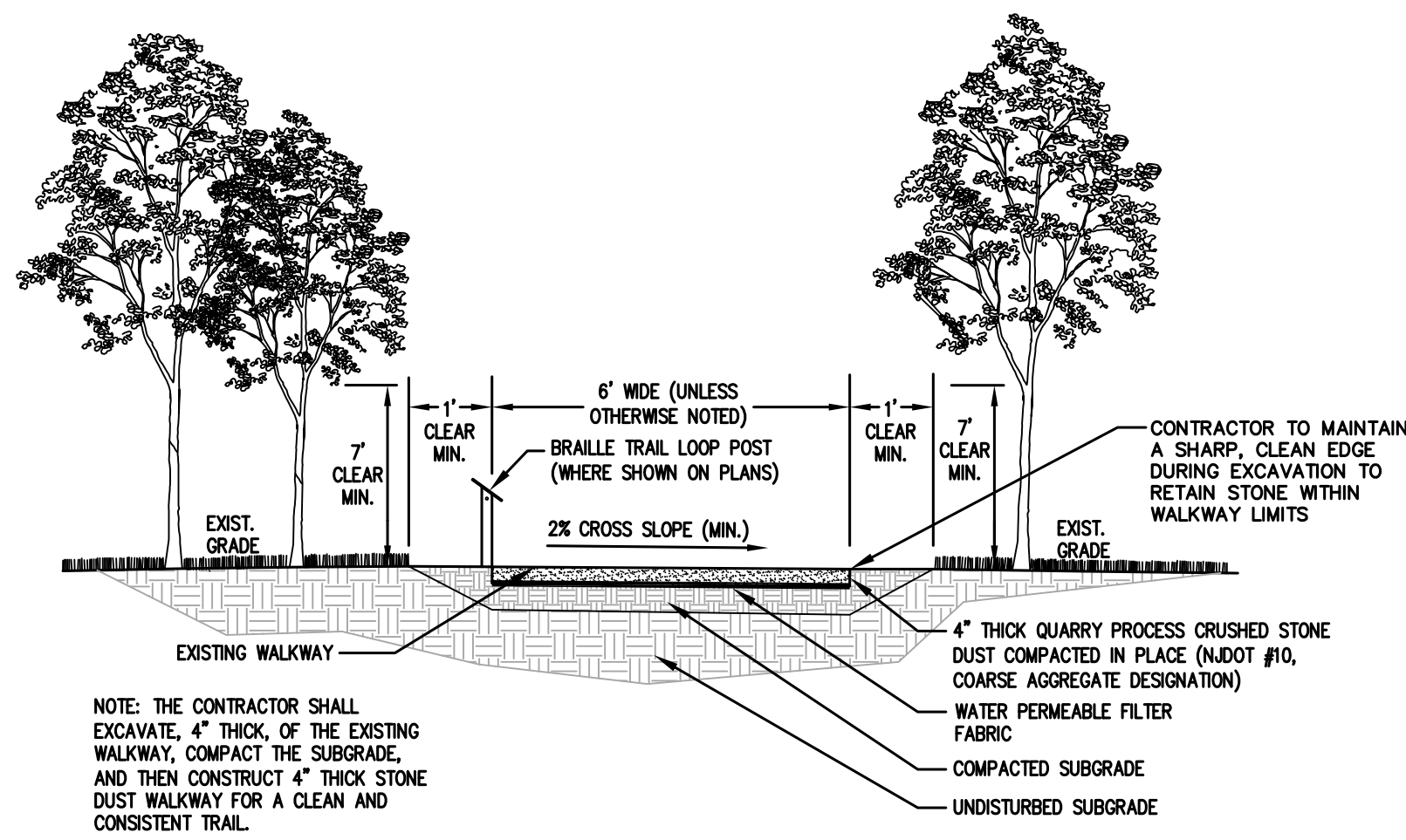
ALL AREAS SO DESIGNATED WILL BE COVERED WITH MIRAMAT OR APPROVED EQUIVALENT. REVEGETATION MATTING, BEFORE HYDROSEEDING OR PLANTING, THE MAT SHALL BE INSTALLED USING THE FOLLOWING METHOD:

- UNROLL REVEGETATION MAT FROM TOP OF SLOPE TO THE BASE WITH OUT STRETCHING MAT.
- BURY EDGES OF MAT WITH 3" OF SOIL TO PREVENT UNDERCUTTING OF THE SOIL.
- OVERLAP BY A MINIMUM OF 3" WITH THE LATERALLY ADJACENT STRIP OF MATTING.
- OVERLAP BY A MINIMUM OF 3" WITH THE END OF ANY ROLL. THE TERMINAL ENDS OF EACH STRIP SHALL BE BURIED IN A LOOPED FASHION, 6" BELOW THE FINISHED GRADE.
- PEG ALL OVERLAPPED AREAS WITH 1" x 3" NOMINAL WOOD PEGS CUT TO 4" LONG TRIANGULAR SECTIONS, OR 8" LONG METAL PINS WITH 1-1/2" WASHERS RETAINED AT THE TOP OF THE PINS.

**JUTE MATTING SPECIFICATION**

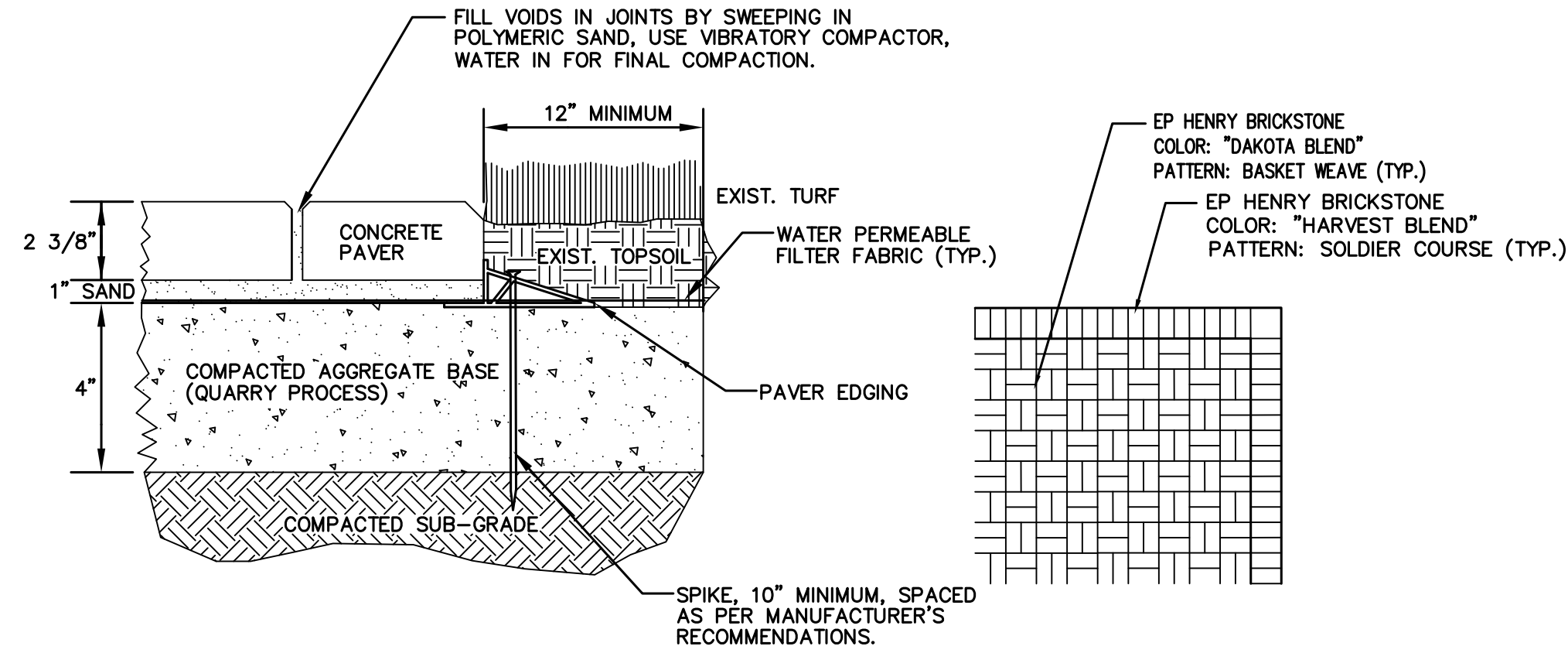
- JUTE MAT SHALL BE OF CLOTH OF A UNIFORM PLAIN WEAVE WITH UNWOVED AND UNBLEACHED SINGLE JUTE YARN. 48 INCHES IN WIDTH PLUS OR MINUS 1 INCH AND WEIGHING AN AVERAGE OF





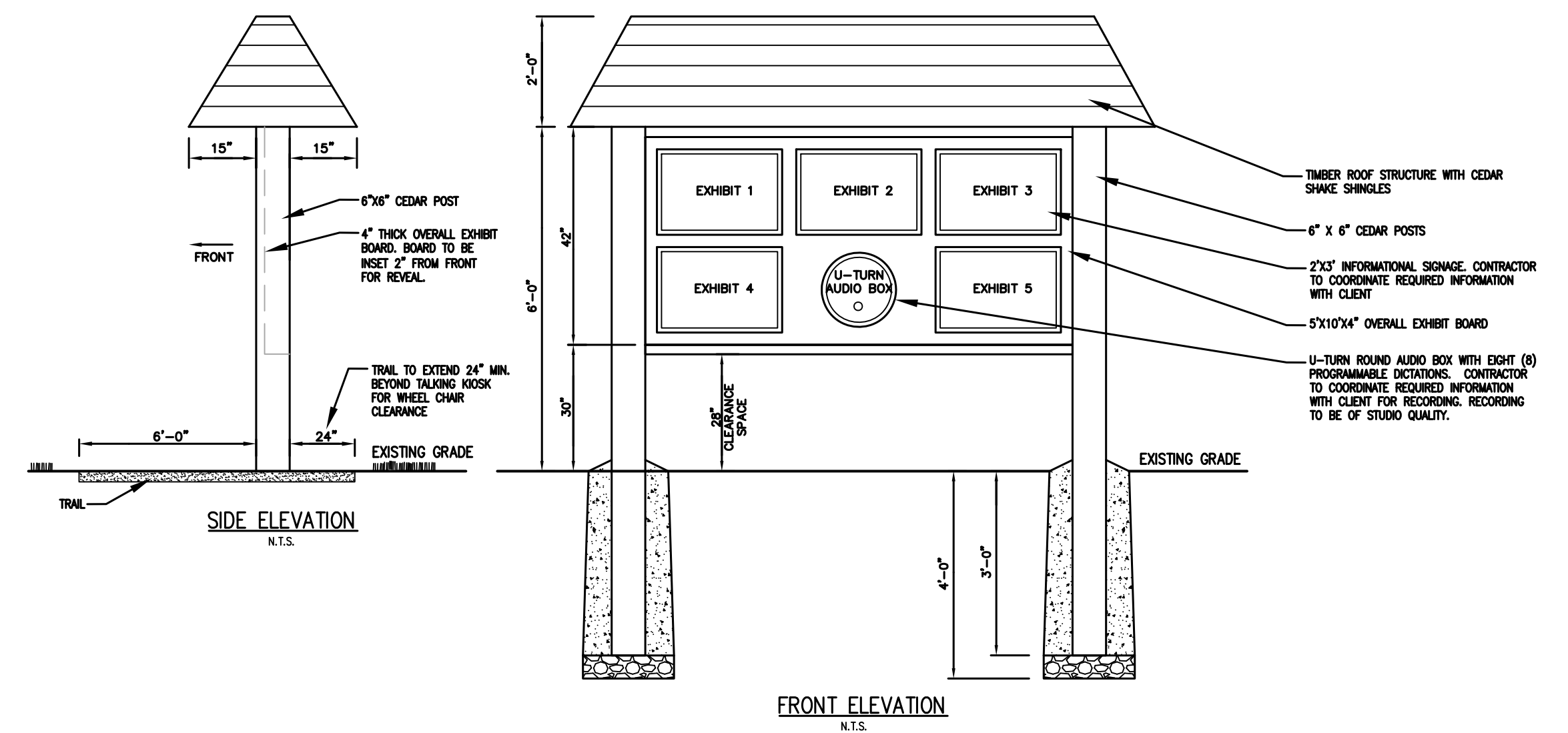
**STONE DUST WALKWAY TYPICAL SECTION**

N.T.S.



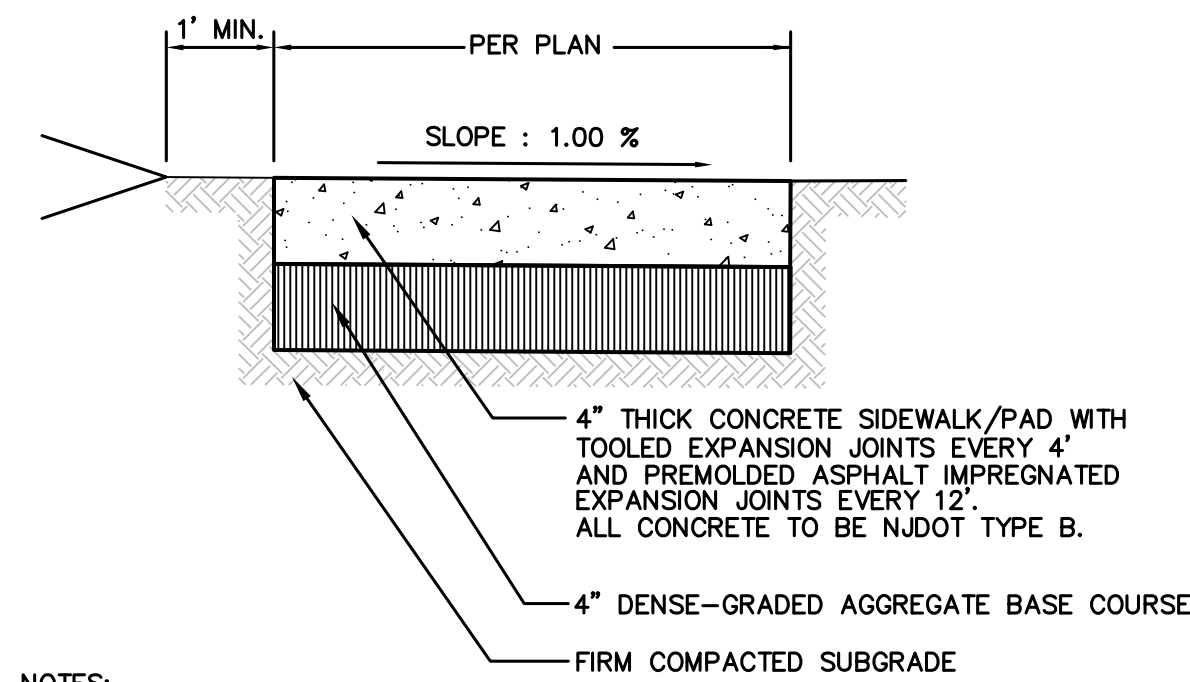
**CONCRETE PAVER PATIO DETAIL**

N.T.S.



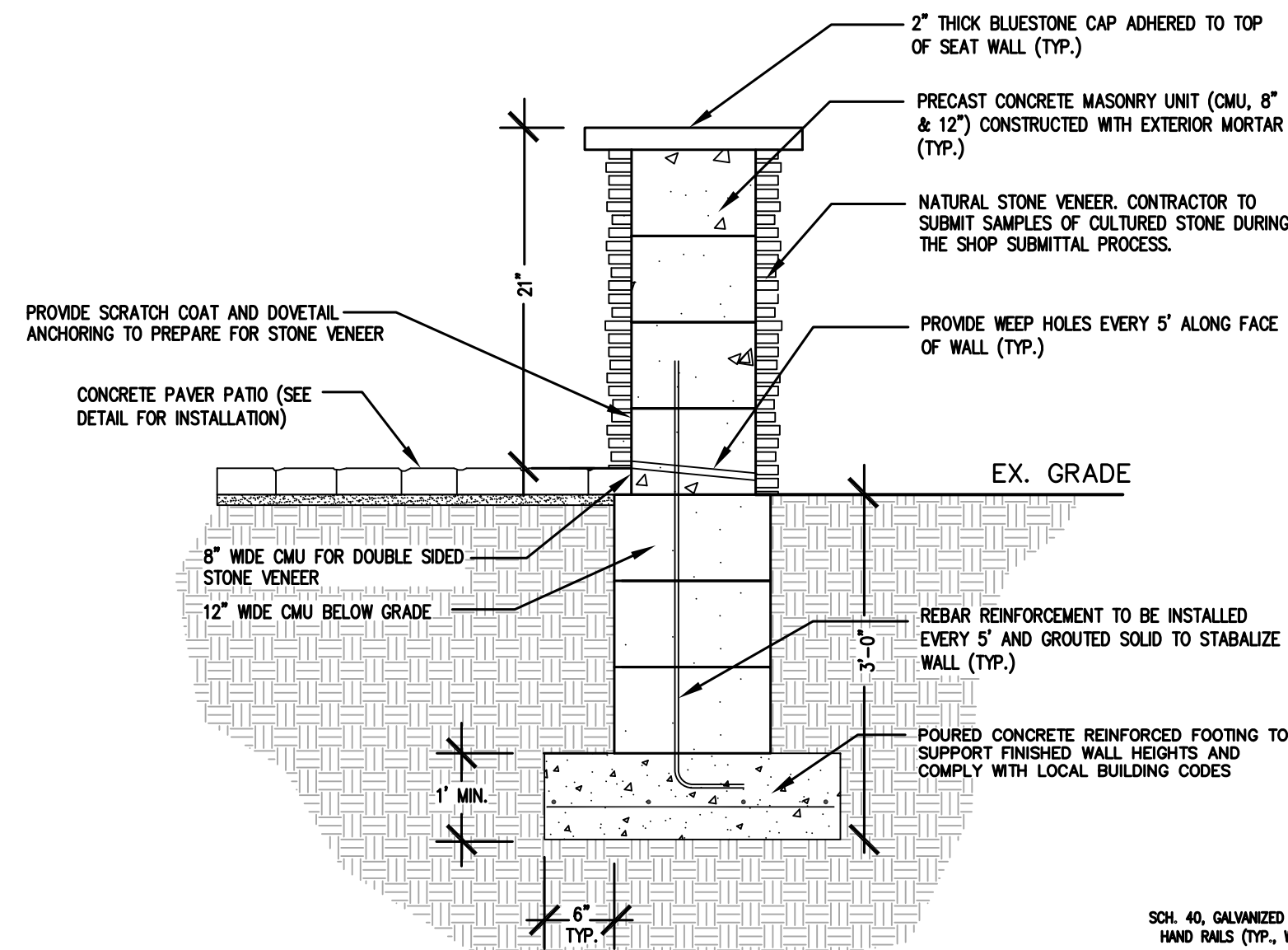
**FRONT ELEVATION**

N.T.S.



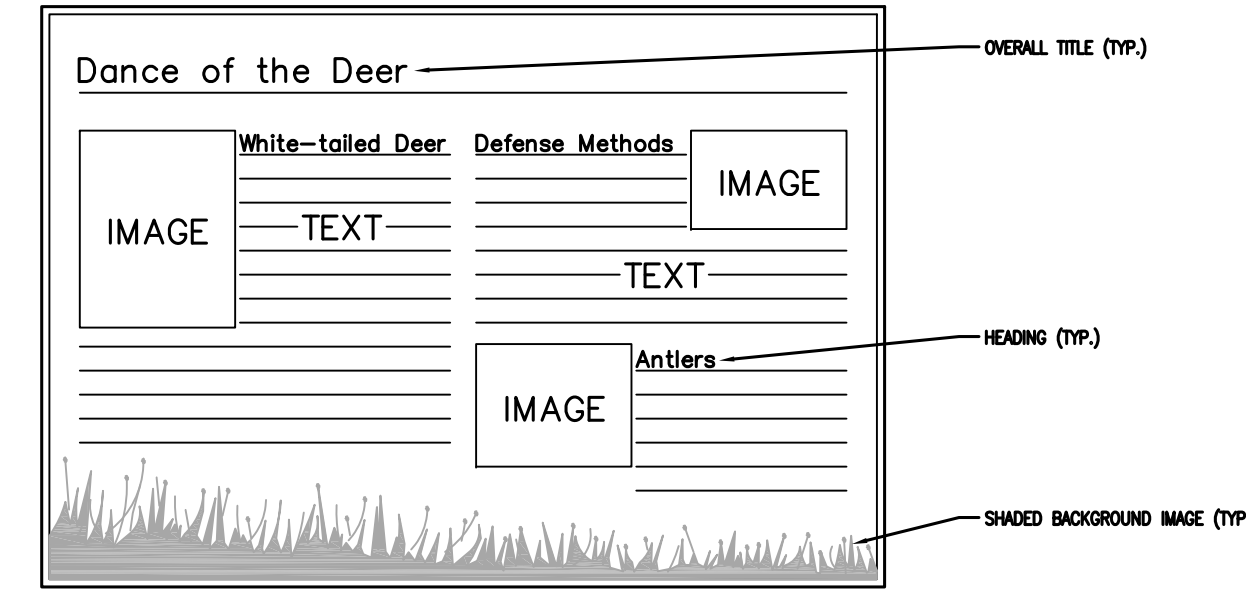
**CONCRETE SIDEWALK / PAD DETAIL**

N.T.S.



**STONE VENER SEAT WALL SECTION**

N.T.S.



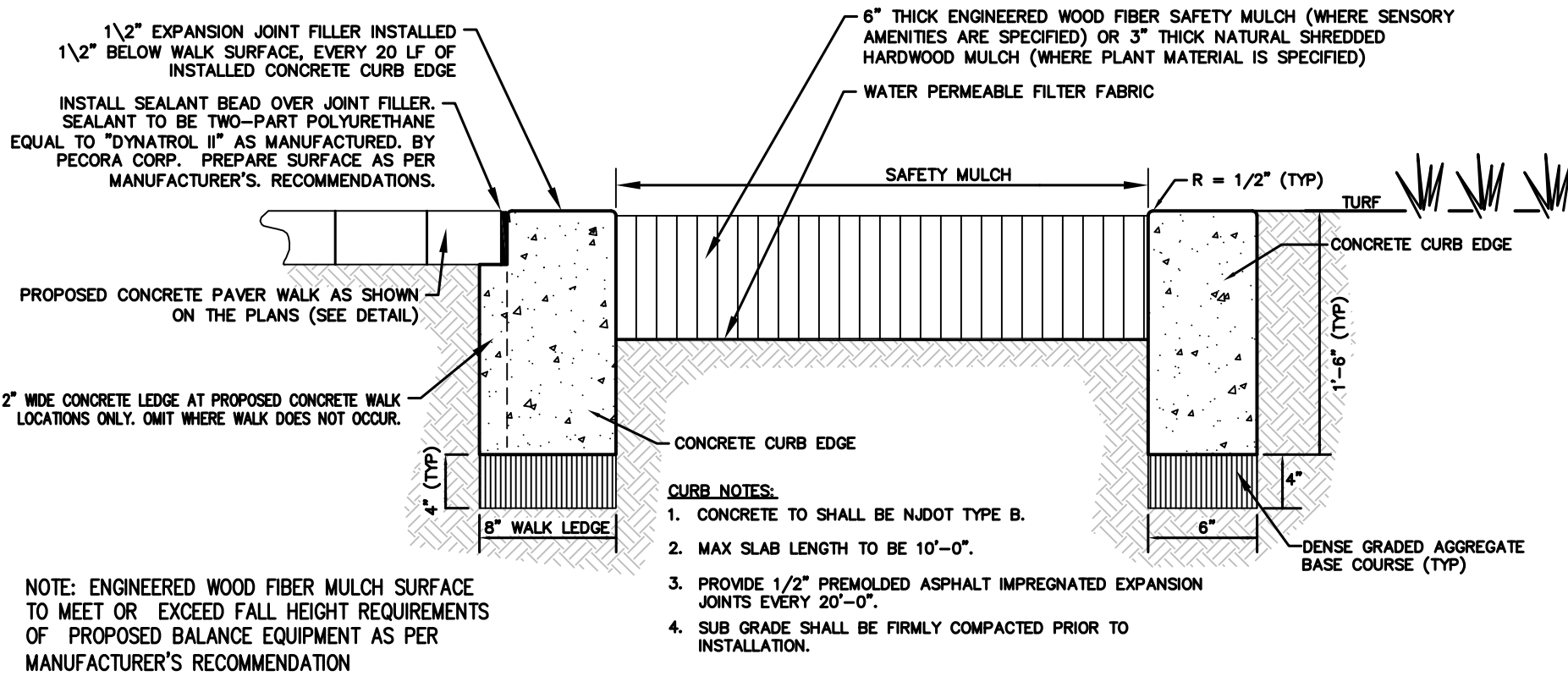
**TYPICAL EXHIBIT SIGN FOR TALKING SENSORY KIOSK**

NOTES:

- CONTRACTOR IS RESPONSIBLE TO BUILD OVERALL SIGN, POSTS, AND ROOF STRUCTURE.
- CONTRACTOR SHALL COORDINATE WITH LOUMARC SIGNS (908-545-4000) FOR SIGN PRODUCTION.
- U-TURN AUDIO BOX, THROUGH MOUNT WITH REAR CASING, PRE-PROGRAMMED AS MANUFACTURED BY DIGITAL AUDIO TECHNOLOGIES (800-261-3199).
- DETAILS PROVIDED FOR BIDDING PURPOSES. CONTRACTOR TO PROVIDE SHOP SUBMITTALS DETAILING OVERALL LAYOUT, MATERIALS, CONNECTIONS, CONCRETE FOUNDATIONS, AND EXECUTION FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.

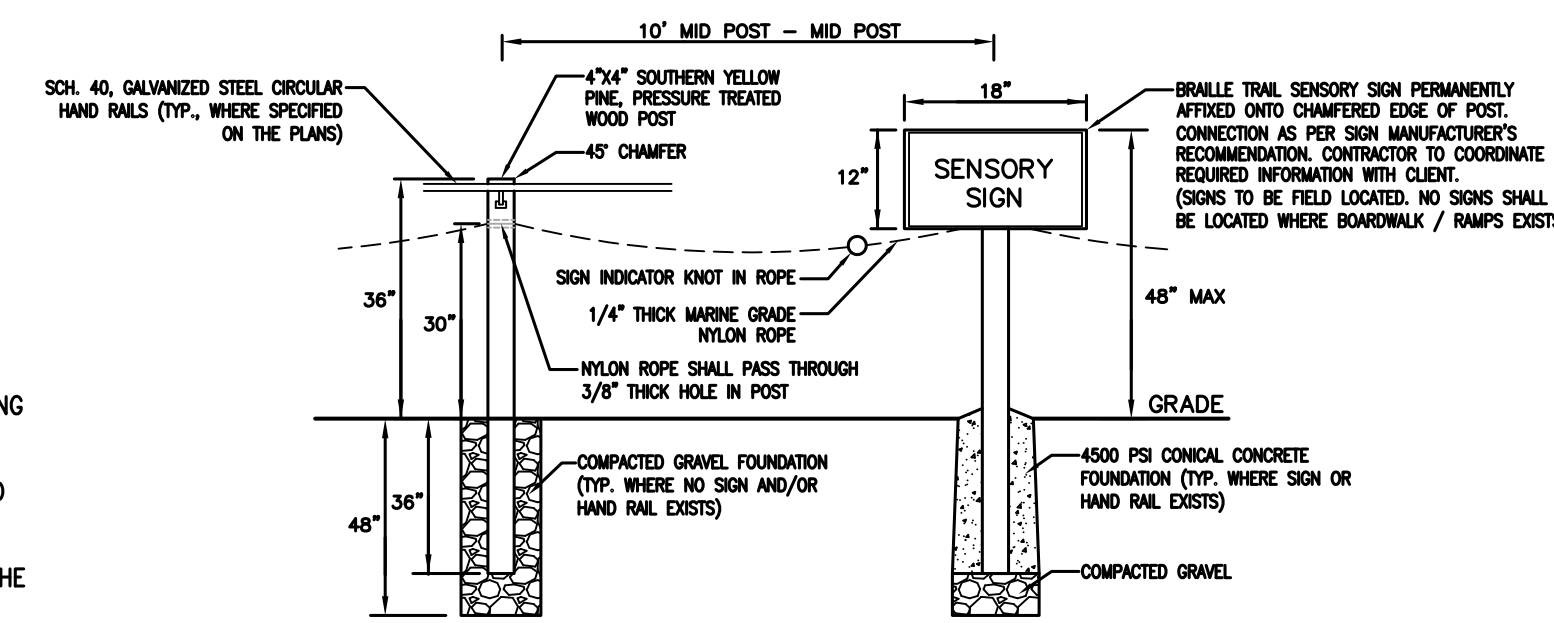
**TALKING INFORMATIONAL SENSORY KIOSK**

N.T.S.



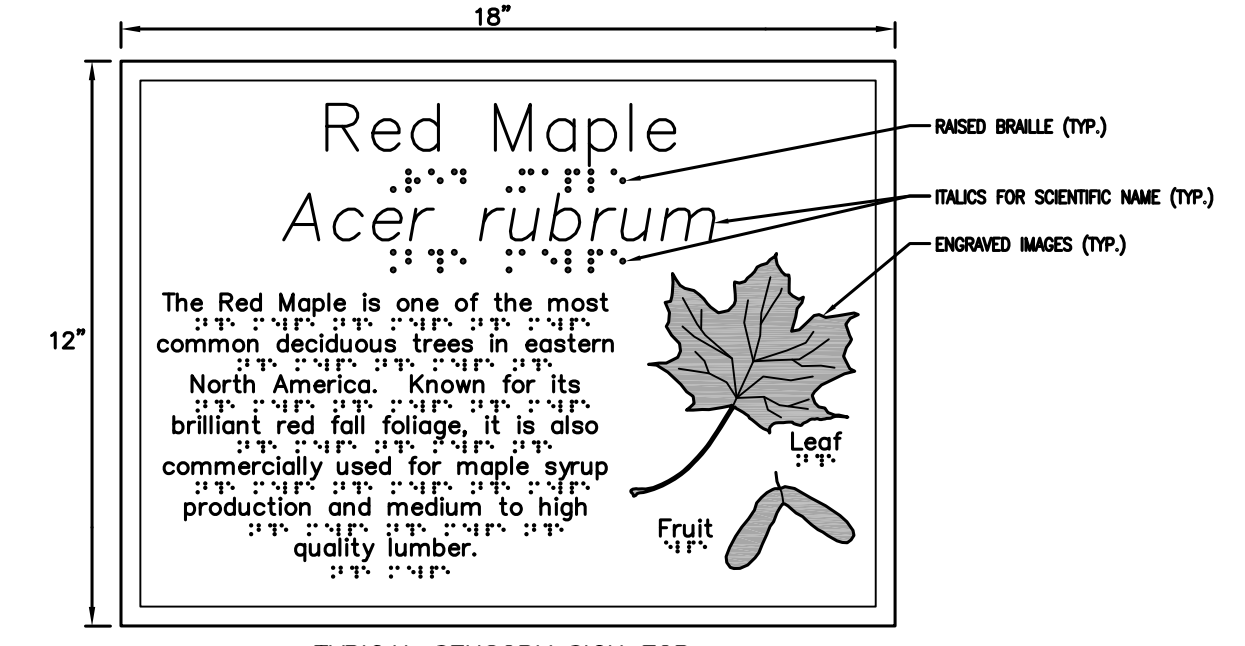
**TYPICAL CURB DETAIL & SAFETY / LANDSCAPE MULCH TYPICAL CROSS SECTION**

N.T.S.



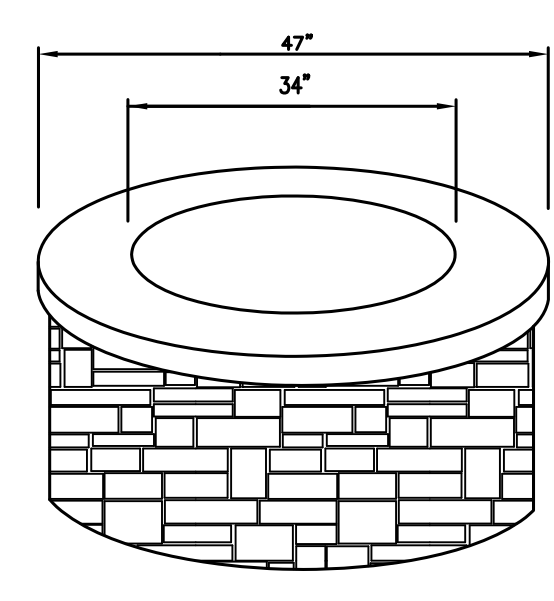
**BRAILLE TRAIL LOOP ROPE GUIDE AND SENSORY TOUCH SIGN**

N.T.S.



**TYPICAL SENSORY SIGN FOR BRAILLE TRAIL LOOP**

N.T.S.



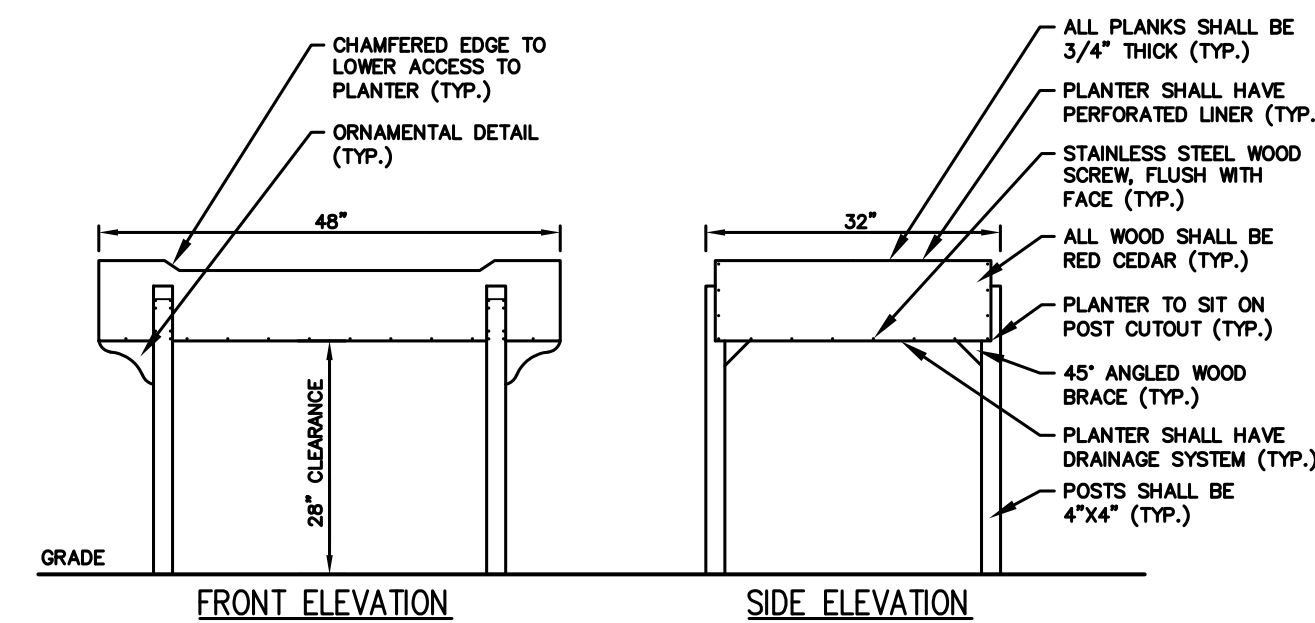
**FIRE PIT KIT**

N.T.S.



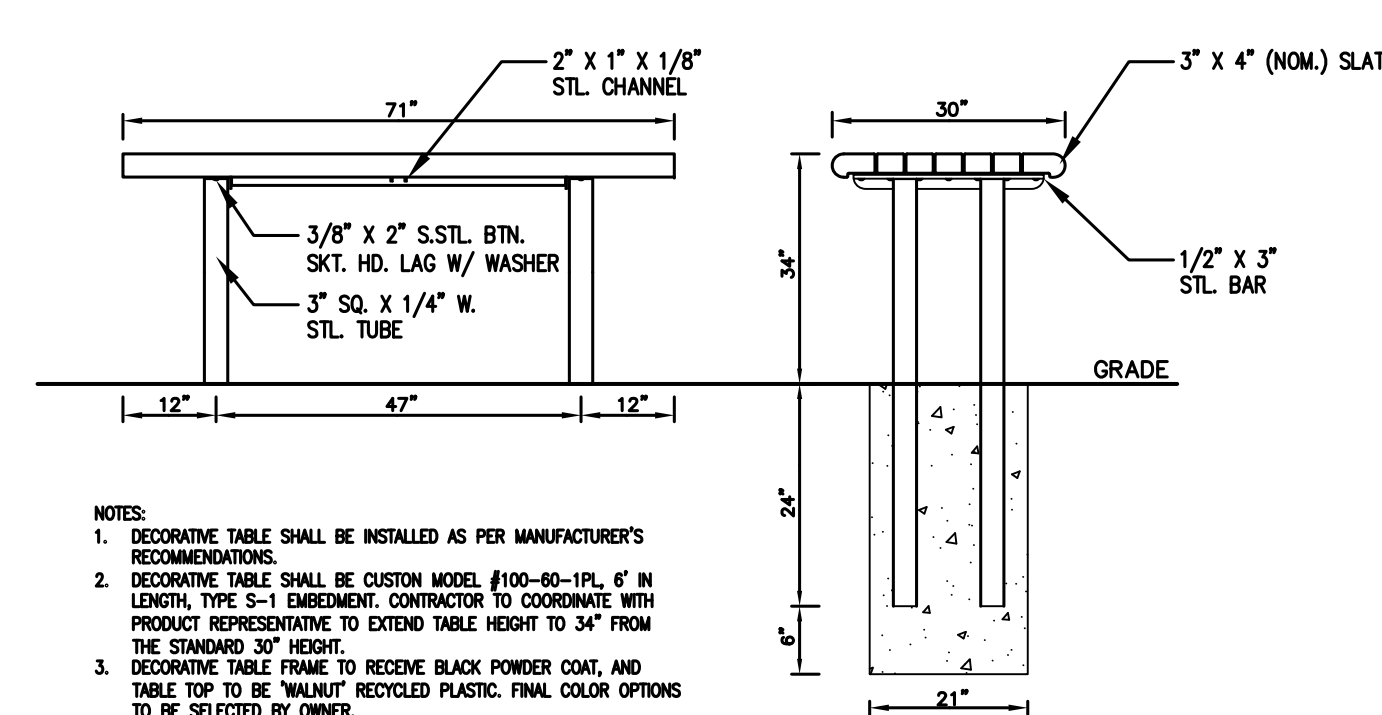
**FIRE WOOD STORAGE RACK**

N.T.S.



**RAISED GARDEN PLANTER**

N.T.S.

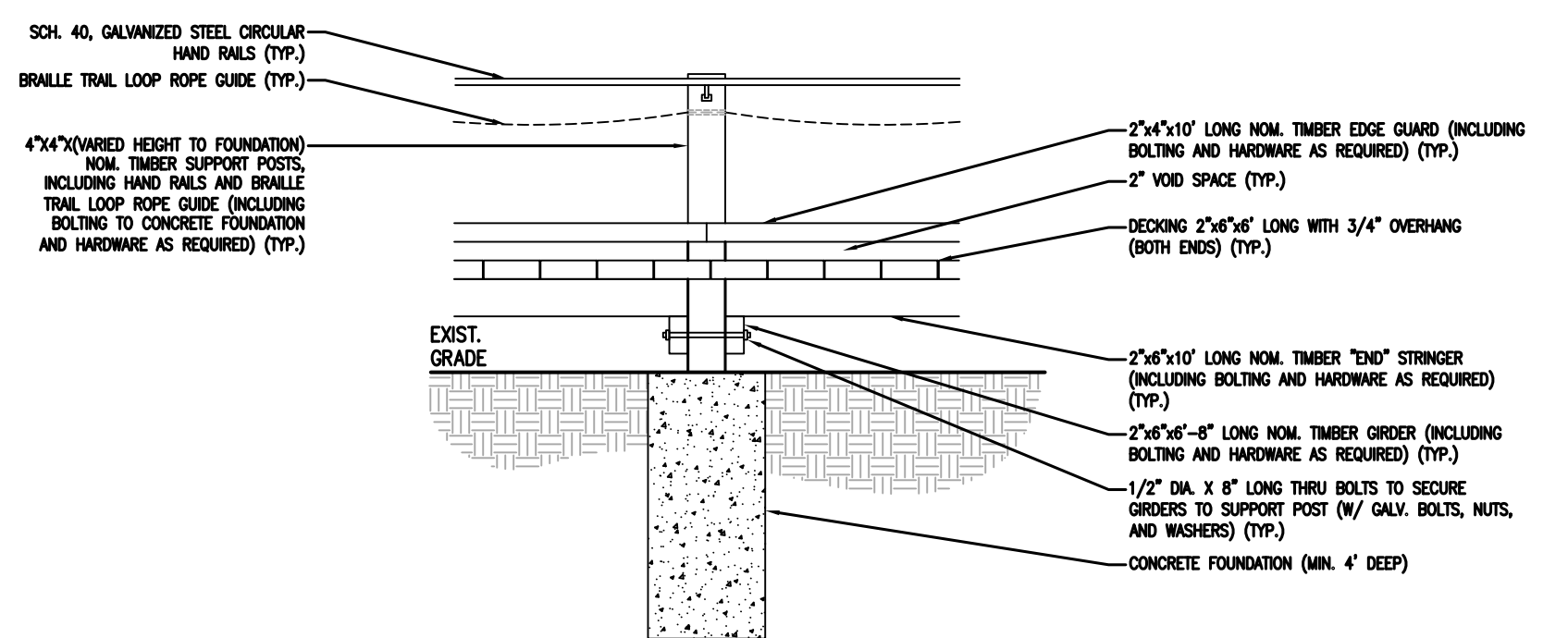
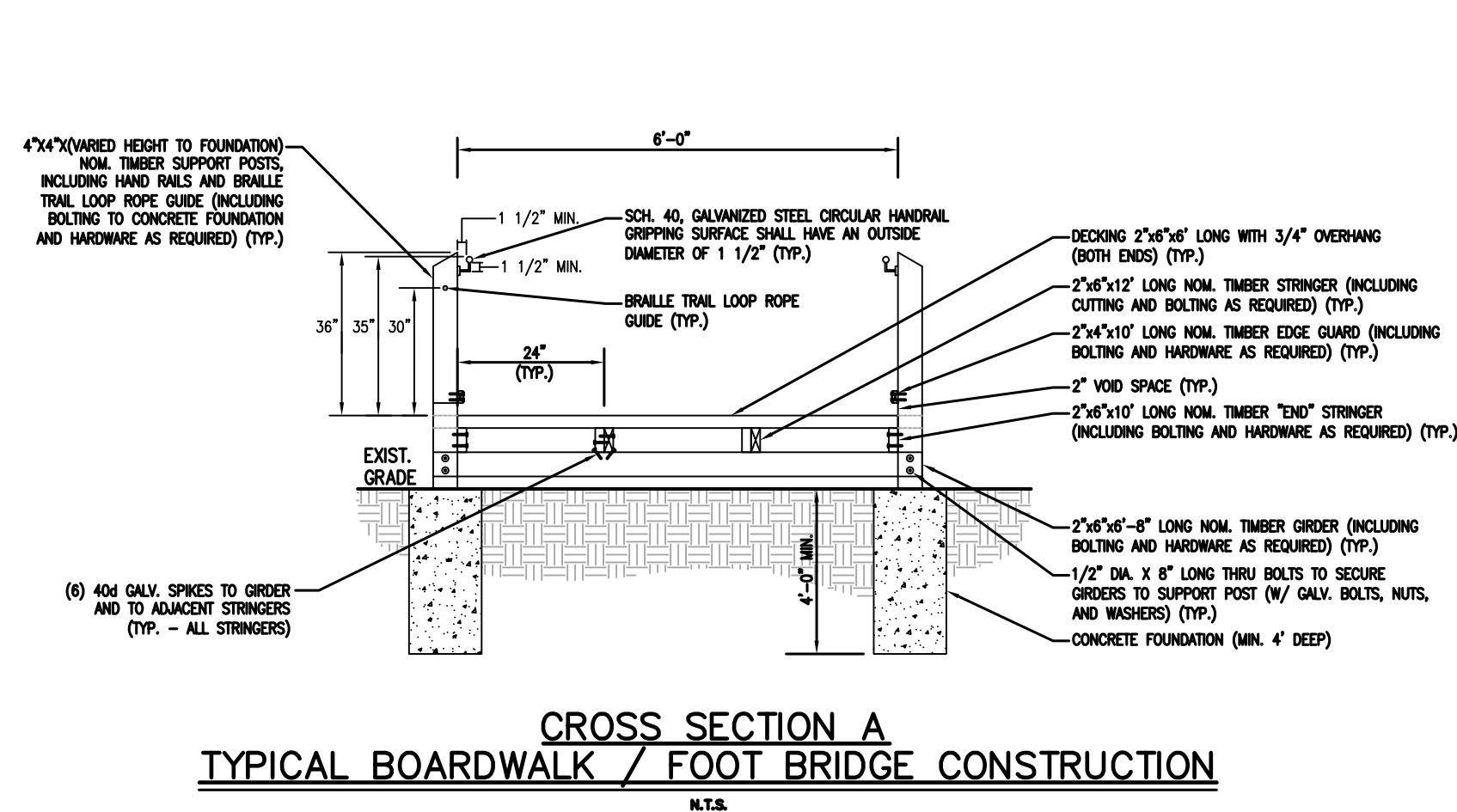


**DECORATIVE TABLE**

N.T.S.

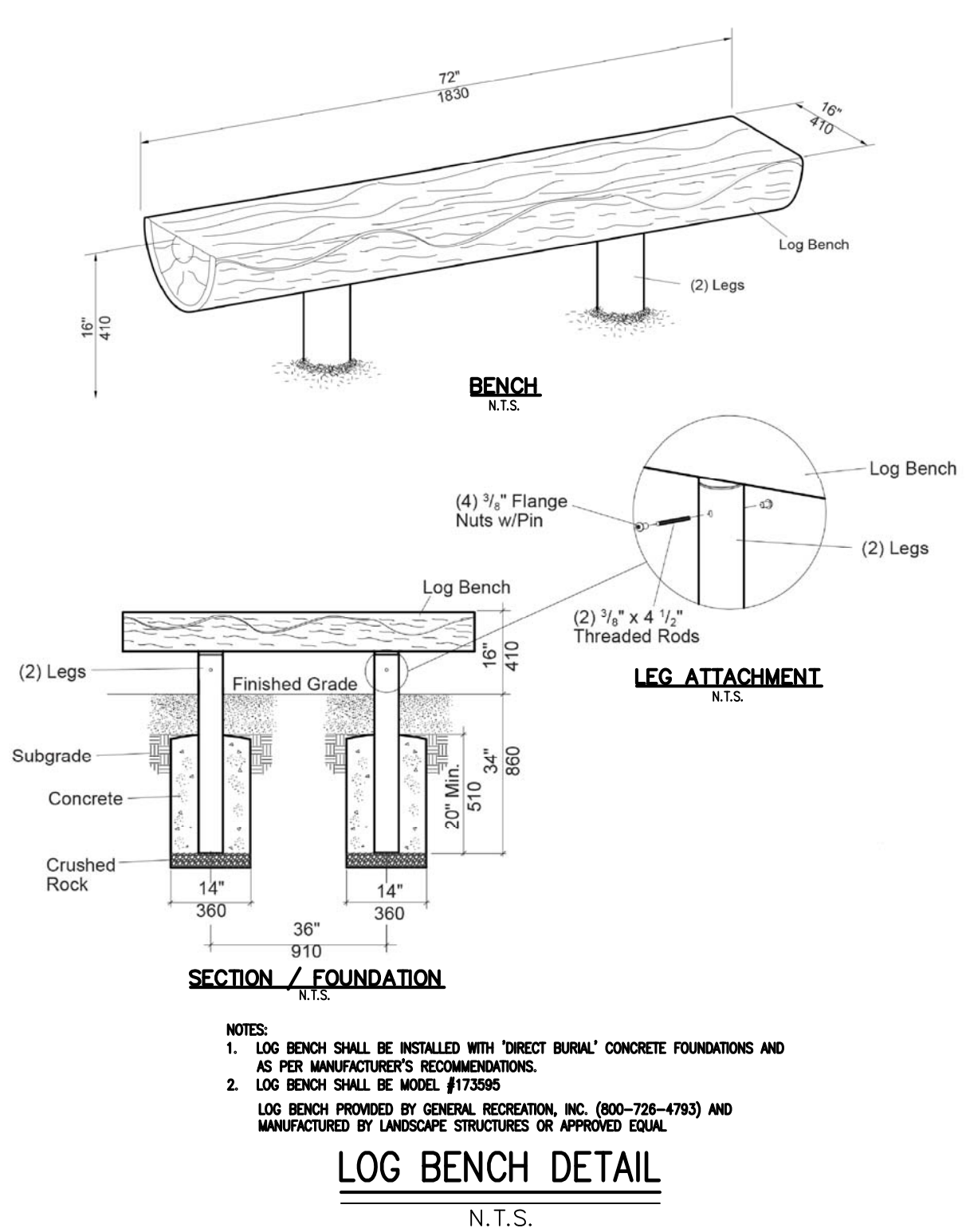
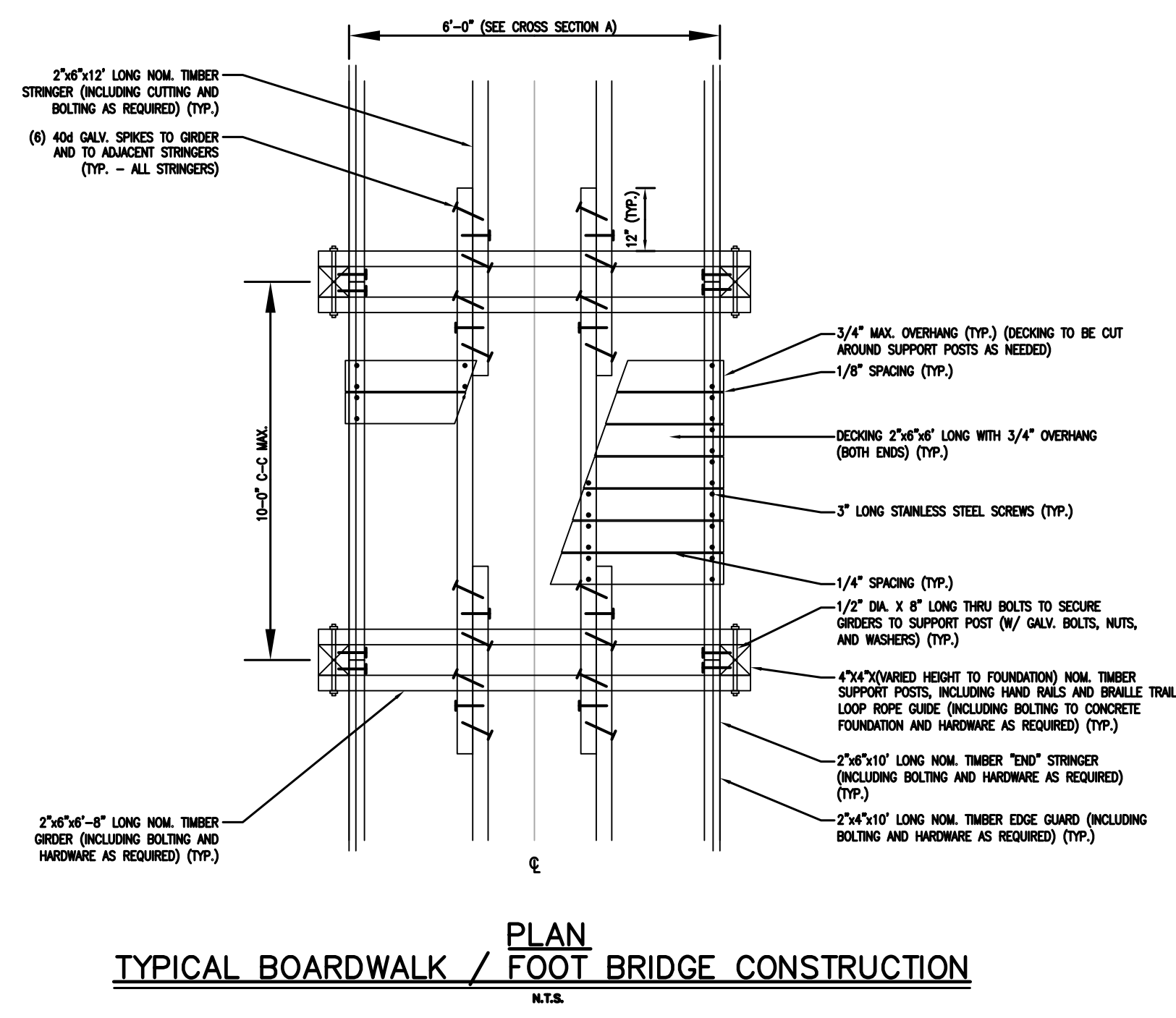
No.	REVISION FOR PROJECT BID	DATE	DGP	SEL
1	REVISED FOR PROJECT BID	10/14/16	DGP	SEL
BOROUGH OF MOUNTAINSIDE UNION COUNTY, NEW JERSEY <b>SENSORY TRAIL IMPROVEMENTS</b> <b>WATCHUNG RESERVATION</b> CONSTRUCTION DETAILS (1 OF 2)				
 <b>CONSULTING AND MUNICIPAL ENGINEERS</b> <small>2941 BORDENTOWN AVENUE, PARLIN, NEW JERSEY 08859   440 ROUTE 9 SOUTH, HOBOKEN, NEW JERSEY 07030-1914</small>				
<b>JOHN H. ALGAR P.E., P.P.</b> <small>NY REG. NO. 32892</small>		<b>DAVID J. SAMUEL P.E., P.P.</b> <small>NY REG. NO. 32892</small>		<b>JOHN J. STEFANI P.E., L.S. &amp; P.P.</b> <small>NY REG. NO. 32892</small>
<b>JAY B. CORNELL P.E., P.P.</b> <small>NY REG. NO. 32892</small>		<b>MICHAEL J. McCLELLAND P.E., P.P.</b> <small>NY REG. NO. 32892</small>		<b>GREGORY R. VALES P.E., P.P.</b> <small>NY REG. NO. 34468</small>
<b>GREGORY R. VALES P.E., P.P.</b> <small>NEW JERSEY PROFESSIONAL ENGINEER</small>				<b>AS SHOWN</b> <small>DESIGNED BY</small> DGP <small>CHECKED BY</small> TT <small>DATE</small> SEP 2016 <small>SHEET</small> 8 OF 10

DRAWING NO. UN206.01  
 DATE: 10/14/16  
 SCALE: AS SHOWN  
 SHEET: 8 OF 10

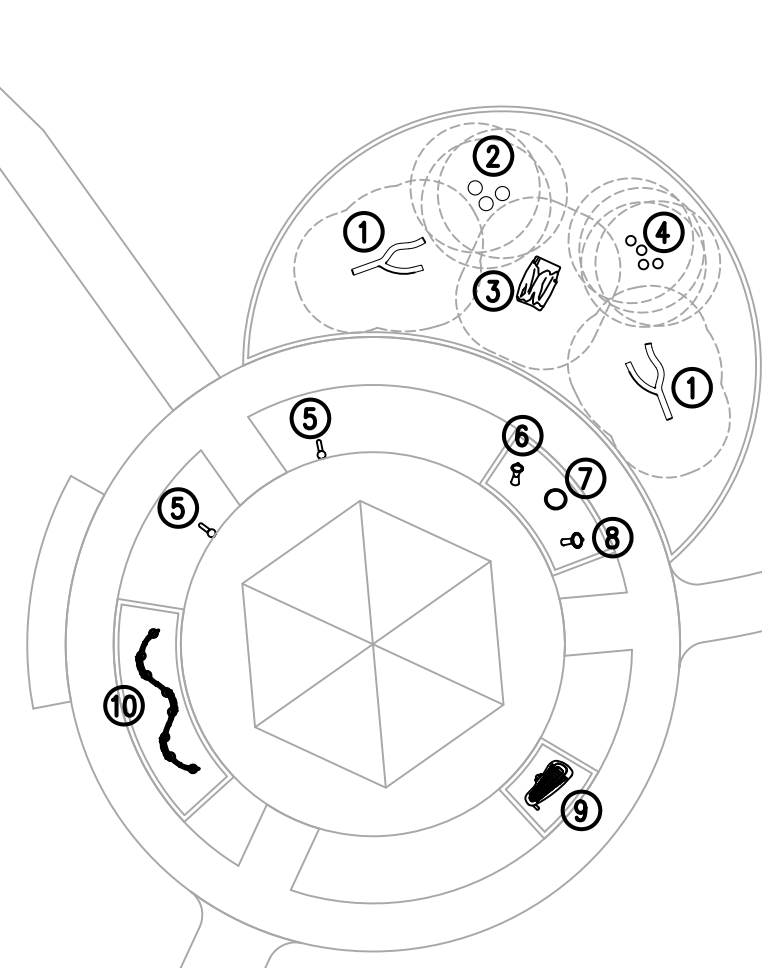


**NOTE:**

1. DECKING SHALL BE PRESSURE TREATED CEDAR. ALL FRAMING AND POSTS SHALL BE PRESSURE TREATED SOUTHERN YELLOW PINE.
2. DETAILS PROVIDED FOR BIDDING PURPOSES. CONTRACTOR TO PROVIDE SHOP SUBMITTALS DETAILING OVERALL LAYOUT, MATERIALS, CONNECTIONS, CONCRETE FOUNDATIONS, AND EXECUTION FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.



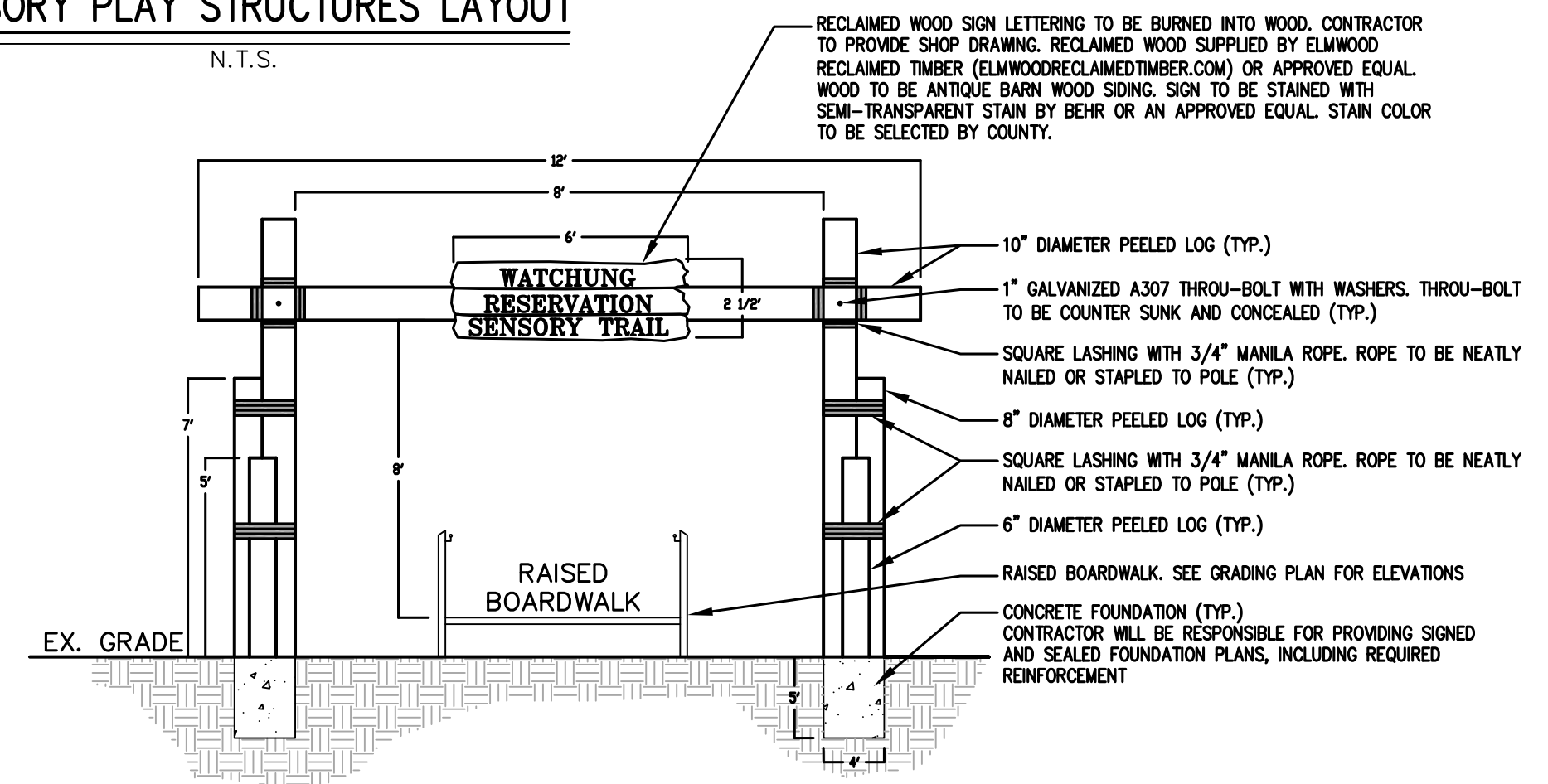
- SENSORY PLAY STRUCTURES LIST:**
- 1 LOG BALANCE BEAM
  - 2 MUSHROOM STEPPERS
  - 3 LOG CRAWL TUNNEL
  - 4 LOG STEPPERS
  - 5 CHITTER-CHATTER NOODLE
  - 6 KUNDO DRUM
  - 7 KETTLE DRUM
  - 8 GOBELT DRUM
  - 9 WWO METALLOPHONE
  - 10 SENSORY PLAY CENTER



**NOTES:**

1. CONTRACTOR TO REFER TO APPENDIX A IN THE SPECIFICATIONS FOR ADDITIONAL DETAILS.
2. ALL COMPONENTS SHALL BE INSTALLED WITH "DIRECT BURIAL" CONCRETE FOUNDATIONS AND AS PER MANUFACTURER'S SPECIFICATIONS.

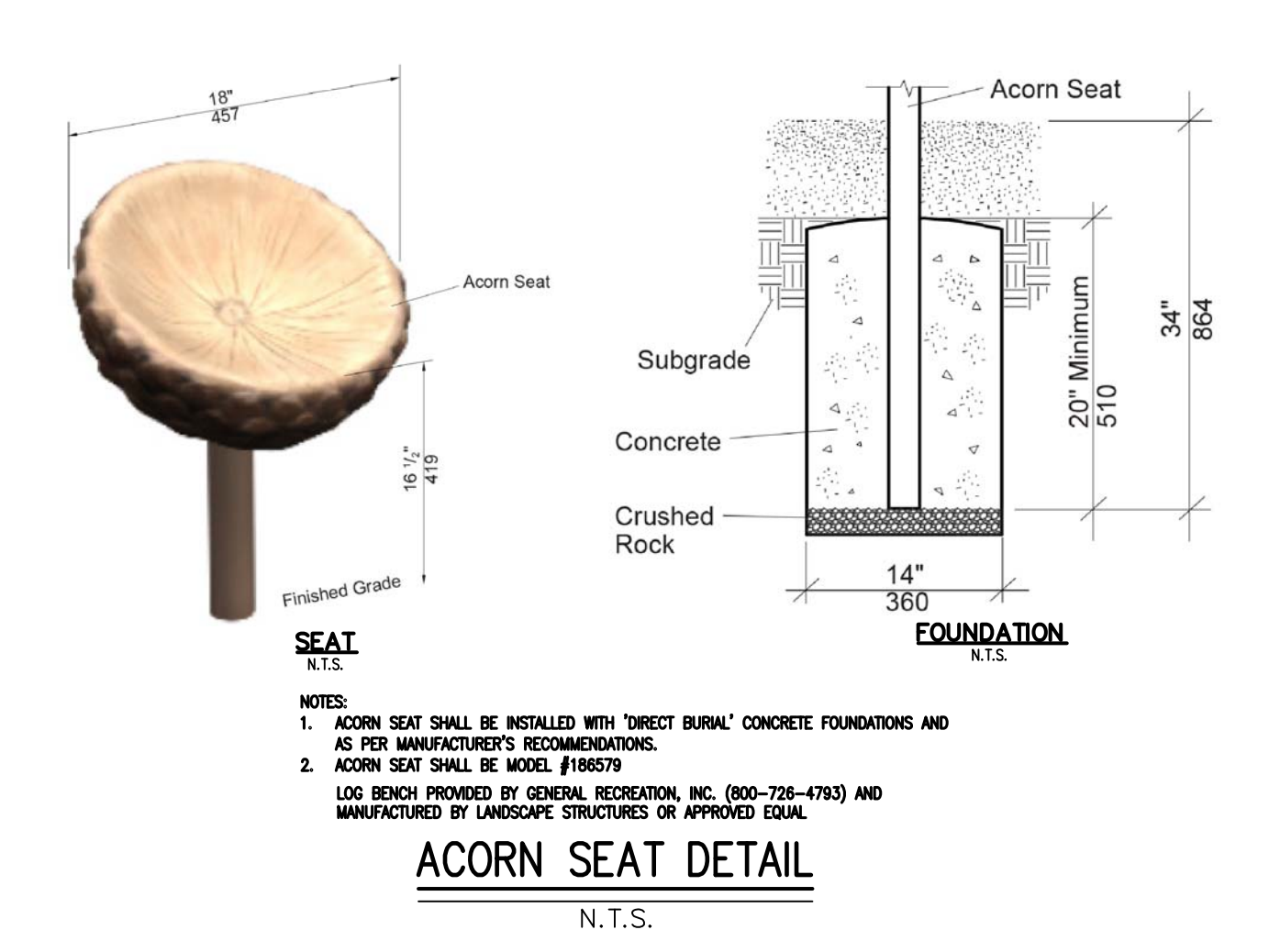
ALL COMPONENTS PROVIDED BY GENERAL RECREATION, INC. (800-728-4793) AND MANUFACTURED BY LANDSCAPE STRUCTURES OR APPROVED EQUAL.



**NOTES:**

1. CONTRACTOR SHALL PROVIDE SHOP SUBMITTALS DETAILING LAYOUT, CONCRETE FOUNDATIONS, REINFORCEMENT, AND EXECUTION FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.
2. CONTRACTOR IS RESPONSIBLE FOR THE PREPARATION OF PLANS AND DETAILS BY A N.J. LICENSED ENGINEER FOR SUBMITTAL TO THE CONSTRUCTION DEPARTMENT FOR PERMITTING.
3. ALL CONSTRUCTION SHALL COMPLY WITH APPLICABLE CODES.
4. ANY REQUIRED SOIL TESTING FOR BEARING CAPACITY DETERMINATION IS THE RESPONSIBILITY OF THE CONTRACTOR.
5. TIMBER TO BE HAWD PEELED BLUE PINE OR AN APPROVED EQUAL.

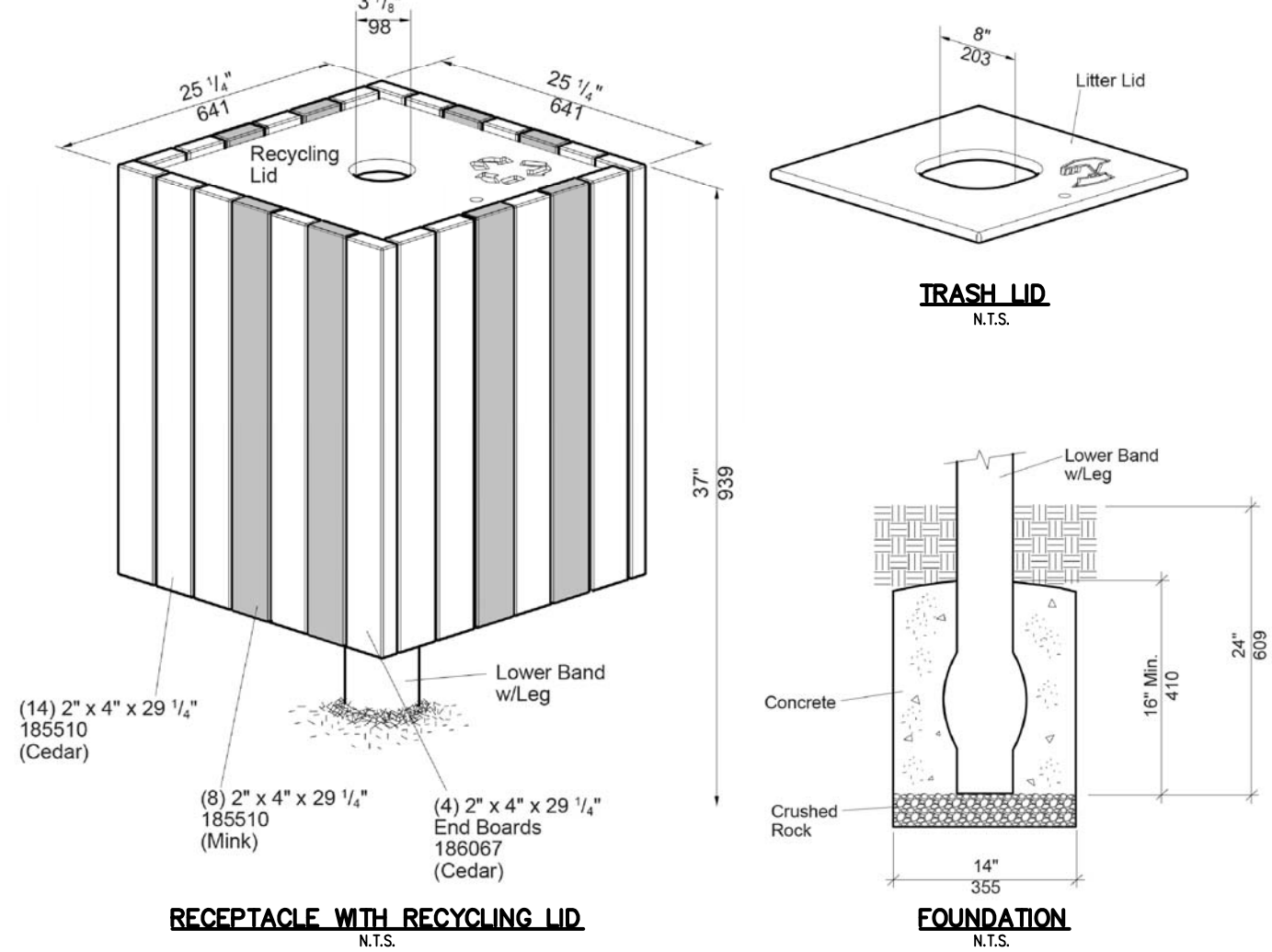
ALL COMPONENTS TO BE MANUFACTURED BY CUSTOM FABRICATION, INC. (607-693-3223) OR APPROVED EQUAL.



**NOTES:**

1. ACORN SEAT SHALL BE INSTALLED WITH "DIRECT BURIAL" CONCRETE FOUNDATIONS AND AS PER MANUFACTURER'S RECOMMENDATIONS.
2. ACORN SEAT SHALL BE MODEL #186579

LOG BENCH PROVIDED BY GENERAL RECREATION, INC. (800-728-4793) AND MANUFACTURED BY LANDSCAPE STRUCTURES OR APPROVED EQUAL.

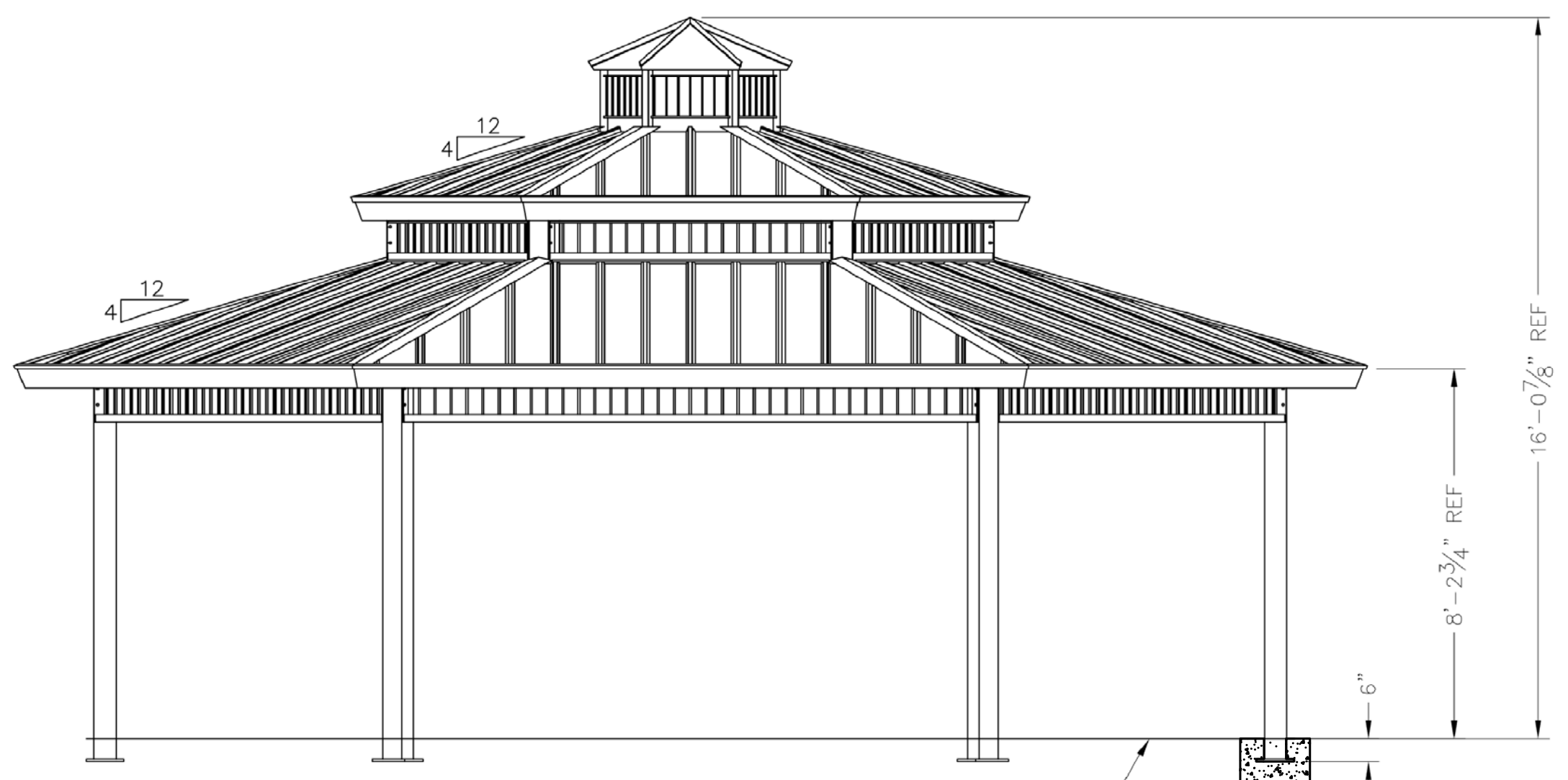


**NOTES:**

1. RECEPTACLES SHALL BE PLACED WITH MILDRED BED AND INSTALLED AS PER MANUFACTURER'S RECOMMENDATIONS. EACH RECEPTACLE SHALL HAVE ITS OWN "DIRECT BURIAL" CONCRETE FOUNDATION.
2. WOOD GRASS TRASH RECEPTACLE SHALL BE MODEL #186584
3. WOOD GRASS RECYCLING RECEPTACLE SHALL BE MODEL #186585

TRASH AND RECYCLING RECEPTACLES PROVIDED BY GENERAL RECREATION, INC. (800-728-4793) AND MANUFACTURED BY LANDSCAPE STRUCTURES OR APPROVED EQUAL.

**TRASH / RECYCLING RECEPTACLE DETAILS**  
N.T.S.



**NOTES:**

1. CONTRACTOR TO REFER TO APPENDIX B IN THE SPECIFICATIONS FOR ADDITIONAL DETAILS.
2. METAL ROOFING SHALL BE "MIMIC GREEN" STEEL FRAMEWORK SHALL BE "SUREBILT" BEIGE, AND UPPER AND OVERHEAD ORNAMENTATIONS SHALL BE "TECKE BROWN", OR AS CHOSEN BY OWNER.
3. CONTRACTOR SHALL PROVIDE SHOP SUBMITTALS DETAILING LAYOUT, CONCRETE FOUNDATIONS, REINFORCEMENT AND EXECUTION FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.
4. CONTRACTOR IS RESPONSIBLE FOR THE PREPARATION OF PLANS AND DETAILS BY A N.J. LICENSED ENGINEER FOR SUBMITTAL TO THE CONSTRUCTION DEPARTMENT FOR PERMITTING.
5. ALL CONSTRUCTION SHALL COMPLY WITH APPLICABLE CODES.
6. ANY REQUIRED SOIL TESTING FOR BEARING CAPACITY DETERMINATION IS THE RESPONSIBILITY OF THE CONTRACTOR.

GAZEBO PROVIDED BY BEN SHAFER RECREATION INC. (732-840-1080) AND MANUFACTURED BY ICON SHELTER SYSTEMS INC OR APPROVED EQUAL.

No.	DESCRIPTION OF REVISION	DATE	DRAWN	CHECKED
BOROUGH OF MOUNTAINSIDE UNION COUNTY, NEW JERSEY <b>SENSORY TRAIL IMPROVEMENTS            WATCHUNG RESERVATION</b> CONSTRUCTION DETAILS (2 OF 2)				
 <b>GVE ASSOCIATES</b> CONSULTING AND MUNICIPAL ENGINEERS <small>3941 BORDENTOWN AVENUE, PAOLI, NEW JERSEY 08059-1660 ROUTE 9 SOUTH, HOBOKEN, NEW JERSEY 07030-1914</small>				
JOHN H. ALGAR P.E., P.P. <small>(P.E. #2891)</small>	DAVID J. SAMUEL P.E., P.P. <small>(P.E. LIC. NO. 3489)</small>	JOHN J. STEFANI P.E., L.S. & P.P. <small>(P.E. LIC. NO. 3489)</small>		
JAY B. CORNELL P.E., P.P. <small>(P.E. LIC. NO. 32962)</small>	MICHAEL J. McCLELLAND P.E., P.P. <small>(P.E. LIC. NO. 34488)</small>	GREGORY R. VALES P.E., P.P. <small>(P.E. LIC. NO. 34488)</small>		
<b>GREGORY R. VALES P.E., P.P.</b> 			SCALE <b>AS SHOWN</b>	DESIGNED BY <b>DGP</b>
			DATE <b>SEP 2016</b>	CHECKED BY <b>TT</b>
			NEW JERSEY PROFESSIONAL ENGINEER <small>N.J. LIC. 34458</small>	SHEET <b>9 OF 10</b>

PLANTING NOTES:

- 1. THE LANDSCAPE CONTRACTOR SHALL FURNISH ALL PLANT MATERIAL AND INSTALLATION AS INDICATED, INCLUDING ALL LABOR, MATERIALS, EQUIPMENT, INCIDENTAL INCLUDING WATERING AND CLEAN-UP.
2. THE LANDSCAPE CONTRACTOR SHALL PERFORM SOIL SAMPLING OF THE SITE IF DEEMED NECESSARY, PRIOR TO ANY PLANT INSTALLATIONS TO DETERMINE SOIL CHARACTERISTICS. IF NECESSARY, ADJUSTMENTS SHALL BE MADE BY THE LANDSCAPE CONTRACTOR IN COOPERATION WITH THE OWNER BASED ON THE SOIL TEST REPORT TO ENSURE SURVIVAL OF ALL PLANT MATERIAL.
3. THE CONTRACTOR SHALL LOCATE AND VERIFY THE EXISTENCE OF ALL UTILITIES AND/OR CONFLICTING SITE ADJUSTMENTS PRIOR TO STARTING THE WORK.
4. ALL PLANTS SHALL BE DIRT, PACKED, TRANSPORTED, AND HANDLED WITH UTMOST CARE AND PROTECTION FROM HEAVY AND DESTRUCTION.
5. ALL PLANTS SHALL BE FREE FROM DISEASE AND INFESTATION.
6. THE CENTRAL LEADER SHALL NOT BE CUT, DAMAGED, OR BROKEN. NO PLANT WITH CENTRAL LEADER DAMAGE SHALL BE ACCEPTED.
7. PLANTS SHALL NOT BE PRUNED ON LOCATION UNLESS IT IS NECESSARY TO REMOVE BROKEN OR DAMAGED LIMBS.
8. ALL PLANT MATERIAL SHALL BE GUARANTEED BY THE CONTRACTOR TO BE IN VIGOROUS GROWING CONDITION AND HAVE AN ACCEPTABLE HABIT. PROVISIONS SHALL BE MADE FOR A BIRTH GUARANTEE OF AT LEAST ONE YEAR FOR TREES AND A MINIMUM OF ONE GROWING SEASON FOR SHRUBS OR AS FOR THAT WHICH MAY BE STATED IN THE MUNICIPALITY'S LAND DEVELOPMENT ORDINANCE. REPLACEMENTS SHALL BE MADE AT THE BEGINNING OF THE FIRST SUCCESSFUL PLANTING SEASON. ALL REPLACEMENTS SHALL HAVE A GUARANTEE EQUAL TO THAT STATED ABOVE.
9. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE WATER AND FERTILIZER TO ALL PLANT MATERIAL DURING THE GUARANTEE PERIOD TO ENSURE PLANT SURVIVAL.
10. THE MINIMUM DEPTH OF TOPSOIL IN PARKING LOT ISLANDS SHALL BE TWO FEET.
11. TREES SHALL BE ROOTED INTO THE BALL SO THAT SOIL OR MEDIA REMAINS INTACT AND TRUNK AND ROOTBALL MOVE AS ONE WHEN LIFTED. THE TREE TRUNK SHOULD BEHOLD MORE VERTICALLY POSITIONED, NOT POINT AT OR BELOW THE SOIL LINE.
12. THE POINT WHERE THE TOP-MOST ROOT IN THE ROOT BALL EMERGES FROM THE TRUNK (PLAIR) SHALL BE VISIBLE AT THE SOIL SURFACE.
13. THE RELATIONSHIP BETWEEN CALIPER, HEIGHT AND ROOTBALL SIZE FOR ALL TREES SHALL MEET ANSI Z60.1 STANDARDS.
14. ALL DECIDUOUS SHADE TREES SHALL HAVE ONE DOMINANT CENTRAL LEADER, MORE OR LESS STRAIGHT TO THE TOP OF THE TREE WITH THE LARGEST BRANCHES PLACED AT LEAST 3 INCHES APART. THERE CAN BE A DOUBLE LEADER IN THE TOP 1/3 OF THE TREE CANOPY.
15. THE TREE CANOPY SHOULD BE SYMMETRICAL, FREE OF LARGE HOLES, AND TYPICAL OF THE SPECIES OR CULTURE. LIVE DOWNY BATH DISTANCES FROM BOTTOM OF CANOPY TO TREE TOP (TREE HEIGHT) SHOULD BE AT LEAST 60%.
16. BRANCHES SHOULD BE LESS THAN 2/3 THE TRUNK DIAMETER. FREE OF BARK INCLUSIONS, AND MORE OR LESS RADICALLY DISTURBED AROUND THE TRUNK.
17. TREE TRUNKS AND MAIN BRANCHES SHALL BE FREE OF WOUNDS, DAMAGED AREAS, CONKS, BLEEDING, AND SIGNS OF INSECTS OR DISEASE.
18. THE MINIMUM DEPTH OF TOPSOIL IN PARKING LOT ISLANDS SHALL BE TWO FEET.
19. BACKFILL MATERIAL FOR PLANTING PITS SHALL BE ONE-THIRD PEAT MOSS, ONE-THIRD SCREENED TOPSOIL, AND ONE-THIRD TOPSOIL FROM THE SITE (NATIVE, FREE OF ACIDIC MARL, STICKS, LARGE STONES, DEBRIS, OR OTHER OBJECTIONABLE MATERIALS). BACKFILL MIX UNTIL HOLE IS 3/4 FILLED. WATER AND BACKFILL TO FINISHED GRADE WHEN WATER HAS PERCOLATED. TREE SHALL BE PLANTED ON UNDISTURBED SUB-SOIL TO PREVENT SETTLING.
20. PLANTS SHALL BE SET TO ULTIMATE FINISH GRADE SO THAT THEY BEAR THE SAME RELATIONSHIP TO THE SURROUNDING GRADE AS THEY HAD PRIOR TO BEING DUG. ALL PLANTS SHALL BE SET PLUM AND STRAIGHT IN THE CENTER OF THE PIT.
21. ANY CORD BINDING THE BALL OF ALL BALLED AND BURLAPPED (BARI) PLANTS SHALL BE CUT AND THE BURLAP ON THE UPPER ONE-THIRD PORTION OF THE ROOT BALL SHALL BE TUNED DOWNWARD BELOW FINISHED GRADE PRIOR TO BACKFILLING. SYNTHETIC MATERIALS SHALL BE COMPLETELY REMOVED. TREES INSTALLED WITH WIRE BASKETS SHOULD HAVE THE FIRST TWO COURES OF WIRE BASKET REMOVED COMPLETELY TO PREVENT THE POTENTIAL FOR GIRDLED ROOT GROWTH.
22. TREES SHALL BE STAKED IMMEDIATELY AFTER PLANTING IN ACCORDANCE WITH THE DETAIL. ALL SUPPORT SYSTEMS IN DIRECT CONTACT WITH THE TREE TRUNK SHALL BE LOGGED, ATTACHED TO PREVENT GIRDLING. ALL TRUNK PROTECTION WRAPPING SHALL BE REMOVED AT THE TIME OF PLANTING.
23. ALL EVERGREEN AND DECIDUOUS TREES FIVE FEET OR GREATER IN HEIGHT SHALL BE STAKED AS PER DETAIL. ALL SUPPORTS SHALL BE REMOVED WITHIN ONE YEAR OF PLANTING FROM TREES THAT DO NOT NEED OBLIQUE STRUTTING.
24. ALL PARKING ISLANDS SHALL BE MULCHED. ALL SHADE/ORNAMENTAL TREES SHALL BE SET IN 18" DIAMETER MULCHED BASKETS. MULCH SHALL BE CONTINUED. IF A SHADE/ORNAMENTAL TREE IS IN CLOSE PROXIMITY TO SHRUB MASSING, THE MULCH SHOULD BE APPLIED TO THE SHRUB MASSING. MULCH SHALL RECEIVE A 3" THICK APPLICATION OF DOUBLE SHREDED HARDWOOD MULCH. THE MULCH SHALL NOT BE PLACED IN DIRECT CONTACT WITH THE ROOT COLLAR AREA OF THE TREE.
25. RED LINES SHALL HAVE A CLEAR SHARP EDGE CUT WITH A SPADE UNLESS OTHERWISE SPECIFIED.
26. ANY CHANGES IN PLANT SPECIES, SIZE, OR LOCATION SHALL BE CONFIRMED AND APPROVED BY THE LANDSCAPE ARCHITECT. TREE ASSOCIATES, 70-460-7400 PRIOR TO INSTALLATION. WRITTEN APPROVAL OF ANY PLANT MATERIAL CHANGE MAY BE REQUIRED BY THE MUNICIPALITY'S LANDSCAPE ARCHITECT OR SHADE TREE COMMISSION. ALL SUBSTITUTIONS WILL BE OF EQUAL OR GREATER SIZE THAN THE ORIGINALLY SPECIFIED SPECIES.
27. ALL PLANTING MATERIALS AND METHODS SHALL MEET OR EXCEED THE REQUIREMENTS SET FORTH BY THE MUNICIPALITY AND LATEST EDITION OF THE OF THE AMERICAN STANDARDS FOR NURSERY STOCK. THE LANDSCAPE CONTRACTOR SHOULD BE PREPARED TO MAKE AVAILABLE UPON REQUEST, A NURSERY STOCK CERTIFICATE OR PLANT DEALER CERTIFICATION TO CONFIRM NURSERY STOCK CERTIFICATION BY THE NEW JERSEY DEPARTMENT OF AGRICULTURE.
28. ALL AREAS WHICH ARE TO BE DISTURBED BEYOND THE MULCHED BEDS SHALL BE SEDED WITH THE TURF GRASS MIXTURE FOUND IN THE SOIL CROSS-SECTION AND SOIL CONTROL DETAIL SHEET.
29. NO SHADE TREE SHALL BE LOCATED CLOSER THAN 8' FROM ANY LIGHT FIXTURE.
30. TREES LOCATED WITHIN THE RIGHT TRAMBLE EASEMENTS SHALL HAVE THE LOWEST BRANCH MAINTAINED AT A MINIMUM HEIGHT OF 8'0" ABOVE THE INTERSECTING CORNERLINE OR WHICH IS INDICATED BY THE MUNICIPALITY'S ORDINANCE. SHRUBS SHALL BE MAINTAINED AT A HEIGHT NOT TO EXCEED 3'0" ABOVE THE INTERSECTING CORNERLINE.
31. ALL TREES UTILIZED FOR STREET TREE PLANTINGS WILL BE NURSERY PRUNED TO 7 FEET.
32. ALL EXISTING LANDSCAPING LOCATED ON-SITE TO REMAIN, UNLESS OTHERWISE INDICATED ON THE PLAN.
33. IF THERE ARE ANY DISCREPANCIES BETWEEN PLANT LIST AND PLAN, PLAN SHALL BE CONTROLLING.
34. STEEP SLOPES GREATER THAN 3:1 OUTSIDE OF THE PROPOSED PROPERTY LINES SHALL BE STABILIZED IN ACCORDANCE WITH SOIL EROSION AND SEDIMENT CONTROL NOTES FOR AJTE MATING SPECIFICATIONS AND SEEDED WITH THE FOLLOWING SPECIFICATION:
LUTYS ECOLOGY MIX OR APPROVED EQUIVA.
80% R ELIANT II HARD PESKIC
20% JAMSTON II CHIMING PESKIC
100% CERTIFIED SEED, MIX RATE:
AT A RATE OF 300 LBS. PER ACRE
OPTIMUM SEEDING DATES ARE APRIL 1 TO MAY 31 AND AUGUST 15 TO OCTOBER 15.
AT A RATE OF 10 LBS. PER ACRE
AND
RELIANT HARD PESKIC AT A RATE OF 20 LBS. PER ACRE
OPTIMUM SEEDING DATES ARE MARCH 15 TO JUNE 15 AND AUGUST 15 TO OCTOBER 15.
35. ALL SUBSTITUTIONS WILL BE OF EQUAL OR GREATER SIZE THAN THE ORIGINALLY SPECIFIED SPECIES.
36. ENSURE THAT EXCESSIVE MULCH IS NOT PLACED AGAINST THE TRUNKS OR STEMS OF THE PLANTS.
37. ADEQUATE CLEARANCE MUST BE PROVIDED FOR ALL DRIVEWAYS, UTILITIES AND WALKWAYS.

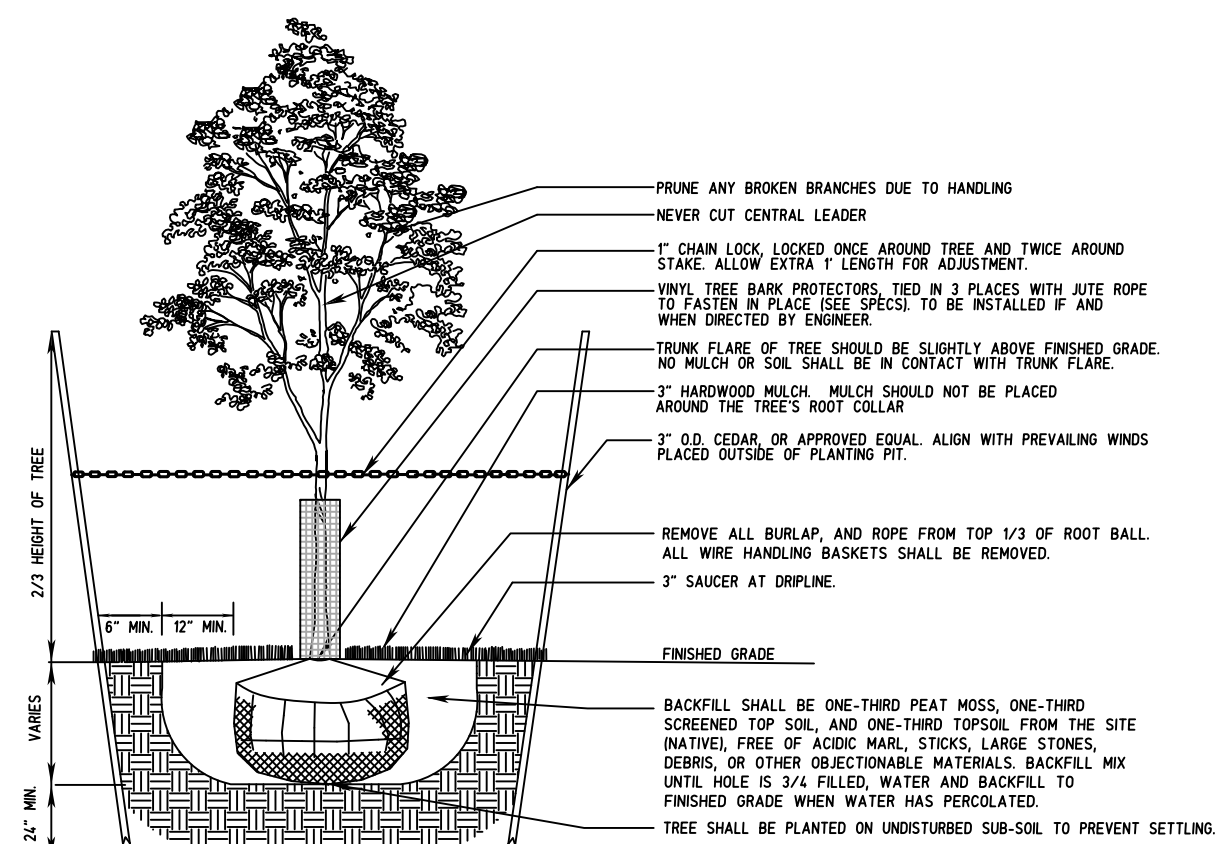
PLANT SCHEDULE

Table with columns: QUANTITY, SYMBOL, BOTANICAL NAME, COMMON NAME, SIZE, COMMENTS. Includes categories like (SHADE TREES), (ORNAMENTAL TREES), (EVERGREEN TREES), (SHRUBS), and (PERENNIALS & ORNAMENTAL GRASSES).

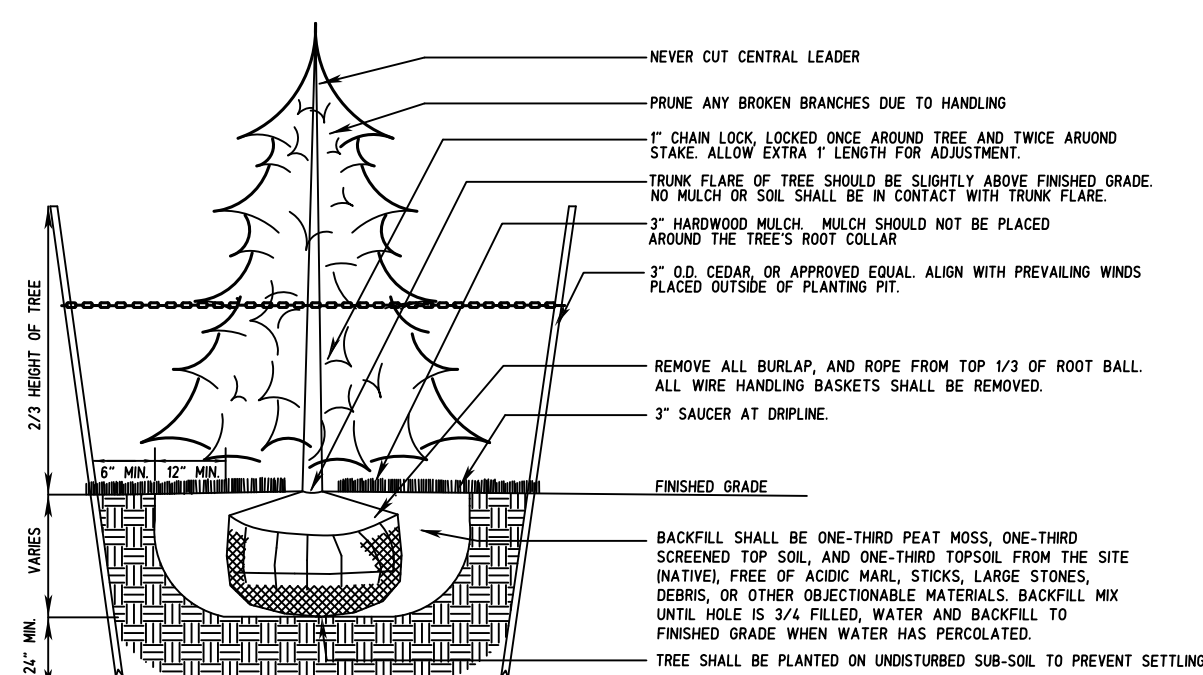
Note: All Trees To Be Balled & Burlapped and Shall Meet ANSIZ Z60.1 Standards

Note: The Following List of Trees Are Considered to Have A High Risk of Failure When Dug From Growing Locations in The Fall (Autumn)

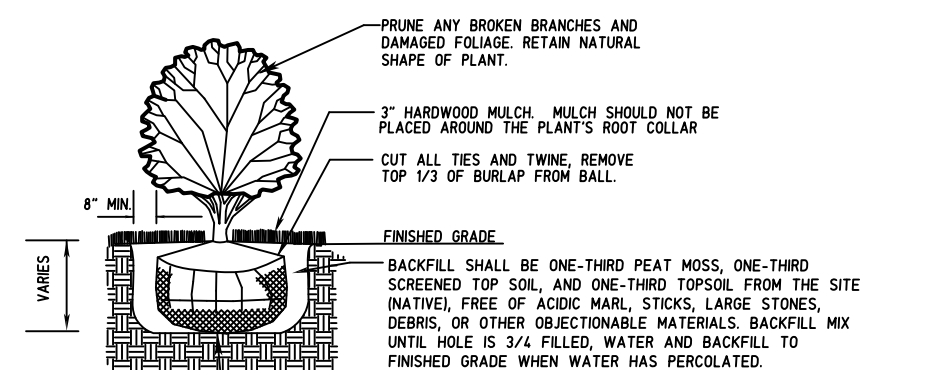
Table listing tree varieties such as Betula, Halesia, Ostrya, Sorbus, Carpinus, Koelerutaria, Prunus, Tilia, Celtis, Liquidambar, Pyrus, Ulmus, Cercidiphyllum, Liquidambar, Quercus, Crataegus, Malus, Nyssa, and Fagus.



DECIDUOUS TREE PLANTING DETAIL



CONIFER TREE PLANTING DETAIL



SHRUB PLANTING DETAIL

Professional engineering stamp for Gregory R. Valesi, P.E., P.P. for the project 'SENSORY TRAIL IMPROVEMENTS WATCHUNG RESERVATION LANDSCAPE NOTES & DETAILS'. Includes date (SEP 2016) and scale (AS SHOWN).