



## **PROJECT MANUAL**

### **Kelly Middle School Track and Field Project 2014**

#### **Eugene School District 4j**

850 Howard Ave  
Eugene, OR 97404

**Date:** May 22, 2014

**Owner:** Eugene School District 4j

**Architect:** PIVOT Architecture, PC  
44 West Broadway Suite 300  
Eugene, Oregon 97401  
p.541.342.7291



**SECTION 00 0101**  
**PROJECT TITLE PAGE**

**PROJECT INFORMATION**

**PROJECT NAME**

4j Kelly Middle School Track and Field Project - 2014

**DATE OF ISSUE**

May 19, 2014

**PROJECT OWNER**

Eugene School District 4j

**CIP NUMBER**

410-524-019

**ARCHITECT'S PROJECT NUMBER**

1415

**PROJECT ADDRESS**

850 Howard Ave, Eugene, OR 97404

**OWNER**

Eugene School District 4j

715 West Fourth Avenue, Eugene, Oregon 97402

Phone: (541) 790-7400; Fax: (541) 790-7404

Contact: Don Philpot

**ARCHITECT**

PIVOT Architecture

44 West Broadway, Suite 300, Eugene, OR 97401

Phone: (541) 342-7291

Contact: Curt N. Wilson, AIA - [cwilson@pivotarchitecture.com](mailto:cwilson@pivotarchitecture.com)

**ELECTRICAL ENGINEER**

JLG Engineering, LLC

31910 Owl Road

Phone: (541) 912-0065

Contact: Jeff Graper, PE

**CIVIL ENGINEER**

Balzhiser & Hubbard Engineers, Inc.

100 West 13th Avenue, Eugene, OR 97401

Phone: (541) 686-8478

Contact: John Hornberger, PE

**LANDSCAPE ARCHITECT**

Cameron McCarthy Landscape Architects

160 East Broadway, Eugene, OR 97401

Phone: (541) 485-7385

Contact: Marina Wrensch

**END OF SECTION**



**SECTION 00 0110**  
**TABLE OF CONTENTS**

**PROCUREMENT AND CONTRACTING REQUIREMENTS**

**DIVISION 00 -- PROCUREMENT AND CONTRACTING REQUIREMENTS**

- 00 0101 - Project Title Page
- 00 0110 - Table of Contents
- 00 0115 - List of Drawing Sheets
- 00 1113 - Invitation To Bid
- 00 2113 - Instructions to Bidders, AIA Document A701
- 00 2213 - Supplementary Instructions to Bidders
- 00 4113 - Bid Form
- 00 4522 - First Tier Subcontractor Disclosure Form
- 00 5213 - Form of Agreement
- 00 7213 - General Conditions, AIA Document A201
- 00 7300 - Supplementary Conditions
- 00 7343 - Prevailing Wage Rates for Public Contracts in Oregon
- 00 3100 - Available Project Information

**SPECIFICATIONS**

**DIVISION 01 -- GENERAL REQUIREMENTS**

- 01 1100 - Summary of Work
- 01 2300 - Alternates
- 01 2500 - Contract Modification Procedures
- 01 2501 - CR/PO Form
- 01 2900 - Payment Procedures
- 01 3100 - Project Management and Coordination
- 01 3200 - Construction Progress Documentation
- 01 3300 - Submittal Procedures
- 01 4000 - Quality Requirements
- 01 5000 - Temporary Facilities and Controls
- 01 6000 - Product Requirements
- 01 6023 - Substitution Request Form
- 01 7300 - Execution Requirements
- 01 7329 - Cutting and Patching
- 01 7700 - Closeout Procedures
- 01 7823 - Operation and Maintenance Data
- 01 7839 - Project Record Documents

**DIVISION 02 -- EXISTING CONDITIONS**

**DIVISION 03 -- CONCRETE**

- 03 1000 - Concrete Forming and Accessories
- 03 2000 - Concrete Reinforcing
- 03 3000 - Cast-in-Place Concrete

**DIVISION 04 -- MASONRY**

04 2000 - Unit Masonry

**DIVISION 05 -- METALS**

05 5000 - Metal Fabrications

**DIVISION 06 -- WOOD, PLASTICS, AND COMPOSITES**

06 4100 - Architectural Wood Casework

**DIVISION 07 -- THERMAL AND MOISTURE PROTECTION**

07 4113 - Metal Roof Panels

07 6200 - Sheet Metal Flashing and Trim

07 9005 - Joint Sealers

**DIVISION 08 -- OPENINGS**

08 3613 - Sectional Doors

08 7100 - Door Hardware

**DIVISION 09 -- FINISHES**

09 9000 - Painting and Coating

**DIVISION 10 -- SPECIALTIES**

10 4400 - Fire Protection Specialties

**DIVISION 11 -- EQUIPMENT**

11 6833 - Athletic Field Equipment

**DIVISION 12 -- FURNISHINGS**

**DIVISION 13 -- SPECIAL CONSTRUCTION**

**DIVISION 14 -- CONVEYING EQUIPMENT**

**DIVISION 21 -- FIRE SUPPRESSION**

**DIVISION 22 -- PLUMBING**

**DIVISION 23 -- HEATING, VENTILATING, AND AIR-CONDITIONING (HVAC)**

**DIVISION 26 -- ELECTRICAL**

26 0500 - General Electrical Provisions

26 0533 - Basic Materials and Methods

26 5668 - Field Lighting

**DIVISION 27 -- COMMUNICATIONS**

**DIVISION 28 -- ELECTRONIC SAFETY AND SECURITY**

**DIVISION 31 -- EARTHWORK**

31 2200 - Grading

31 2316 - Excavation

31 2323 - Fill

31 2324 - Subbase at Synthetic Turf

31 2333 - Trenching and Backfill

31 2500 - Erosion Control

**DIVISION 32 -- EXTERIOR IMPROVEMENTS**

32 1200 - Flexible Paving

32 1313 - Concrete Paving

- 32 1600 - Concrete Sidewalks
- 32 1800 – Synthetic Turf
- 32 1823.33 - Synthetic Running Track Surfacing
- 32 3113 - Chain Link Fences and Gates
- 32 8000 - Irrigation

**DIVISION 33 -- UTILITIES**

- 33 4000 - Storm Drainage Utilities
- 33 4913 - Storm Drainage Manholes, Frames, and Covers

**END OF TABLE OF CONTENTS**



**SECTION 00 0115**  
**LIST OF DRAWING SHEETS**

**DRAWING SHEETS**

**GENERAL**

A000	TITLE SHEET
G021	SURVEY WEST
G022	SURVEY EAST

**LANDSCAPE**

D200	IRRIGATION DEMO PLAN
L100	IRRIGATION PLAN
L200	IRRIGATION DETAILS

**CIVIL**

C101	EROSION AND SEDIMENT CONTROL PLAN
C102	EROSION AND SEDIMENT CONTROL NOTES
C103	EROSION AND SEDIMENT CONTROL DETAILS
C121	HORIZONTAL CONTROL PLAN
C122	HORIZONTAL CONTROL TABLES
C131	GRADING PLAN
C141	STORM DRAIN PLAN
C151	PAVING PLAN
C201	CIVIL DETAILS, GENERAL NOTES AND LEGENDS
C202	CIVIL DETAILS, GENERAL NOTES AND LEGENDS

**DEMOLITION**

D100	EXISTING SITE DEMOLITION PLAN
------	-------------------------------

**ARCHITECTURE**

A050	OVERALL SITE PLAN
A051	PARTIAL SITE PLAN
A052	FIELD DIAGRAMS
A061	SITE DETAILS
A062	SITE DETAILS
A071	MISC. DETAILS
A072	MISC. DETAILS
A081	RESOURCE BUILDING
A082	RESOURCE BUILDING

**ELECTRICAL**

E101	FIELD LIGHTING PLAN
E102	ELEC ROOM PLAN, SCHEDULE

**END OF LIST OF DRAWINGS**



**SECTION 00 1113  
INVITATION TO BID**

Sealed bids will be received by Kathi Hernandez, Facilities Management Assistant, for the Kelly Middle School Track and Field 2014 project on Tuesday, June 10, 2014 until the Deadline for Bid Submission at 2:00 pm, at the Eugene School District 4J Facilities Management Office, 715 West Fourth Avenue, Eugene, Oregon 97402. The Bids will be opened publicly and read aloud immediately after the deadline for submission of bids. Late Bids will not be considered.

Briefly, the work is described as Construction of the substrate and infrastructure to support the installation of a synthetic turf field under separate contract, surrounded by a 6-lane 400 Meter track and site amenities. In addition, the work includes excavation and fills, miscellaneous concrete site work, paving, fencing, field lighting, miscellaneous electrical, and a CMU site structure.

Beginning May 23, 2014, Prime Bidder, Sub-bidders, and Suppliers may obtain bidding documents at the following hyperlink: <http://www.4j.lane.edu/bids/>. Hard copies are not provided by the School District. It is the responsibility of all Prime Bidders, Sub-bidders, and Suppliers to obtain Bidding Documents and all Addenda from the hyperlink.

Bidders and Suppliers may also obtain bidding documents from Central Print and Reprographic Services, 45 West 5<sup>th</sup> Avenue, Eugene, OR by paying the cost of reproduction. It is the responsibility of those obtaining bidding Documents in this manner to obtain any and all addenda from the hyperlink or the Plan Centers.

Bidding Documents may be examined at the following locations:

Eugene Builder's Exchange, 2460 W. 11th, Eugene, OR 97402  
Central Oregon Builders Exchange, 1902 NE 4<sup>th</sup> Street, Bend, OR 97701  
McGraw Hill Construction, 3461 NW Yeon Ave. Portland, OR 97210  
Daily Journal of Commerce Plan Center, 921 S.W. Washington St., Ste 210, Portland, OR 97205-2810  
Douglas County Plan Center, 3076 NE Diamond Lake Blvd, Roseburg, OR 97470  
Oregon Contractor Plan Center, 5468 SE International Way, Milwaukee, OR 97222  
Reed Construction Data, 30 Technology Parkway South, Ste 500, Norcross, GA 90092  
Salem Contractor's Exchange, 2256 Judson Street SE, Salem, OR 97309  
Willamette Valley Bid Center, 33862 SE Eastgate Circle, Corvallis, OR 97333  
Or, the office of PIVOT Architecture, 44 W Broadway, Suite 300, Eugene, OR, 97401

A mandatory pre-bid conference and walk-through has been scheduled for May 27, 2014, at 2:00 pm. The location of the conference will be at the Project Site – Kelly Middle School, 850 Howard Ave, Eugene, OR 97404. Statements made by the District's representatives at the conference are not binding upon the District unless confirmed by Written Addendum. Pre-qualification of bidders is not required.

Each Bid must be submitted on the prescribed form and accompanied by a Surety Bond, Cashiers Check, or Certified Check, executed in favor of Eugene School District 4J, in the amount not less than ten percent (10%) of the total bid, based upon the total bid amount for those items bid upon.

Either with the Bid or within two working hours of the Deadline for Submission of Bids, bidders shall submit, on the form provided, information first-tier subcontractors furnishing labor or labor and materials, as provided in ORS 279C.370. Bids for which disclosure forms are required, but not submitted, will be rejected.

No bid for a construction contract will be received or considered unless the Bidder is registered with the Construction Contractors Board or licensed by the State Landscape Contractors Board at the time the Bid is made, as required by OAR 137-049-0230. A license to work with asbestos-containing materials under ORS 468A.720 is not required for this project.

For every bid \$100,000 or greater, all Contractors and Subcontractors shall have a public works bond, in the amount of \$30,000, filed with the Construction Contractors' Board (CCB), before starting work on the project, unless exempt. A copy of the Contractor' BOLI Public Works Bond shall be provided with the executed contract documents.

Each Bid shall contain a statement indicating whether the Bidder is a "resident bidder", as defined in ORS 279A.120.

Each Bid shall contain a statement that the "Contractor agrees to be bound by and will comply with the provisions of ORS 279C.800 through 279C.870 regarding payment of Prevailing Wages".

Contractor shall certify nondiscrimination in obtaining required subcontractors, in accordance with ORS 279A.110(4).

School District 4J reserves the right to (1) reject any or all Bids not in compliance with all public bidding procedures and requirements, (2) postpone award of the Contract for a period not to exceed sixty (60) days from the date of bid opening, (3) waive informalities in the Bids, and (4) select the Bid which appears to be in the best interest of the District.

Date: May 23, 2014

By: Kathi Hernandez, Facilities Management Assistant

Published: Register Guard, Daily Journal of Commerce, ORPIN (Oregon Procurement Information Network)

Posted: School District 4J Administration Office  
200 North Monroe  
Eugene, OR 97403





SECTION 00 2113  
INSTRUCTIONS TO BIDDERS

PART 1 GENERAL

STANDARD FORM

Instructions to Bidders - AIA Document A701, 1997 Edition, immediately following are part of this Project Manual.

END OF DOCUMENT 00 21 13





# AIA<sup>®</sup> Document A701<sup>™</sup> – 1997

## *Instructions to Bidders*

for the following PROJECT:  
*(Name and location or address)*

THE OWNER:  
*(Name, legal status and address)*

THE ARCHITECT:  
*(Name, legal status and address)*

### TABLE OF ARTICLES

- 1 DEFINITIONS
- 2 BIDDER'S REPRESENTATIONS
- 3 BIDDING DOCUMENTS
- 4 BIDDING PROCEDURES
- 5 CONSIDERATION OF BIDS
- 6 POST-BID INFORMATION
- 7 PERFORMANCE BOND AND PAYMENT BOND
- 8 FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR

**ADDITIONS AND DELETIONS:**  
The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

## ARTICLE 1 DEFINITIONS

§ 1.1 Bidding Documents include the Bidding Requirements and the proposed Contract Documents. The Bidding Requirements consist of the Advertisement or Invitation to Bid, Instructions to Bidders, Supplementary Instructions to Bidders, the bid form, and other sample bidding and contract forms. The proposed Contract Documents consist of the form of Agreement between the Owner and Contractor, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications and all Addenda issued prior to execution of the Contract.

§ 1.2 Definitions set forth in the General Conditions of the Contract for Construction, AIA Document A201, or in other Contract Documents are applicable to the Bidding Documents.

§ 1.3 Addenda are written or graphic instruments issued by the Architect prior to the execution of the Contract which modify or interpret the Bidding Documents by additions, deletions, clarifications or corrections.

§ 1.4 A Bid is a complete and properly executed proposal to do the Work for the sums stipulated therein, submitted in accordance with the Bidding Documents.

§ 1.5 The Base Bid is the sum stated in the Bid for which the Bidder offers to perform the Work described in the Bidding Documents as the base, to which Work may be added or from which Work may be deleted for sums stated in Alternate Bids.

§ 1.6 An Alternate Bid (or Alternate) is an amount stated in the Bid to be added to or deducted from the amount of the Base Bid if the corresponding change in the Work, as described in the Bidding Documents, is accepted.

§ 1.7 A Unit Price is an amount stated in the Bid as a price per unit of measurement for materials, equipment or services or a portion of the Work as described in the Bidding Documents.

§ 1.8 A Bidder is a person or entity who submits a Bid and who meets the requirements set forth in the Bidding Documents.

§ 1.9 A Sub-bidder is a person or entity who submits a bid to a Bidder for materials, equipment or labor for a portion of the Work.

## ARTICLE 2 BIDDER'S REPRESENTATIONS

§ 2.1 The Bidder by making a Bid represents that:

§ 2.1.1 The Bidder has read and understands the Bidding Documents or Contract Documents, to the extent that such documentation relates to the Work for which the Bid is submitted, and for other portions of the Project, if any, being bid concurrently or presently under construction.

§ 2.1.2 The Bid is made in compliance with the Bidding Documents.

§ 2.1.3 The Bidder has visited the site, become familiar with local conditions under which the Work is to be performed and has correlated the Bidder's personal observations with the requirements of the proposed Contract Documents.

§ 2.1.4 The Bid is based upon the materials, equipment and systems required by the Bidding Documents without exception.

## ARTICLE 3 BIDDING DOCUMENTS

### § 3.1 COPIES

§ 3.1.1 Bidders may obtain complete sets of the Bidding Documents from the issuing office designated in the Advertisement or Invitation to Bid in the number and for the deposit sum, if any, stated therein. The deposit will be refunded to Bidders who submit a bona fide Bid and return the Bidding Documents in good condition within ten days after receipt of Bids. The cost of replacement of missing or damaged documents will be deducted from the deposit. A Bidder receiving a Contract award may retain the Bidding Documents and the Bidder's deposit will be refunded.

§ 3.1.2 Bidding Documents will not be issued directly to Sub-bidders unless specifically offered in the Advertisement or Invitation to Bid, or in supplementary instructions to bidders.



§ 3.1.3 Bidders shall use complete sets of Bidding Documents in preparing Bids; neither the Owner nor Architect assumes responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

§ 3.1.4 The Owner and Architect may make copies of the Bidding Documents available on the above terms for the purpose of obtaining Bids on the Work. No license or grant of use is conferred by issuance of copies of the Bidding Documents.

### § 3.2 INTERPRETATION OR CORRECTION OF BIDDING DOCUMENTS

§ 3.2.1 The Bidder shall carefully study and compare the Bidding Documents with each other, and with other work being bid concurrently or presently under construction to the extent that it relates to the Work for which the Bid is submitted, shall examine the site and local conditions, and shall at once report to the Architect errors, inconsistencies or ambiguities discovered.

§ 3.2.2 Bidders and Sub-bidders requiring clarification or interpretation of the Bidding Documents shall make a written request which shall reach the Architect at least seven days prior to the date for receipt of Bids.

§ 3.2.3 Interpretations, corrections and changes of the Bidding Documents will be made by Addendum. Interpretations, corrections and changes of the Bidding Documents made in any other manner will not be binding, and Bidders shall not rely upon them.

### § 3.3 SUBSTITUTIONS

§ 3.3.1 The materials, products and equipment described in the Bidding Documents establish a standard of required function, dimension, appearance and quality to be met by any proposed substitution.

§ 3.3.2 No substitution will be considered prior to receipt of Bids unless written request for approval has been received by the Architect at least ten days prior to the date for receipt of Bids. Such requests shall include the name of the material or equipment for which it is to be substituted and a complete description of the proposed substitution including drawings, performance and test data, and other information necessary for an evaluation. A statement setting forth changes in other materials, equipment or other portions of the Work, including changes in the work of other contracts that incorporation of the proposed substitution would require, shall be included. The burden of proof of the merit of the proposed substitution is upon the proposer. The Architect's decision of approval or disapproval of a proposed substitution shall be final.

§ 3.3.3 If the Architect approves a proposed substitution prior to receipt of Bids, such approval will be set forth in an Addendum. Bidders shall not rely upon approvals made in any other manner.

§ 3.3.4 No substitutions will be considered after the Contract award unless specifically provided for in the Contract Documents.

### § 3.4 ADDENDA

§ 3.4.1 Addenda will be transmitted to all who are known by the issuing office to have received a complete set of Bidding Documents.

§ 3.4.2 Copies of Addenda will be made available for inspection wherever Bidding Documents are on file for that purpose.

§ 3.4.3 Addenda will be issued no later than four days prior to the date for receipt of Bids except an Addendum withdrawing the request for Bids or one which includes postponement of the date for receipt of Bids.

§ 3.4.4 Each Bidder shall ascertain prior to submitting a Bid that the Bidder has received all Addenda issued, and the Bidder shall acknowledge their receipt in the Bid.

## ARTICLE 4 BIDDING PROCEDURES

### § 4.1 PREPARATION OF BIDS

§ 4.1.1 Bids shall be submitted on the forms included with the Bidding Documents.



§ 4.1.2 All blanks on the bid form shall be legibly executed in a non-erasable medium.

§ 4.1.3 Sums shall be expressed in both words and figures. In case of discrepancy, the amount written in words shall govern.

§ 4.1.4 Interlineations, alterations and erasures must be initialed by the signer of the Bid.

§ 4.1.5 All requested Alternates shall be bid. If no change in the Base Bid is required, enter "No Change."

§ 4.1.6 Where two or more Bids for designated portions of the Work have been requested, the Bidder may, without forfeiture of the bid security, state the Bidder's refusal to accept award of less than the combination of Bids stipulated by the Bidder. The Bidder shall make no additional stipulations on the bid form nor qualify the Bid in any other manner.

§ 4.1.7 Each copy of the Bid shall state the legal name of the Bidder and the nature of legal form of the Bidder. The Bidder shall provide evidence of legal authority to perform within the jurisdiction of the Work. Each copy shall be signed by the person or persons legally authorized to bind the Bidder to a contract. A Bid by a corporation shall further give the state of incorporation and have the corporate seal affixed. A Bid submitted by an agent shall have a current power of attorney attached certifying the agent's authority to bind the Bidder.

#### § 4.2 BID SECURITY

§ 4.2.1 Each Bid shall be accompanied by a bid security in the form and amount required if so stipulated in the Instructions to Bidders. The Bidder pledges to enter into a Contract with the Owner on the terms stated in the Bid and will, if required, furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder. Should the Bidder refuse to enter into such Contract or fail to furnish such bonds if required, the amount of the bid security shall be forfeited to the Owner as liquidated damages, not as a penalty. The amount of the bid security shall not be forfeited to the Owner in the event the Owner fails to comply with Section 6.2.

§ 4.2.2 If a surety bond is required, it shall be written on AIA Document A310, Bid Bond, unless otherwise provided in the Bidding Documents, and the attorney-in-fact who executes the bond on behalf of the surety shall affix to the bond a certified and current copy of the power of attorney.

§ 4.2.3 The Owner will have the right to retain the bid security of Bidders to whom an award is being considered until either (a) the Contract has been executed and bonds, if required, have been furnished, or (b) the specified time has elapsed so that Bids may be withdrawn or (c) all Bids have been rejected.

#### § 4.3 SUBMISSION OF BIDS

§ 4.3.1 All copies of the Bid, the bid security, if any, and any other documents required to be submitted with the Bid shall be enclosed in a sealed opaque envelope. The envelope shall be addressed to the party receiving the Bids and shall be identified with the Project name, the Bidder's name and address and, if applicable, the designated portion of the Work for which the Bid is submitted. If the Bid is sent by mail, the sealed envelope shall be enclosed in a separate mailing envelope with the notation "SEALED BID ENCLOSED" on the face thereof.

§ 4.3.2 Bids shall be deposited at the designated location prior to the time and date for receipt of Bids. Bids received after the time and date for receipt of Bids will be returned unopened.

§ 4.3.3 The Bidder shall assume full responsibility for timely delivery at the location designated for receipt of Bids.

§ 4.3.4 Oral, telephonic, telegraphic, facsimile or other electronically transmitted bids will not be considered.

#### § 4.4 MODIFICATION OR WITHDRAWAL OF BID

§ 4.4.1 A Bid may not be modified, withdrawn or canceled by the Bidder during the stipulated time period following the time and date designated for the receipt of Bids, and each Bidder so agrees in submitting a Bid.

§ 4.4.2 Prior to the time and date designated for receipt of Bids, a Bid submitted may be modified or withdrawn by notice to the party receiving Bids at the place designated for receipt of Bids. Such notice shall be in writing over the



signature of the Bidder. Written confirmation over the signature of the Bidder shall be received, and date- and time-stamped by the receiving party on or before the date and time set for receipt of Bids. A change shall be so worded as not to reveal the amount of the original Bid.

§ 4.4.3 Withdrawn Bids may be resubmitted up to the date and time designated for the receipt of Bids provided that they are then fully in conformance with these Instructions to Bidders.

§ 4.4.4 Bid security, if required, shall be in an amount sufficient for the Bid as resubmitted.

## ARTICLE 5 CONSIDERATION OF BIDS

### § 5.1 OPENING OF BIDS

At the discretion of the Owner, if stipulated in the Advertisement or Invitation to Bid, the properly identified Bids received on time will be publicly opened and will be read aloud. An abstract of the Bids may be made available to Bidders.

### § 5.2 REJECTION OF BIDS

The Owner shall have the right to reject any or all Bids. A Bid not accompanied by a required bid security or by other data required by the Bidding Documents, or a Bid which is in any way incomplete or irregular is subject to rejection.

### § 5.3 ACCEPTANCE OF BID (AWARD)

§ 5.3.1 It is the intent of the Owner to award a Contract to the lowest qualified Bidder provided the Bid has been submitted in accordance with the requirements of the Bidding Documents and does not exceed the funds available. The Owner shall have the right to waive informalities and irregularities in a Bid received and to accept the Bid which, in the Owner's judgment, is in the Owner's own best interests.

§ 5.3.2 The Owner shall have the right to accept Alternates in any order or combination, unless otherwise specifically provided in the Bidding Documents, and to determine the low Bidder on the basis of the sum of the Base Bid and Alternates accepted.

## ARTICLE 6 POST-BID INFORMATION

### § 6.1 CONTRACTOR'S QUALIFICATION STATEMENT

Bidders to whom award of a Contract is under consideration shall submit to the Architect, upon request, a properly executed AIA Document A305, Contractor's Qualification Statement, unless such a Statement has been previously required and submitted as a prerequisite to the issuance of Bidding Documents.

### § 6.2 OWNER'S FINANCIAL CAPABILITY

The Owner shall, at the request of the Bidder to whom award of a Contract is under consideration and no later than seven days prior to the expiration of the time for withdrawal of Bids, furnish to the Bidder reasonable evidence that financial arrangements have been made to fulfill the Owner's obligations under the Contract. Unless such reasonable evidence is furnished, the Bidder will not be required to execute the Agreement between the Owner and Contractor.

### § 6.3 SUBMITTALS

§ 6.3.1 The Bidder shall, as soon as practicable or as stipulated in the Bidding Documents, after notification of selection for the award of a Contract, furnish to the Owner through the Architect in writing:

- .1 a designation of the Work to be performed with the Bidder's own forces;
- .2 names of the manufacturers, products, and the suppliers of principal items or systems of materials and equipment proposed for the Work; and
- .3 names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for the principal portions of the Work.

§ 6.3.2 The Bidder will be required to establish to the satisfaction of the Architect and Owner the reliability and responsibility of the persons or entities proposed to furnish and perform the Work described in the Bidding Documents.

§ 6.3.3 Prior to the execution of the Contract, the Architect will notify the Bidder in writing if either the Owner or Architect, after due investigation, has reasonable objection to a person or entity proposed by the Bidder. If the Owner or Architect has reasonable objection to a proposed person or entity, the Bidder may, at the Bidder's option, (1)

withdraw the Bid or (2) submit an acceptable substitute person or entity with an adjustment in the Base Bid or Alternate Bid to cover the difference in cost occasioned by such substitution. The Owner may accept the adjusted bid price or disqualify the Bidder. In the event of either withdrawal or disqualification, bid security will not be forfeited.

§ 6.3.4 Persons and entities proposed by the Bidder and to whom the Owner and Architect have made no reasonable objection must be used on the Work for which they were proposed and shall not be changed except with the written consent of the Owner and Architect.

## ARTICLE 7 PERFORMANCE BOND AND PAYMENT BOND

### § 7.1 BOND REQUIREMENTS

§ 7.1.1 If stipulated in the Bidding Documents, the Bidder shall furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder. Bonds may be secured through the Bidder's usual sources.

§ 7.1.2 If the furnishing of such bonds is stipulated in the Bidding Documents, the cost shall be included in the Bid. If the furnishing of such bonds is required after receipt of bids and before execution of the Contract, the cost of such bonds shall be added to the Bid in determining the Contract Sum.

§ 7.1.3 If the Owner requires that bonds be secured from other than the Bidder's usual sources, changes in cost will be adjusted as provided in the Contract Documents.

### § 7.2 TIME OF DELIVERY AND FORM OF BONDS

§ 7.2.1 The Bidder shall deliver the required bonds to the Owner not later than three days following the date of execution of the Contract. If the Work is to be commenced prior thereto in response to a letter of intent, the Bidder shall, prior to commencement of the Work, submit evidence satisfactory to the Owner that such bonds will be furnished and delivered in accordance with this Section 7.2.1.

§ 7.2.2 Unless otherwise provided, the bonds shall be written on AIA Document A312, Performance Bond and Payment Bond. Both bonds shall be written in the amount of the Contract Sum.

§ 7.2.3 The bonds shall be dated on or after the date of the Contract.

§ 7.2.4 The Bidder shall require the attorney-in-fact who executes the required bonds on behalf of the surety to affix thereto a certified and current copy of the power of attorney.

## ARTICLE 8 FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR

Unless otherwise required in the Bidding Documents, the Agreement for the Work will be written on AIA Document A101, Standard Form of Agreement Between Owner and Contractor Where the Basis of Payment Is a Stipulated Sum.



**SECTION 00 2213  
SUPPLEMENTARY INSTRUCTIONS TO BIDDERS**

**PART 1 GENERAL**

The following Supplementary Instructions to Bidders modify, change from or add to AIA Document A701 Instruction To Bidders, 1997 Edition. Where any Article of the Instructions to Bidders is modified or any paragraph, subparagraph, or clause thereof is modified or deleted by these Supplementary Instructions to Bidders, the unaltered provisions of that Article, paragraph, subparagraph, or clause shall remain in effect.

**1.1 ARTICLE 2 BIDDER'S REPRESENTATIONS**

**A. Add the following subparagraphs to 2.1.3:**

2.1.3.1 Bidders are required to attend any mandatory pre-bid conferences or tours as stated in the Advertisement for Bids. Bidders not attending this pre-bid conference and tour shall be disqualified from bidding. Bidders will be required to sign in at the project site prior to the conference or tour.

2.1.3.2 Bidders are encouraged to visit the site(s) to become familiar with existing conditions. The Owner is not responsible and shall not bear financial burden for oversights made by the Bidder for failure to inspect sites prior to submitting a bid.

2.1.3.3 In all cases, persons wishing to examine the area of work must sign in at the school office prior to visiting the work area. Prior to leaving the school, sign-out at the office is required.

2.1.3.4 If access is required at times when the school office is not staffed, contact the Facilities Office, 541-790-7417, for assistance.

**B. Add the following paragraph 2.1.5:**

2.1.5 The Bidder certifies by signing the Bid that the Bidder has a drug-testing program in place for its employees that includes, at a minimum, the following:

- .1 A written employee drug-testing program,
- .2 Required drug testing for all new Subject Employees, or alternatively, requiring testing of Subject Employees every six months on a random selection basis,
- .3 Required testing of a Subject Employee when the Contractor has reasonable cause to believe the Subject Employee is under the influence of drugs, and
- .4 Required testing of a Subject Employee when the Subject Employee is involved in: (I) an incident causing an injury requiring treatment by a physician, or (ii) an incident resulting in damage to property or equipment.

A drug-testing program that meets the above requirements will be deemed a "Qualifying Employee Drug-testing Program". For purposes of this rule an employee is a "Subject Employee" only if that employee will be working on the Project job site; and

That if awarded the Public Improvement Contract, the Bidder will execute a contract in which the Contractor shall represent and warrant to the District that the Qualifying Employee Drug-testing Program is in place at the time of contract execution and will continue in full force and effect for the duration of the Public Improvement Contract; and that the Contract will condition the Agency's performance obligation upon the Contractor's compliance with this representation and warranty; and

That the Public Improvement Contract shall contain Contractor's covenant requiring each subcontractor providing labor for the Project to:

- .1 Demonstrate to the Contractor that it has a Qualifying Employee Drug-testing Program for the subcontractor's Subject Employees, and represent and warrant to the Contractor that the Qualifying Employee Drug-testing Program is in place at the time of subcontract execution and will continue in full force and effect for the duration of the subcontract; or
- .2 Require the subcontractor's Subject Employees to participate in the Contractor's Qualifying Employee Drug-testing Program for the duration of the subcontract.

## SUPPLEMENTARY INSTRUCTIONS TO BIDDERS – DOCUMENT 00 22 13

### 1.2 ARTICLE 3 BIDDING DOCUMENTS

#### A. 3.3 SUBSTITUTIONS

##### 1. Add the following:

3.3.2.1 All requests for approval must be submitted in duplicate on "Substitution Request Form". Include a self-addressed stamped envelope. Requests received by Architect less than ten (10) days prior to bid will not be considered.

#### B. 3.4 ADDENDA

##### 1. Delete paragraph 3.4.1 and substitute the following:

3.4.1 Addenda will be issued to plan centers listed in the Advertisement for Bids and all firms listed on the Planholder List.

### 1.3 ARTICLE 4 BIDDING PROCEDURES

#### A. 4.1 PREPARATION OF BIDS

##### 1. Add the following Paragraphs:

4.1.8 Bidders shall certify to non-collusion practices on the form included as part of the Bid Form, to be submitted with the Bid Form.

.1 A Non-Collusion Affidavit is required for any contract awarded pursuant to the bid. According to the Oregon Public Contracts and Purchasing Laws, a public contracting agency may reject any or all bids upon a finding of the agency that it is in the public interest to do so (ORS 279C.395). This agency finds that it is in the public interest to require the completion of this affidavit by potential contractors.

.2 The Non-Collusion Affidavit must be executed by the member, officer or employee of the bidder who makes the final decision on prices and the amount quoted in the bid.

.3 Bid rigging and other efforts to restrain competition, and the making of false sworn statements in connection with the submission of bids are unlawful and may be subject to criminal prosecution. The person who signs the Affidavit should examine it carefully before signing and assure himself or herself that each statement is true and accurate, making diligent inquiry, as necessary, of all other persons employed by or associated with the bidder with responsibilities for the preparation approval or submission of the bid.

.4 In the case of a bid submitted by a joint venture, each party to the venture must be identified in the bid documents, and an Affidavit must be submitted separately on behalf of each party.

.5 The term "complementary bid" as used in the Affidavit has the meaning commonly associated with the term in the bidding process, and includes the knowing submission of bids higher than the bid of another firm, any intentionally high or noncompetitive bid, and any other form of bid submitted for the purpose of giving a false appearance of competition.

.6 Failure to file an Affidavit in compliance with these instructions will result in disqualification of the bid.

4.1.9 Bidders shall certify to non-discrimination in employment practices on the form, included as part of the Bid Form, to be submitted with the Bid Form. By submitting its bid, the Bidder certifies conformance to the applicable federal acts, executive orders, and Oregon statutes and regulations concerning affirmative action toward equal employment opportunities. All information and reports required by the federal or Oregon state governments having responsibility for the enforcement of such laws shall be supplied to the Owner in compliance with such acts, regulation, and orders.

4.1.10 Bidder shall indicate, on the Bid Form where provided, the bidder's status as a "resident" or "non-resident" in accordance with ORS 279C.365 and ORS 279A.120.

**SUPPLEMENTARY INSTRUCTIONS TO BIDDERS – DOCUMENT 00 22 13**

4.1.11 First-Tier Subcontractor Disclosure:

.1 Within two working hours after the date and time of the deadline when the bids are due, a Bidder shall submit to the District a disclosure of the first-tier subcontractors that will be furnishing labor or will be furnishing labor and materials in connection with the public improvement; and will have a contract value that is equal to or greater than 5% of the project bid or \$15,000, whichever is greater, or \$350,000, regardless of the percentage of the total project bid.

.2 The disclosure of first-tier subcontractors shall include the name of each subcontractor, the category of work that the subcontractor would be performing, and the dollar value of each subcontract.

.3 The first-tier subcontractor disclosure applies only to public improvements with a contract value of more than \$100,000.

.4 The District will consider the bid of any contractor that does not submit a required subcontractor disclosure to the District to be a non-responsive bid. A non-responsive Bid will not be considered for Award.

.5 Contractor shall certify that all subcontractors performing Work are registered with the Construction Contractors Board or licensed by the State Landscape Contractors Board in accordance with ORS 701.035 to 701.055 before the subcontractors commence work under the Contract.

**B. 4.2 BID SECURITY**

1. Delete paragraphs 4.2.2 and 4.2.3 and substitute the following:

4.2.2 Each Bid shall be accompanied by a surety bond, cashiers check, or certified check, executed in favor of Eugene School District 4J, in the amount not less than ten percent (10%) of the total bid, based upon the total bid amount for those items bid upon. Should the Bidder refuse to enter into such Contract or fail to furnish Performance and Labor and Materials Payment Bonds and Certificates of Insurance as required by the Supplementary Conditions within ten (10) working days after contract forms are provided to the Bidder, the amount of the Bid Security may be forfeited to the Owner as liquidated damages, not as a penalty.

.1 The Surety Bond shall be written by a Bonding Company authorized and licensed by the Oregon Insurance Commissioner. The bonding company must be listed on the most current US Government Treasury List, Department Circular 570, or approved PRIOR TO BID SUBMISSION by the Eugene School District 4J's Risk Manager. The Bond shall be on a AIA Document A310, most current edition. The Attorney-in-Fact who executes the Bond on behalf of the Surety shall affix to the Bond, a certified copy of a power of attorney.

.2 The Owner will have the right to retain the Bid Security of Bidders until either; a) the Contract has been executed and Bonds have been furnished, or b) the specified time has elapsed so that Bids may be withdrawn, or c) all Bids have been rejected.

**C. 4.4 MODIFICATION OR WITHDRAWAL OF BID**

1. Delete paragraph 4.4.1 and substitute the following:

4.4.1 A Bid may not be withdrawn or canceled by the Bidder following the time and date designated for the receipt of bids to the expiration of a 60 day period. The Bid for that sixty days is irrevocable and each Bidder so agrees in submitting a Bid.

**1.4 ARTICLE 6 POST-BID INFORMATION**

A. Delete Paragraph 6.1.

B. Modify paragraph 6.3.1 as follows:

In the first sentence delete the phrase "as soon as practicable" and add "within 48 hours."

C. Add the following:

6.3.1.4 Where asbestos abatement is required, Contractor or appropriate subcontractor shall be licensed by the Department of Environmental Quality to perform "asbestos abatement work", per OAR 340-248-0120,

**SUPPLEMENTARY INSTRUCTIONS TO BIDDERS – DOCUMENT 00 22 13**

Adopted 1/25/90, and meet requirements of AHERA as specified in the Federal Register, 40 CFR part 763. Bidder shall submit evidence of licensing to Owner.

**1.5 ARTICLE 7 PERFORMANCE BOND AND PAYMENT BOND**

**A. 7.1 BOND REQUIREMENTS**

1. Delete paragraphs 7.1.1, 7.1.2 and 7.1.3 and add the following:

7.1.1 Unless otherwise stated in the solicitation document, prior to execution of the Agreement, the successful Bidder shall furnish a separate Performance Bond and a Labor Bond and Materials Payment Bond that in all respects conform to the requirements of ORS 279C.380 covering faithful performance of the Contract, and the payment of all obligations arising thereunder, each in an amount equal to one hundred percent (100%) of the Contract sum. The duration of the performance bond shall match the length of the project warranty.

7.1.2 Bonds shall be submitted on AIA Document A312, latest edition.

7.1.3 The surety issuing such bonds shall be duly authorized and licensed to issue bonds in the State of Oregon. The bonds shall be executed by an attorney-in-fact, principal or other authorized representative for the surety company, showing the Oregon agent for service, and bears the seal of the surety company. Where the bond is executed by a person outside the state of Oregon, his authority to execute bonds shall be shown. The Bonds shall be fully executed, payable to the Owner.

7.1.4 The cost of furnishing such bonds shall be included in the Bid.

**B. BOLI Public Works Bond:**

1. Add the following:

Pursuant to ORS 279C.836, for any contract awarded where the contract price is \$100,000.00 or greater, the Contractor and every subcontractor shall have a Public Works bond filed with the Construction Contractors Board before starting work on the project. This bond is in addition to performance bond and payment bond requirements. A copy of the Contractor's BOLI Public Works Bond shall be provided with the executed contract.

**1.2 TIME OF DELIVERY AND FORM OF BONDS**

A. Delete paragraph 7.2.1 and substitute the following:

7.2.1 The successful Bidder will be provided with contract forms through the Architect. These forms shall be executed and delivered to the Owner, along with Performance Bond and Labor and Material Payment Bond, within ten (10) days after receiving forms.

B. Add the following article:

**ARTICLE 9 MISCELLANEOUS PROVISIONS**

**9.1 ADMINISTRATIVE RULES**

All bidders are required to comply with the provisions of Oregon Revised Statutes and 4J Board Policy. Attention is directed to ORS 244, Government Ethics; ORS 279A and 279C, Public Contracting Code; Oregon Administrative Rules, Chapter 137, Divisions 46, 48 and 49; and 4J Board Policy DJC.

**9.2 PROTEST OF BID**

Protests of bid specifications or contract terms shall be presented to the Owner in writing five (5) calendar days prior to bid opening. Such protest or request for change shall include the reason for protest or request, and any proposed changes to specifications or terms. No protest against award because of the content of bid specifications or contract terms shall be considered after the deadline established for submitting such protest.

**9.3 PROTEST OF AWARD**

Any actual bidder or proposer who is adversely affected by the Owner's notice of award of the contract to another bidder or proposer on the same solicitation shall have seventy two (72) hours from the notice of award to submit to the Owner, a written protest of the notice of award. In order to be an adversely affected or aggrieved bidder or proposer with a right to submit a written protest, a bidder or proposer must itself claim to

**SUPPLEMENTARY INSTRUCTIONS TO BIDDERS – DOCUMENT 00 22 13**

be eligible for award of the contract as the lowest responsible bidder or best proposer and must be next in line for award.

**9.4 FINAL AWARD**

The written notice of award of the contract shall constitute a final decision of the Owner to award the contract if no written protest of the notice of award is filed with the Owner within the designated time.

END OF DOCUMENT 00 22 13



**SECTION 00 4113  
BID FORM**

**BID FOR:** Kelly Middle School  
Track and Field 2014

CIP Number 410.524.019

Submitted to: Facilities Management  
Eugene School District 4J  
715 West Fourth Avenue  
Eugene, Oregon 97402

Bid Deadline: 2:00 pm  
Tuesday, June 10, 2014

Submitted by: \_\_\_\_\_  
(Company Name)

**BASE BID**

The undersigned proposes to furnish all material, equipment, and labor required for the complete project, and to perform all work in strict accordance with the Contract Documents for the lump sum prices indicated below with completion occurring on or prior to the dates indicated:

BASE BID: New Track, Synthetic Turf Field Substrate, Field Lighting and Associated Improvements

Bid: \_\_\_\_\_ \$ \_\_\_\_\_  
(Words) (Figures)

The undersigned agrees, if awarded the Contract, to substantially complete all Base Bid Package work on or before the dates specified in Section 01 11 00.

**BID SECURITY**

Accompanying herewith is Bid Security, which is not less than ten percent (10%) of the total amount of the Base Bid plus additive alternates.

**STIPULATIONS**

The undersigned acknowledges the liquidated damages provision included in the Supplementary Conditions.

The undersigned agrees, if awarded the contract, to comply with the provisions of Oregon Revised Statutes 279C.800 through 279C.870 pertaining to the payment of prevailing rates of wage.

The undersigned agrees, if awarded the Contract, to execute and deliver to the Owner within ten (10) working days after receiving contract forms, a signed Agreement and a satisfactory Performance Bond and Payment Bond each in an amount equal to 100 percent (100%) of the Contract Sum.

For every Agreement of \$100,000 or greater in value, all Contractors and Subcontractors shall have a public works bond in the amount of \$30,000, filed with the Construction Contractors' Board (CCB), in compliance with ORS 279C.836, before starting work on the project unless exempt. Contractor agrees to provide a copy of the Contractor's BOLI Public Works bond with the signed Agreement as Specified in the Supplementary Conditions.

The undersigned agrees that the Bid Security accompanying this proposal is the measure of liquidated damages which the Owner will sustain by the failure of the undersigned to execute and deliver the above named agreement and bonds; and that if the undersigned defaults in executing that agreement within ten (10) days after forms are provided or providing the bonds, then the Bid Security shall become the property of the Owner; but if this proposal is not accepted within sixty (60) days of the time set for the opening of bids, or if the undersigned executes and delivers said agreement and bonds, the Bid Security shall be returned.

By submitting this Bid, the Bidder certifies that the Bidder:

- a) has available the appropriate financial, material, equipment, facility and personnel resources and expertise, or the ability to obtain the resources and expertise, necessary to meet all contractual responsibilities;
- b) has a satisfactory record of past performance;
- c) has a satisfactory record of integrity, and is not disqualified under ORS 279C.440;
- d) is qualified legally to contract with the Owner; and
- e) will promptly supply all necessary information in connection with any inquiry the Owner may make concerning the responsibility of the Bidder.

**BID FORM – DOCUMENT 00 41 13**

Prior to award of a Contract, the Bidder shall submit appropriate documentation to allow the Owner to determine whether or not the Bidder is “responsible” according to the above criteria.

The contractor agrees with the provisions of Oregon Revised Statutes 279C.505, which requires that the contractor shall demonstrate it has established a drug-testing program for employees and will require each subcontractor providing labor for the Project to do the same.

The undersigned has received addenda numbers \_\_\_\_\_ to \_\_\_\_\_ inclusive and has included their provisions in the above Bid amounts.

The undersigned has visited the site to become familiar with conditions under which the Work is to be performed and has correlated the Bidder's personal observations with the requirements of the proposed Contract Documents.

The undersigned certifies that the Bidder is a \_\_\_\_\_ Bidder under ORS. ("Resident" or "Non-resident", to be filled in by Bidder)

Names of Firm: \_\_\_\_\_

Street Address: \_\_\_\_\_  
(City) (State) (Zip)

Telephone Number: \_\_\_\_\_ FAX Number: \_\_\_\_\_

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

Signed By: \_\_\_\_\_ Printed Name: \_\_\_\_\_  
(Signature of Authorized Official. If bid is from a partnership, one of the partners must sign bid).

Date Signed: \_\_\_\_\_

Official Capacity: \_\_\_\_\_

If corporation, attest: \_\_\_\_\_ Date: \_\_\_\_\_  
(Secretary of Corporation)

SEAL (If Corporate)

\_\_\_\_\_ Corporation  
\_\_\_\_\_ Partnership  
\_\_\_\_\_ Individual

Enclosed: Bid Security



**NON-DISCRIMINATION REQUIREMENT**

Contractor certifies that the Contractor has not discriminated against minorities, women or emerging small business enterprises in obtaining any required subcontracts.

The Contractor agrees not to discriminate against any client, employee, or applicant for employment or for services, because of race, color, religion, sex, national origin, physical or mental handicap, sexual orientation or age, unless based upon bona fide occupational qualifications, and that they are otherwise in compliance with all federal, state and local laws prohibiting discrimination, with regard to, but not limited to, the following: Employment upgrading, demotion or transfer; Recruitment or recruitment advertising; Layoffs or termination; Rates of pay or other forms of compensation; Selection for training; Rendition of services. It is further understood that any vendor who is in violation of this clause shall be barred forthwith from receiving awards of any purchase order from the School District, unless a satisfactory showing is made that discriminatory practices have terminated and that a recurrence of such acts is unlikely.

FIRM NAME: \_\_\_\_\_

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

TELEPHONE: \_\_\_\_\_

BY: \_\_\_\_\_  
(Company or Firm Officer)

BY: \_\_\_\_\_  
(Type or Print Name)

NON-COLLUSION AFFIDAVIT

STATE OF \_\_\_\_\_)

County of \_\_\_\_\_)

I state that I am \_\_\_\_\_ of \_\_\_\_\_  
(Title) (Name of Firm)

and that I am authorized to make this affidavit on behalf of my firm, and its owners, directors, and officers. I am the person responsible in my firm for the price(s) and the amount of this bid.

I state that:

(1) The price(s) and amount of this bid have been arrived at independently and without consultation, communication or agreement with any other contractor, bidder or potential bidder, except as disclosed on the attached appendix.

(2) That neither the price(s) nor the amount of this bid, and neither the approximate price(s) nor approximate amount of this bid, have been disclosed to any other firm or person who is a bidder or potential bidder, and they will not be disclosed before bid opening.

(3) No attempt has been made or will be made to induce any firm or person to refrain from bidding on this contract, or to submit a bid higher than this bid, or to submit any intentionally high or noncompetitive bid or other form of complementary bid.

(4) The bid of my firm is made in good faith and not pursuant to any agreement or discussion with, or inducement from, any firm or person to submit a complementary or noncompetitive bid.

(5) \_\_\_\_\_, its affiliates, subsidiaries, officers, directors and  
(Name of my Firm)

employees are not currently under investigation by any governmental agency and have not in the last four years been convicted of or found liable for any act prohibited by State or Federal law in any jurisdiction, involving conspiracy or collusion with respect to bidding on any public contract, except as described on the attached appendix.

I state that \_\_\_\_\_ understands and acknowledges that the above representations  
(Name of my Firm)

are material and important, and will be relied on by School District 4J in awarding the contract(s) for which this bid is submitted. I understand and my firm understands that any misstatement in this affidavit is and shall be treated as fraudulent concealment from School District 4J of the true facts relating to the submission of bids for this contract.

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

Sworn to and subscribed before me this \_\_\_\_\_ day of \_\_\_\_\_, 2014

\_\_\_\_\_  
(Notary Public for Oregon)

My Commission Expires: \_\_\_\_\_

END OF BID FORM

**SECTION 00 45 22  
FIRST-TIER SUBCONTRACTOR DISCLOSURE FORM**

**PROJECT:** Kelly Middle School  
Track and Field 2014

**CIP NUMBER:** 410-524-019

**TO:** Kathi Hernandez, Facilities Management Assistant  
Eugene School District 4J  
715 West Fourth Avenue  
Eugene, Oregon 97402

**BID SUBMISSION DEADLINE: Date:** Tuesday, June 10, 2014

**Time:** 2:00

**SUBMITTAL REQUIREMENTS**

Subcontractor disclosure is required on all public improvement contracts greater than \$100,000.

This form must be submitted at the location specified in the Invitation to Bid on the advertised bid closing date and within two working hours after the advertised bid closing time.

List below the name of each subcontractor that will be furnishing labor or labor and materials, and that is required to be disclosed, the category of work that the subcontractor will be performing, and the dollar value of the subcontract. Enter "NONE" if there are no subcontractors that need to be disclosed. (ATTACH ADDITIONAL SHEETS IF NEEDED.)

<b>SUBCONTRACTOR</b>	<b>DOLLAR VALUE</b>	<b>CATEGORY OF WORK</b>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

The above listed first- tier subcontractor(s) are providing labor, or labor and material, with a Dollar Value equal to or greater than:

- a) 5% of the total Contract Price, but at least \$15,000. [If the Dollar Value is less than \$15,000 do not list the subcontractor above.]
- b) \$350,000 regardless of the percentage of the total Contract Price

Failure to submit this form by the disclosure deadline will result in a non-responsive bid. A non-responsive bid will not be considered for award.

**Form submitted by (Bidder Name):** \_\_\_\_\_

**Contact Name:** \_\_\_\_\_ **Phone:** \_\_\_\_\_

**Signature:** \_\_\_\_\_

END OF DOCUMENT 00 45 22



SECTION 00 5213  
FORM OF AGREEMENT

PART 1 GENERAL

STANDARD FORM

The form of Agreement will be executed on AIA Form A 101, Standard Form of Agreement Between Owner and Contractor, 2007 edition, a copy of which is included by reference. Copies are available for review at the office of Facilities Management, School District 4J.

END OF DOCUMENT 00 52 13



**SECTION 00 7213  
GENERAL CONDITIONS**

**PART 1 GENERAL**

**STANDARD FORM**

General Conditions of the Contract for Construction AIA Document A-201, 2007 edition, immediately following, are part of these specifications.

The Contractor and all Subcontractors shall read and be governed by them.

**CONFLICTS**

In the case of conflicts between the General Conditions and these Specifications, the Specifications govern.

END OF DOCUMENT 00 72 13





 **AIA<sup>®</sup> Document A201<sup>™</sup> – 2007****General Conditions of the Contract for Construction**

for the following PROJECT:  
*(Name and location or address)*

THE OWNER:  
*(Name, legal status and address)*

THE ARCHITECT:  
*(Name, legal status and address)*

**TABLE OF ARTICLES**

- 1 GENERAL PROVISIONS
- 2 OWNER
- 3 CONTRACTOR
- 4 ARCHITECT
- 5 SUBCONTRACTORS
- 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS
- 7 CHANGES IN THE WORK
- 8 TIME
- 9 PAYMENTS AND COMPLETION
- 10 PROTECTION OF PERSONS AND PROPERTY
- 11 INSURANCE AND BONDS
- 12 UNCOVERING AND CORRECTION OF WORK
- 13 MISCELLANEOUS PROVISIONS
- 14 TERMINATION OR SUSPENSION OF THE CONTRACT
- 15 CLAIMS AND DISPUTES

**ADDITIONS AND DELETIONS:**  
The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Init.

## INDEX

(Topics and numbers in bold are section headings.)

### Acceptance of Nonconforming Work

9.6.6, 9.9.3, **12.3**

Acceptance of Work

9.6.6, 9.8.2, 9.9.3, 9.10.1, 9.10.3, **12.3**

### Access to Work

**3.16**, 6.2.1, 12.1

Accident Prevention

10

Acts and Omissions

3.2, 3.3.2, 3.12.8, 3.18, 4.2.3, 8.3.1, 9.5.1, 10.2.5, 10.2.8, 13.4.2, 13.7, 14.1, 15.2

Addenda

1.1.1, 3.11.1

Additional Costs, Claims for

3.7.4, 3.7.5, 6.1.1, 7.3.7.5, 10.3, 15.1.4

### Additional Inspections and Testing

9.4.2, 9.8.3, 12.2.1, **13.5**

Additional Insured

11.1.4

### Additional Time, Claims for

3.2.4, 3.7.4, 3.7.5, 3.10.2, 8.3.2, **15.1.5**

### Administration of the Contract

3.1.3, **4.2**, 9.4, 9.5

Advertisement or Invitation to Bid

1.1.1

Aesthetic Effect

4.2.13

### Allowances

**3.8**, 7.3.8

All-risk Insurance

11.3.1, 11.3.1.1

### Applications for Payment

4.2.5, 7.3.9, 9.2, **9.3**, 9.4, 9.5.1, 9.6.3, 9.7, 9.10, 11.1.3

Approvals

2.1.1, 2.2.2, 2.4, 3.1.3, 3.10.2, 3.12.8, 3.12.9, 3.12.10, 4.2.7, 9.3.2, 13.5.1

### Arbitration

8.3.1, 11.3.10, 13.1.1, 15.3.2, **15.4**

## ARCHITECT

4

Architect, Definition of

### 4.1.1

Architect, Extent of Authority

2.4.1, 3.12.7, 4.1, 4.2, 5.2, 6.3, 7.1.2, 7.3.7, 7.4, 9.2, 9.3.1, 9.4, 9.5, 9.6.3, 9.8, 9.10.1, 9.10.3, 12.1, 12.2.1, 13.5.1, 13.5.2, 14.2.2, 14.2.4, 15.1.3, 15.2.1

Architect, Limitations of Authority and Responsibility

2.1.1, 3.12.4, 3.12.8, 3.12.10, 4.1.2, 4.2.1, 4.2.2, 4.2.3, 4.2.6, 4.2.7, 4.2.10, 4.2.12, 4.2.13, 5.2.1, 7.4, 9.4.2, 9.5.3, 9.6.4, 15.1.3, 15.2

Architect's Additional Services and Expenses

2.4.1, 11.3.1.1, 12.2.1, 13.5.2, 13.5.3, 14.2.4

Architect's Administration of the Contract

3.1.3, 4.2, 3.7.4, 15.2, 9.4.1, 9.5

Architect's Approvals

2.4.1, 3.1.3, 3.5, 3.10.2, 4.2.7

Architect's Authority to Reject Work

3.5, 4.2.6, 12.1.2, 12.2.1

Architect's Copyright

1.1.7, 1.5

Architect's Decisions

3.7.4, 4.2.6, 4.2.7, 4.2.11, 4.2.12, 4.2.13, 4.2.14, 6.3, 7.3.7, 7.3.9, 8.1.3, 8.3.1, 9.2, 9.4.1, 9.5, 9.8.4, 9.9.1, 13.5.2, 15.2, 15.3

Architect's Inspections

3.7.4, 4.2.2, 4.2.9, 9.4.2, 9.8.3, 9.9.2, 9.10.1, 13.5

Architect's Instructions

3.2.4, 3.3.1, 4.2.6, 4.2.7, 13.5.2

Architect's Interpretations

4.2.11, 4.2.12

Architect's Project Representative

4.2.10

Architect's Relationship with Contractor

1.1.2, 1.5, 3.1.3, 3.2.2, 3.2.3, 3.2.4, 3.3.1, 3.4.2, 3.5, 3.7.4, 3.7.5, 3.9.2, 3.9.3, 3.10, 3.11, 3.12, 3.16, 3.18, 4.1.2, 4.1.3, 4.2, 5.2, 6.2.2, 7, 8.3.1, 9.2, 9.3, 9.4, 9.5, 9.7, 9.8, 9.9, 10.2.6, 10.3, 11.3.7, 12, 13.4.2, 13.5, 15.2

Architect's Relationship with Subcontractors

1.1.2, 4.2.3, 4.2.4, 4.2.6, 9.6.3, 9.6.4, 11.3.7

Architect's Representations

9.4.2, 9.5.1, 9.10.1

Architect's Site Visits

3.7.4, 4.2.2, 4.2.9, 9.4.2, 9.5.1, 9.9.2, 9.10.1, 13.5

Asbestos

10.3.1

Attorneys' Fees

3.18.1, 9.10.2, 10.3.3

Award of Separate Contracts

6.1.1, 6.1.2

### Award of Subcontracts and Other Contracts for Portions of the Work

**5.2**

### Basic Definitions

#### 1.1

Bidding Requirements

1.1.1, 5.2.1, 11.4.1

Binding Dispute Resolution

9.7, 11.3.9, 11.3.10, 13.1.1, 15.2.5, 15.2.6.1, 15.3.1, 15.3.2, 15.4.1

### Boiler and Machinery Insurance

**11.3.2**

Bonds, Lien

7.3.7.4, 9.10.2, 9.10.3

### Bonds, Performance, and Payment

7.3.7.4, 9.6.7, 9.10.3, 11.3.9, **11.4**

Building Permit

3.7.1

Init.

AIA Document A201™ – 2007. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997 and 2007 by The American Institute of Architects. All rights reserved. **WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law.** This document was produced by AIA software at 11:53:59 on 05/15/2014 under Order No.6857589732\_1 which expires on 10/23/2014, and is not for resale.

User Notes:

(1363701617)



## Capitalization

### 1.3

Certificate of Substantial Completion

9.8.3, 9.8.4, 9.8.5

### Certificates for Payment

4.2.1, 4.2.5, 4.2.9, 9.3.3, 9.4, 9.5, 9.6.1, 9.6.6, 9.7,

9.10.1, 9.10.3, 14.1.1.3, 14.2.4, 15.1.3

Certificates of Inspection, Testing or Approval

13.5.4

Certificates of Insurance

9.10.2, 11.1.3

### Change Orders

1.1.1, 2.4.1, 3.4.2, 3.7.4, 3.8.2.3, 3.11.1, 3.12.8, 4.2.8,

5.2.3, 7.1.2, 7.1.3, 7.2, 7.3.2, 7.3.6, 7.3.9, 7.3.10, 8.3.1,

9.3.1.1, 9.10.3, 10.3.2, 11.3.1.2, 11.3.4, 11.3.9, 12.1.2,

15.1.3

Change Orders, Definition of

7.2.1

### CHANGES IN THE WORK

2.2.1, 3.11, 4.2.8, 7, 7.2.1, 7.3.1, 7.4, 8.3.1, 9.3.1.1,

11.3.9

Claims, Definition of

15.1.1

### CLAIMS AND DISPUTES

3.2.4, 6.1.1, 6.3, 7.3.9, 9.3.3, 9.10.4, 10.3.3, 15, 15.4

Claims and Timely Assertion of Claims

15.4.1

Claims for Additional Cost

3.2.4, 3.7.4, 6.1.1, 7.3.9, 10.3.2, 15.1.4

Claims for Additional Time

3.2.4, 3.7.4.1.1, 8.3.2, 10.3.2, 15.1.5

Concealed or Unknown Conditions, Claims for

3.7.4

Claims for Damages

3.2.4, 3.18, 6.1.1, 8.3.3, 9.5.1, 9.6.7, 10.3.3, 11.1.1,

11.3.5, 11.3.7, 14.1.3, 14.2.4, 15.1.6

Claims Subject to Arbitration

15.3.1, 15.4.1

Cleaning Up

3.15, 6.3

Commencement of the Work, Conditions Relating to

2.2.1, 3.2.2, 3.4.1, 3.7.1, 3.10.1, 3.12.6, 5.2.1, 5.2.3,

6.2.2, 8.1.2, 8.2.2, 8.3.1, 11.1, 11.3.1, 11.3.6, 11.4.1,

15.1.4

Commencement of the Work, Definition of

8.1.2

Communications Facilitating Contract

Administration

3.9.1, 4.2.4

Completion, Conditions Relating to

3.4.1, 3.11, 3.15, 4.2.2, 4.2.9, 8.2, 9.4.2, 9.8, 9.9.1,

9.10, 12.2, 13.7, 14.1.2

### COMPLETION, PAYMENTS AND

9

Completion, Substantial

4.2.9, 8.1.1, 8.1.3, 8.2.3, 9.4.2, 9.8, 9.9.1, 9.10.3, 12.2,

13.7

Compliance with Laws

1.6.1, 3.2.3, 3.6, 3.7, 3.12.10, 3.13, 4.1.1, 9.6.4, 10.2.2,

11.1, 11.3, 13.1, 13.4, 13.5.1, 13.5.2, 13.6, 14.1.1,

14.2.1.3, 15.2.8, 15.4.2, 15.4.3

Concealed or Unknown Conditions

3.7.4, 4.2.8, 8.3.1, 10.3

Conditions of the Contract

1.1.1, 6.1.1, 6.1.4

Consent, Written

3.4.2, 3.7.4, 3.12.8, 3.14.2, 4.1.2, 9.3.2, 9.8.5, 9.9.1,

9.10.2, 9.10.3, 11.3.1, 13.2, 13.4.2, 15.4.4.2

Consolidation or Joinder

15.4.4

### CONSTRUCTION BY OWNER OR BY

### SEPARATE CONTRACTORS

1.1.4, 6

Construction Change Directive, Definition of

7.3.1

Construction Change Directives

1.1.1, 3.4.2, 3.12.8, 4.2.8, 7.1.1, 7.1.2, 7.1.3, 7.3,

9.3.1.1

Construction Schedules, Contractor's

3.10, 3.12.1, 3.12.2, 6.1.3, 15.1.5.2

Contingent Assignment of Subcontracts

5.4, 14.2.2.2

Continuing Contract Performance

15.1.3

Contract, Definition of

1.1.2

### CONTRACT, TERMINATION OR

### SUSPENSION OF THE

5.4.1.1, 11.3.9, 14

Contract Administration

3.1.3, 4, 9.4, 9.5

Contract Award and Execution, Conditions Relating

to

3.7.1, 3.10, 5.2, 6.1, 11.1.3, 11.3.6, 11.4.1

Contract Documents, Copies Furnished and Use of

1.5.2, 2.2.5, 5.3

Contract Documents, Definition of

1.1.1

Contract Sum

3.7.4, 3.8, 5.2.3, 7.2, 7.3, 7.4, 9.1, 9.4.2, 9.5.1.4, 9.6.7,

9.7, 10.3.2, 11.3.1, 14.2.4, 14.3.2, 15.1.4, 15.2.5

Contract Sum, Definition of

9.1

Contract Time

3.7.4, 3.7.5, 3.10.2, 5.2.3, 7.2.1.3, 7.3.1, 7.3.5, 7.4,

8.1.1, 8.2.1, 8.3.1, 9.5.1, 9.7, 10.3.2, 12.1.1, 14.3.2,

15.1.5.1, 15.2.5

Contract Time, Definition of

8.1.1

### CONTRACTOR

3

Contractor, Definition of

3.1, 6.1.2

Init.

## **Contractor's Construction Schedules**

3.10, 3.12.1, 3.12.2, 6.1.3, 15.1.5.2

### **Contractor's Employees**

3.3.2, 3.4.3, 3.8.1, 3.9, 3.18.2, 4.2.3, 4.2.6, 10.2, 10.3, 11.1.1, 11.3.7, 14.1, 14.2.1.1

## **Contractor's Liability Insurance**

### **11.1**

#### **Contractor's Relationship with Separate Contractors and Owner's Forces**

3.12.5, 3.14.2, 4.2.4, 6, 11.3.7, 12.1.2, 12.2.4

#### **Contractor's Relationship with Subcontractors**

1.2.2, 3.3.2, 3.18.1, 3.18.2, 5, 9.6.2, 9.6.7, 9.10.2, 11.3.1.2, 11.3.7, 11.3.8

#### **Contractor's Relationship with the Architect**

1.1.2, 1.5, 3.1.3, 3.2.2, 3.2.3, 3.2.4, 3.3.1, 3.4.2, 3.5, 3.7.4, 3.10, 3.11, 3.12, 3.16, 3.18, 4.1.3, 4.2, 5.2, 6.2.2, 7, 8.3.1, 9.2, 9.3, 9.4, 9.5, 9.7, 9.8, 9.9, 10.2.6, 10.3, 11.3.7, 12, 13.5, 15.1.2, 15.2.1

#### **Contractor's Representations**

3.2.1, 3.2.2, 3.5, 3.12.6, 6.2.2, 8.2.1, 9.3.3, 9.8.2

#### **Contractor's Responsibility for Those Performing the Work**

3.3.2, 3.18, 5.3.1, 6.1.3, 6.2, 9.5.1, 10.2.8

#### **Contractor's Review of Contract Documents**

3.2

#### **Contractor's Right to Stop the Work**

9.7

#### **Contractor's Right to Terminate the Contract**

14.1, 15.1.6

#### **Contractor's Submittals**

3.10, 3.11, 3.12.4, 4.2.7, 5.2.1, 5.2.3, 9.2, 9.3, 9.8.2, 9.8.3, 9.9.1, 9.10.2, 9.10.3, 11.1.3, 11.4.2

#### **Contractor's Superintendent**

3.9, 10.2.6

#### **Contractor's Supervision and Construction**

##### **Procedures**

1.2.2, 3.3, 3.4, 3.12.10, 4.2.2, 4.2.7, 6.1.3, 6.2.4, 7.1.3, 7.3.5, 7.3.7, 8.2, 10, 12, 14, 15.1.3

##### **Contractual Liability Insurance**

11.1.1.8, 11.2

##### **Coordination and Correlation**

1.2, 3.2.1, 3.3.1, 3.10, 3.12.6, 6.1.3, 6.2.1

##### **Copies Furnished of Drawings and Specifications**

1.5, 2.2.5, 3.11

##### **Copyrights**

1.5, 3.17

##### **Correction of Work**

2.3, 2.4, 3.7.3, 9.4.2, 9.8.2, 9.8.3, 9.9.1, 12.1.2, 12.2

## **Correlation and Intent of the Contract Documents**

### **1.2**

#### **Cost, Definition of**

7.3.7

#### **Costs**

2.4.1, 3.2.4, 3.7.3, 3.8.2, 3.15.2, 5.4.2, 6.1.1, 6.2.3, 7.3.3.3, 7.3.7, 7.3.8, 7.3.9, 9.10.2, 10.3.2, 10.3.6, 11.3, 12.1.2, 12.2.1, 12.2.4, 13.5, 14

## **Cutting and Patching**

3.14, 6.2.5

### **Damage to Construction of Owner or Separate Contractors**

3.14.2, 6.2.4, 10.2.1.2, 10.2.5, 10.4, 11.1.1, 11.3, 12.2.4

### **Damage to the Work**

3.14.2, 9.9.1, 10.2.1.2, 10.2.5, 10.4.1, 11.3.1, 12.2.4

### **Damages, Claims for**

3.2.4, 3.18, 6.1.1, 8.3.3, 9.5.1, 9.6.7, 10.3.3, 11.1.1, 11.3.5, 11.3.7, 14.1.3, 14.2.4, 15.1.6

### **Damages for Delay**

6.1.1, 8.3.3, 9.5.1.6, 9.7, 10.3.2

## **Date of Commencement of the Work, Definition of 8.1.2**

## **Date of Substantial Completion, Definition of 8.1.3**

### **Day, Definition of**

8.1.4

### **Decisions of the Architect**

3.7.4, 4.2.6, 4.2.7, 4.2.11, 4.2.12, 4.2.13, 15.2, 6.3, 7.3.7, 7.3.9, 8.1.3, 8.3.1, 9.2, 9.4, 9.5.1, 9.8.4, 9.9.1, 13.5.2, 14.2.2, 14.2.4, 15.1, 15.2

### **Decisions to Withhold Certification**

9.4.1, 9.5, 9.7, 14.1.1.3

### **Defective or Nonconforming Work, Acceptance, Rejection and Correction of**

2.3.1, 2.4.1, 3.5, 4.2.6, 6.2.5, 9.5.1, 9.5.2, 9.6.6, 9.8.2, 9.9.3, 9.10.4, 12.2.1

### **Definitions**

1.1, 2.1.1, 3.1.1, 3.5, 3.12.1, 3.12.2, 3.12.3, 4.1.1, 15.1.1, 5.1, 6.1.2, 7.2.1, 7.3.1, 8.1, 9.1, 9.8.1

### **Delays and Extensions of Time**

3.2, 3.7.4, 5.2.3, 7.2.1, 7.3.1, 7.4, 8.3, 9.5.1, 9.7, 10.3.2, 10.4.1, 14.3.2, 15.1.5, 15.2.5

### **Disputes**

6.3, 7.3.9, 15.1, 15.2

## **Documents and Samples at the Site**

### **3.11**

#### **Drawings, Definition of**

1.1.5

#### **Drawings and Specifications, Use and Ownership of 3.11**

#### **Effective Date of Insurance**

8.2.2, 11.1.2

### **Emergencies**

10.4, 14.1.1.2, 15.1.4

### **Employees, Contractor's**

3.3.2, 3.4.3, 3.8.1, 3.9, 3.18.2, 4.2.3, 4.2.6, 10.2, 10.3.3, 11.1.1, 11.3.7, 14.1, 14.2.1.1

### **Equipment, Labor, Materials or**

1.1.3, 1.1.6, 3.4, 3.5, 3.8.2, 3.8.3, 3.12, 3.13.1, 3.15.1, 4.2.6, 4.2.7, 5.2.1, 6.2.1, 7.3.7, 9.3.2, 9.3.3, 9.5.1.3, 9.10.2, 10.2.1, 10.2.4, 14.2.1.1, 14.2.1.2



Execution and Progress of the Work  
 1.1.3, 1.2.1, 1.2.2, 2.2.3, 2.2.5, 3.1, 3.3.1, 3.4.1, 3.5,  
 3.7.1, 3.10.1, 3.12, 3.14, 4.2, 6.2.2, 7.1.3, 7.3.5, 8.2,  
 9.5.1, 9.9.1, 10.2, 10.3, 12.2, 14.2, 14.3.1, 15.1.3  
 Extensions of Time  
 3.2.4, 3.7.4, 5.2.3, 7.2.1, 7.3, 7.4, 9.5.1, 9.7, 10.3.2,  
 10.4.1, 14.3, 15.1.5, 15.2.5  
**Failure of Payment**  
 9.5.1.3, 9.7, 9.10.2, 13.6, 14.1.1.3, 14.2.1.2  
 Faulty Work  
 (See Defective or Nonconforming Work)  
**Final Completion and Final Payment**  
 4.2.1, 4.2.9, 9.8.2, 9.10, 11.1.2, 11.1.3, 11.3.1, 11.3.5,  
 12.3.1, 14.2.4, 14.4.3  
 Financial Arrangements, Owner's  
 2.2.1, 13.2.2, 14.1.1.4  
 Fire and Extended Coverage Insurance  
 11.3.1.1  
**GENERAL PROVISIONS**  
**1**  
**Governing Law**  
**13.1**  
 Guarantees (See Warranty)  
**Hazardous Materials**  
 10.2.4, 10.3  
 Identification of Subcontractors and Suppliers  
 5.2.1  
**Indemnification**  
 3.17, 3.18, 9.10.2, 10.3.3, 10.3.5, 10.3.6, 11.3.1.2,  
 11.3.7  
**Information and Services Required of the Owner**  
 2.1.2, 2.2, 3.2.2, 3.12.4, 3.12.10, 6.1.3, 6.1.4, 6.2.5,  
 9.6.1, 9.6.4, 9.9.2, 9.10.3, 10.3.3, 11.2, 11.4, 13.5.1,  
 13.5.2, 14.1.1.4, 14.1.4, 15.1.3  
**Initial Decision**  
**15.2**  
**Initial Decision Maker, Definition of**  
 1.1.8  
 Initial Decision Maker, Decisions  
 14.2.2, 14.2.4, 15.2.1, 15.2.2, 15.2.3, 15.2.4, 15.2.5  
 Initial Decision Maker, Extent of Authority  
 14.2.2, 14.2.4, 15.1.3, 15.2.1, 15.2.2, 15.2.3, 15.2.4,  
 15.2.5  
**Injury or Damage to Person or Property**  
**10.2.8, 10.4.1**  
 Inspections  
 3.1.3, 3.3.3, 3.7.1, 4.2.2, 4.2.6, 4.2.9, 9.4.2, 9.8.3,  
 9.9.2, 9.10.1, 12.2.1, 13.5  
 Instructions to Bidders  
 1.1.1  
 Instructions to the Contractor  
 3.2.4, 3.3.1, 3.8.1, 5.2.1, 7, 8.2.2, 12, 13.5.2  
**Instruments of Service, Definition of**  
**1.1.7**  
 Insurance  
 3.18.1, 6.1.1, 7.3.7, 9.3.2, 9.8.4, 9.9.1, 9.10.2, 11

**Insurance, Boiler and Machinery**  
**11.3.2**  
**Insurance, Contractor's Liability**  
**11.1**  
 Insurance, Effective Date of  
 8.2.2, 11.1.2  
**Insurance, Loss of Use**  
**11.3.3**  
**Insurance, Owner's Liability**  
**11.2**  
**Insurance, Property**  
 10.2.5, 11.3  
 Insurance, Stored Materials  
 9.3.2  
**INSURANCE AND BONDS**  
**11**  
 Insurance Companies, Consent to Partial Occupancy  
 9.9.1  
 Intent of the Contract Documents  
 1.2.1, 4.2.7, 4.2.12, 4.2.13, 7.4  
**Interest**  
**13.6**  
**Interpretation**  
 1.2.3, 1.4, 4.1.1, 5.1, 6.1.2, 15.1.1  
 Interpretations, Written  
 4.2.11, 4.2.12, 15.1.4  
 Judgment on Final Award  
 15.4.2  
**Labor and Materials, Equipment**  
 1.1.3, 1.1.6, 3.4, 3.5, 3.8.2, 3.8.3, 3.12, 3.13, 3.15.1,  
 4.2.6, 4.2.7, 5.2.1, 6.2.1, 7.3.7, 9.3.2, 9.3.3, 9.5.1.3,  
 9.10.2, 10.2.1, 10.2.4, 14.2.1.1, 14.2.1.2  
 Labor Disputes  
 8.3.1  
 Laws and Regulations  
 1.5, 3.2.3, 3.6, 3.7, 3.12.10, 3.13.1, 4.1.1, 9.6.4, 9.9.1,  
 10.2.2, 11.1.1, 11.3, 13.1.1, 13.4, 13.5.1, 13.5.2,  
 13.6.1, 14, 15.2.8, 15.4  
 Liens  
 2.1.2, 9.3.3, 9.10.2, 9.10.4, 15.2.8  
 Limitations, Statutes of  
 12.2.5, 13.7, 15.4.1.1  
 Limitations of Liability  
 2.3.1, 3.2.2, 3.5, 3.12.10, 3.17, 3.18.1, 4.2.6, 4.2.7,  
 4.2.12, 6.2.2, 9.4.2, 9.6.4, 9.6.7, 10.2.5, 10.3.3, 11.1.2,  
 11.2, 11.3.7, 12.2.5, 13.4.2  
 Limitations of Time  
 2.1.2, 2.2, 2.4, 3.2.2, 3.10, 3.11, 3.12.5, 3.15.1, 4.2.7,  
 5.2, 5.3.1, 5.4.1, 6.2.4, 7.3, 7.4, 8.2, 9.2, 9.3.1, 9.3.3,  
 9.4.1, 9.5, 9.6, 9.7, 9.8, 9.9, 9.10, 11.1.3, 11.3.1.5,  
 11.3.6, 11.3.10, 12.2, 13.5, 13.7, 14, 15  
**Loss of Use Insurance**  
**11.3.3**  
 Material Suppliers  
 1.5, 3.12.1, 4.2.4, 4.2.6, 5.2.1, 9.3, 9.4.2, 9.6, 9.10.5  
**Materials, Hazardous**  
**10.2.4, 10.3**

Materials, Labor, Equipment and  
1.1.3, 1.1.6, 1.5.1, 3.4.1, 3.5, 3.8.2, 3.8.3, 3.12, 3.13.1,  
3.15.1, 4.2.6, 4.2.7, 5.2.1, 6.2.1, 7.3.7, 9.3.2, 9.3.3,  
9.5.1.3, 9.10.2, 10.2.1.2, 10.2.4, 14.2.1.1, 14.2.1.2  
Means, Methods, Techniques, Sequences and  
Procedures of Construction  
3.3.1, 3.12.10, 4.2.2, 4.2.7, 9.4.2  
Mechanic's Lien  
2.1.2, 15.2.8

#### **Mediation**

8.3.1, 10.3.5, 10.3.6, 15.2.1, 15.2.5, 15.2.6, **15.3**,  
15.4.1

#### **Minor Changes in the Work**

1.1.1, 3.12.8, 4.2.8, 7.1, 7.4

### **MISCELLANEOUS PROVISIONS**

#### **13**

##### **Modifications, Definition of**

###### **1.1.1**

##### **Modifications to the Contract**

1.1.1, 1.1.2, 3.11, 4.1.2, 4.2.1, 5.2.3, 7, 8.3.1, 9.7,  
10.3.2, 11.3.1

##### **Mutual Responsibility**

###### **6.2**

##### **Nonconforming Work, Acceptance of**

9.6.6, 9.9.3, **12.3**

Nonconforming Work, Rejection and Correction of  
2.3.1, 2.4.1, 3.5, 4.2.6, 6.2.4, 9.5.1, 9.8.2, 9.9.3, 9.10.4,  
12.2.1

##### **Notice**

2.2.1, 2.3.1, 2.4.1, 3.2.4, 3.3.1, 3.7.2, 3.12.9, 5.2.1, 9.7,  
9.10, 10.2.2, 11.1.3, 12.2.2.1, 13.3, 13.5.1, 13.5.2,  
14.1, 14.2, 15.2.8, 15.4.1

##### **Notice, Written**

2.3.1, 2.4.1, 3.3.1, 3.9.2, 3.12.9, 3.12.10, 5.2.1, 9.7,  
9.10, 10.2.2, 10.3, 11.1.3, 11.3.6, 12.2.2.1, **13.3**, 14,  
15.2.8, 15.4.1

##### **Notice of Claims**

3.7.4, 10.2.8, **15.1.2**, 15.4

##### **Notice of Testing and Inspections**

13.5.1, 13.5.2

##### **Observations, Contractor's**

3.2, 3.7.4

##### **Occupancy**

2.2.2, 9.6.6, 9.8, 11.3.1.5

##### **Orders, Written**

1.1.1, 2.3, 3.9.2, 7, 8.2.2, 11.3.9, 12.1, 12.2.2.1, 13.5.2,  
14.3.1

### **OWNER**

#### **2**

##### **Owner, Definition of**

###### **2.1.1**

##### **Owner, Information and Services Required of the**

2.1.2, **2.2**, 3.2.2, 3.12.10, 6.1.3, 6.1.4, 6.2.5, 9.3.2,  
9.6.1, 9.6.4, 9.9.2, 9.10.3, 10.3.3, 11.2, 11.3, 13.5.1,  
13.5.2, 14.1.1.4, 14.1.4, 15.1.3

##### **Owner's Authority**

1.5, 2.1.1, 2.3.1, 2.4.1, 3.4.2, 3.8.1, 3.12.10, 3.14.2,  
4.1.2, 4.1.3, 4.2.4, 4.2.9, 5.2.1, 5.2.4, 5.4.1, 6.1, 6.3,  
7.2.1, 7.3.1, 8.2.2, 8.3.1, 9.3.1, 9.3.2, 9.5.1, 9.6.4,  
9.9.1, 9.10.2, 10.3.2, 11.1.3, 11.3.3, 11.3.10, 12.2.2,  
12.3.1, 13.2.2, 14.3, 14.4, 15.2.7

##### **Owner's Financial Capability**

2.2.1, 13.2.2, 14.1.1.4

##### **Owner's Liability Insurance**

###### **11.2**

##### **Owner's Relationship with Subcontractors**

1.1.2, 5.2, 5.3, 5.4, 9.6.4, 9.10.2, 14.2.2

##### **Owner's Right to Carry Out the Work**

2.4, 14.2.2

##### **Owner's Right to Clean Up**

###### **6.3**

##### **Owner's Right to Perform Construction and to Award Separate Contracts**

###### **6.1**

##### **Owner's Right to Stop the Work**

###### **2.3**

##### **Owner's Right to Suspend the Work**

14.3

##### **Owner's Right to Terminate the Contract**

14.2

##### **Ownership and Use of Drawings, Specifications and Other Instruments of Service**

1.1.1, 1.1.6, 1.1.7, **1.5**, 2.2.5, 3.2.2, 3.11.1, 3.17,  
4.2.12, 5.3.1

##### **Partial Occupancy or Use**

9.6.6, **9.9**, 11.3.1.5

##### **Patching, Cutting and**

**3.14**, 6.2.5

##### **Patents**

3.17

##### **Payment, Applications for**

4.2.5, 7.3.9, 9.2, **9.3**, 9.4, 9.5, 9.6.3, 9.7, 9.8.5, 9.10.1,  
14.2.3, 14.2.4, 14.4.3

##### **Payment, Certificates for**

4.2.5, 4.2.9, 9.3.3, **9.4**, 9.5, 9.6.1, 9.6.6, 9.7, 9.10.1,  
9.10.3, 13.7, 14.1.1.3, 14.2.4

##### **Payment, Failure of**

9.5.1.3, **9.7**, 9.10.2, 13.6, 14.1.1.3, 14.2.1.2

##### **Payment, Final**

4.2.1, 4.2.9, 9.8.2, 9.10, 11.1.2, 11.1.3, 11.4.1, 12.3.1,  
13.7, 14.2.4, 14.4.3

##### **Payment Bond, Performance Bond and**

7.3.7.4, 9.6.7, 9.10.3, **11.4**

##### **Payments, Progress**

9.3, **9.6**, 9.8.5, 9.10.3, 13.6, 14.2.3, 15.1.3

### **PAYMENTS AND COMPLETION**

#### **9**

##### **Payments to Subcontractors**

5.4.2, 9.5.1.3, 9.6.2, 9.6.3, 9.6.4, 9.6.7, 14.2.1.2

##### **PCB**

10.3.1

Init.

AIA Document A201™ – 2007, Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997 and 2007 by The American Institute of Architects. All rights reserved. **WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law.** This document was produced by AIA software at 11:53:59 on 05/15/2014 under Order No.6857589732\_1 which expires on 10/23/2014, and is not for resale.

User Notes:

(1363701617)



**Performance Bond and Payment Bond**  
7.3.7.4, 9.6.7, 9.10.3, 11.4

**Permits, Fees, Notices and Compliance with Laws**  
2.2.2, 3.7, 3.13, 7.3.7.4, 10.2.2

**PERSONS AND PROPERTY, PROTECTION OF 10**

Polychlorinated Biphenyl  
10.3.1

**Product Data, Definition of**  
3.12.2

**Product Data and Samples, Shop Drawings**  
3.11, 3.12, 4.2.7

**Progress and Completion**  
4.2.2, 8.2, 9.8, 9.9.1, 14.1.4, 15.1.3

**Progress Payments**  
9.3, 9.6, 9.8.5, 9.10.3, 13.6, 14.2.3, 15.1.3

**Project, Definition of**  
1.1.4

Project Representatives  
4.2.10

**Property Insurance**  
10.2.5, 11.3

**PROTECTION OF PERSONS AND PROPERTY 10**

Regulations and Laws  
1.5, 3.2.3, 3.6, 3.7, 3.12.10, 3.13, 4.1.1, 9.6.4, 9.9.1, 10.2.2, 11.1, 11.4, 13.1, 13.4, 13.5.1, 13.5.2, 13.6, 14, 15.2.8, 15.4

Rejection of Work  
3.5, 4.2.6, 12.2.1

Releases and Waivers of Liens  
9.10.2

Representations  
3.2.1, 3.5, 3.12.6, 6.2.2, 8.2.1, 9.3.3, 9.4.2, 9.5.1, 9.8.2, 9.10.1

Representatives  
2.1.1, 3.1.1, 3.9, 4.1.1, 4.2.1, 4.2.2, 4.2.10, 5.1.1, 5.1.2, 13.2.1

Responsibility for Those Performing the Work  
3.3.2, 3.18, 4.2.3, 5.3.1, 6.1.3, 6.2, 6.3, 9.5.1, 10

Retainage  
9.3.1, 9.6.2, 9.8.5, 9.9.1, 9.10.2, 9.10.3

**Review of Contract Documents and Field Conditions by Contractor**  
3.2, 3.12.7, 6.1.3

Review of Contractor's Submittals by Owner and Architect  
3.10.1, 3.10.2, 3.11, 3.12, 4.2, 5.2, 6.1.3, 9.2, 9.8.2

Review of Shop Drawings, Product Data and Samples by Contractor  
3.12

**Rights and Remedies**  
1.1.2, 2.3, 2.4, 3.5, 3.7.4, 3.15.2, 4.2.6, 5.3, 5.4, 6.1, 6.3, 7.3.1, 8.3, 9.5.1, 9.7, 10.2.5, 10.3, 12.2.2, 12.2.4, 13.4, 14, 15.4

**Royalties, Patents and Copyrights**  
3.17

Rules and Notices for Arbitration  
15.4.1

**Safety of Persons and Property**  
10.2, 10.4

**Safety Precautions and Programs**  
3.3.1, 4.2.2, 4.2.7, 5.3.1, 10.1, 10.2, 10.4

**Samples, Definition of**  
3.12.3

**Samples, Shop Drawings, Product Data and**  
3.11, 3.12, 4.2.7

**Samples at the Site, Documents and**  
3.11

**Schedule of Values**  
9.2, 9.3.1

Schedules, Construction  
3.10, 3.12.1, 3.12.2, 6.1.3, 15.1.5.2

Separate Contracts and Contractors  
1.1.4, 3.12.5, 3.14.2, 4.2.4, 4.2.7, 6, 8.3.1, 12.1.2

**Shop Drawings, Definition of**  
3.12.1

**Shop Drawings, Product Data and Samples**  
3.11, 3.12, 4.2.7

**Site, Use of**  
3.13, 6.1.1, 6.2.1

Site Inspections  
3.2.2, 3.3.3, 3.7.1, 3.7.4, 4.2, 9.4.2, 9.10.1, 13.5

Site Visits, Architect's  
3.7.4, 4.2.2, 4.2.9, 9.4.2, 9.5.1, 9.9.2, 9.10.1, 13.5

Special Inspections and Testing  
4.2.6, 12.2.1, 13.5

**Specifications, Definition of**  
1.1.6

**Specifications**  
1.1.1, 1.1.6, 1.2.2, 1.5, 3.11, 3.12.10, 3.17, 4.2.14

Statute of Limitations  
13.7, 15.4.1.1

Stopping the Work  
2.3, 9.7, 10.3, 14.1

Stored Materials  
6.2.1, 9.3.2, 10.2.1.2, 10.2.4

**Subcontractor, Definition of**  
5.1.1

**SUBCONTRACTORS**  
5

Subcontractors, Work by  
1.2.2, 3.3.2, 3.12.1, 4.2.3, 5.2.3, 5.3, 5.4, 9.3.1.2, 9.6.7

**Subcontractual Relations**  
5.3, 5.4, 9.3.1.2, 9.6, 9.10, 10.2.1, 14.1, 14.2.1

Submittals  
3.10, 3.11, 3.12, 4.2.7, 5.2.1, 5.2.3, 7.3.7, 9.2, 9.3, 9.8, 9.9.1, 9.10.2, 9.10.3, 11.1.3

Submittal Schedule  
3.10.2, 3.12.5, 4.2.7

**Subrogation, Waivers of**  
6.1.1, 11.3.7

Init.

AIA Document A201™ – 2007. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997 and 2007 by The American Institute of Architects. All rights reserved. **WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law.** This document was produced by AIA software at 11:53:59 on 05/15/2014 under Order No.6857589732\_1 which expires on 10/23/2014, and is not for resale.

User Notes:

(1363701617)

**Substantial Completion**  
4.2.9, 8.1.1, 8.1.3, 8.2.3, 9.4.2, **9.8**, 9.9.1, 9.10.3, 12.2, 13.7

**Substantial Completion, Definition of**  
**9.8.1**

Substitution of Subcontractors  
5.2.3, 5.2.4

Substitution of Architect  
4.1.3

Substitutions of Materials  
3.4.2, 3.5, 7.3.8

**Sub-subcontractor, Definition of**  
**5.1.2**

Subsurface Conditions  
3.7.4

**Successors and Assigns**  
**13.2**

**Superintendent**  
**3.9**, 10.2.6

**Supervision and Construction Procedures**  
1.2.2, **3.3**, 3.4, 3.12.10, 4.2.2, 4.2.7, 6.1.3, 6.2.4, 7.1.3, 7.3.7, 8.2, 8.3.1, 9.4.2, 10, 12, 14, 15.1.3

Surety  
5.4.1.2, 9.8.5, 9.10.2, 9.10.3, 14.2.2, 15.2.7

Surety, Consent of  
9.10.2, 9.10.3

Surveys  
2.2.3

**Suspension by the Owner for Convenience**  
**14.3**

Suspension of the Work  
5.4.2, 14.3

Suspension or Termination of the Contract  
5.4.1.1, 14

**Taxes**  
3.6, 3.8.2.1, 7.3.7.4

**Termination by the Contractor**  
**14.1**, 15.1.6

**Termination by the Owner for Cause**  
5.4.1.1, **14.2**, 15.1.6

**Termination by the Owner for Convenience**  
**14.4**

Termination of the Architect  
4.1.3

Termination of the Contractor  
14.2.2

**TERMINATION OR SUSPENSION OF THE CONTRACT**  
**14**

**Tests and Inspections**  
3.1.3, 3.3.3, 4.2.2, 4.2.6, 4.2.9, 9.4.2, 9.8.3, 9.9.2, 9.10.1, 10.3.2, 11.4.1.1, 12.2.1, **13.5**

**TIME**  
**8**

**Time, Delays and Extensions of**  
3.2.4, 3.7.4, 5.2.3, 7.2.1, 7.3.1, 7.4, **8.3**, 9.5.1, 9.7, 10.3.2, 10.4.1, 14.3.2, 15.1.5, 15.2.5

**Time Limits**  
2.1.2, 2.2, 2.4, 3.2.2, 3.10, 3.11, 3.12.5, 3.15.1, 4.2, 5.2, 5.3, 5.4, 6.2.4, 7.3, 7.4, 8.2, 9.2, 9.3.1, 9.3.3, 9.4.1, 9.5, 9.6, 9.7, 9.8, 9.9, 9.10, 11.1.3, 12.2, 13.5, 13.7, 14, 15.1.2, 15.4

**Time Limits on Claims**  
3.7.4, 10.2.8, **13.7**, 15.1.2

Title to Work  
9.3.2, 9.3.3

**Transmission of Data in Digital Form**  
**1.6**

**UNCOVERING AND CORRECTION OF WORK**  
**12**

**Uncovering of Work**  
**12.1**

Unforeseen Conditions, Concealed or Unknown  
3.7.4, 8.3.1, 10.3

Unit Prices  
7.3.3.2, 7.3.4

Use of Documents  
1.1.1, 1.5, 2.2.5, 3.12.6, 5.3

**Use of Site**  
**3.13**, 6.1.1, 6.2.1

**Values, Schedule of**  
**9.2**, 9.3.1

Waiver of Claims by the Architect  
13.4.2

Waiver of Claims by the Contractor  
9.10.5, 13.4.2, 15.1.6

Waiver of Claims by the Owner  
9.9.3, 9.10.3, 9.10.4, 12.2.2.1, 13.4.2, 14.2.4, 15.1.6

Waiver of Consequential Damages  
14.2.4, 15.1.6

Waiver of Liens  
9.10.2, 9.10.4

**Waivers of Subrogation**  
6.1.1, **11.3.7**

**Warranty**  
3.5, 4.2.9, 9.3.3, 9.8.4, 9.9.1, 9.10.4, 12.2.2, 13.7

Weather Delays  
15.1.5.2

**Work, Definition of**  
**1.1.3**

Written Consent  
1.5.2, 3.4.2, 3.7.4, 3.12.8, 3.14.2, 4.1.2, 9.3.2, 9.8.5, 9.9.1, 9.10.2, 9.10.3, 11.4.1, 13.2, 13.4.2, 15.4.4.2

Written Interpretations  
4.2.11, 4.2.12

Written Notice  
2.3, 2.4, 3.3.1, 3.9, 3.12.9, 3.12.10, 5.2.1, 8.2.2, 9.7, 9.10, 10.2.2, 10.3, 11.1.3, 12.2.2, 12.2.4, **13.3**, 14, 15.4.1

Written Orders  
1.1.1, 2.3, 3.9, 7, 8.2.2, 12.1, 12.2, 13.5.2, 14.3.1, 15.1.2



## ARTICLE 1 GENERAL PROVISIONS

### § 1.1 BASIC DEFINITIONS

#### § 1.1.1 THE CONTRACT DOCUMENTS

The Contract Documents are enumerated in the Agreement between the Owner and Contractor (hereinafter the Agreement) and consist of the Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive or (4) a written order for a minor change in the Work issued by the Architect. Unless specifically enumerated in the Agreement, the Contract Documents do not include the advertisement or invitation to bid, Instructions to Bidders, sample forms, other information furnished by the Owner in anticipation of receiving bids or proposals, the Contractor's bid or proposal, or portions of Addenda relating to bidding requirements.

#### § 1.1.2 THE CONTRACT

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Contractor and the Architect or the Architect's consultants, (2) between the Owner and a Subcontractor or a Sub-subcontractor, (3) between the Owner and the Architect or the Architect's consultants or (4) between any persons or entities other than the Owner and the Contractor. The Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Architect's duties.

#### § 1.1.3 THE WORK

The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

#### § 1.1.4 THE PROJECT

The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the Owner and by separate contractors.

#### § 1.1.5 THE DRAWINGS

The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules and diagrams.

#### § 1.1.6 THE SPECIFICATIONS

The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services.

#### § 1.1.7 INSTRUMENTS OF SERVICE

Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Architect and the Architect's consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

#### § 1.1.8 INITIAL DECISION MAKER

The Initial Decision Maker is the person identified in the Agreement to render initial decisions on Claims in accordance with Section 15.2 and certify termination of the Agreement under Section 14.2.2.

### § 1.2 CORRELATION AND INTENT OF THE CONTRACT DOCUMENTS

§ 1.2.1 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.



§ 1.2.2 Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

§ 1.2.3 Unless otherwise stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

### § 1.3 CAPITALIZATION

Terms capitalized in these General Conditions include those that are (1) specifically defined, (2) the titles of numbered articles or (3) the titles of other documents published by the American Institute of Architects.

### § 1.4 INTERPRETATION

In the interest of brevity the Contract Documents frequently omit modifying words such as "all" and "any" and articles such as "the" and "an," but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

### § 1.5 OWNERSHIP AND USE OF DRAWINGS, SPECIFICATIONS AND OTHER INSTRUMENTS OF SERVICE

§ 1.5.1 The Architect and the Architect's consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and will retain all common law, statutory and other reserved rights, including copyrights. The Contractor, Subcontractors, Sub-subcontractors, and material or equipment suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with this Project is not to be construed as publication in derogation of the Architect's or Architect's consultants' reserved rights.

§ 1.5.2 The Contractor, Subcontractors, Sub-subcontractors and material or equipment suppliers are authorized to use and reproduce the Instruments of Service provided to them solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and material or equipment suppliers may not use the Instruments of Service on other projects or for additions to this Project outside the scope of the Work without the specific written consent of the Owner, Architect and the Architect's consultants.

### § 1.6 TRANSMISSION OF DATA IN DIGITAL FORM

If the parties intend to transmit Instruments of Service or any other information or documentation in digital form, they shall endeavor to establish necessary protocols governing such transmissions, unless otherwise already provided in the Agreement or the Contract Documents.

## ARTICLE 2 OWNER

### § 2.1 GENERAL

§ 2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization. Except as otherwise provided in Section 4.2.1, the Architect does not have such authority. The term "Owner" means the Owner or the Owner's authorized representative.

§ 2.1.2 The Owner shall furnish to the Contractor within fifteen days after receipt of a written request, information necessary and relevant for the Contractor to evaluate, give notice of or enforce mechanic's lien rights. Such information shall include a correct statement of the record legal title to the property on which the Project is located, usually referred to as the site, and the Owner's interest therein.

### § 2.2 INFORMATION AND SERVICES REQUIRED OF THE OWNER

§ 2.2.1 Prior to commencement of the Work, the Contractor may request in writing that the Owner provide reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. Thereafter, the Contractor may only request such evidence if (1) the Owner fails to make payments to the Contractor as the Contract Documents require; (2) a change in the Work materially changes the Contract Sum; or (3) the Contractor identifies in writing a reasonable concern regarding the Owner's ability to make payment when due. The Owner shall furnish such evidence as a condition precedent to commencement or continuation of the Work or the



portion of the Work affected by a material change. After the Owner furnishes the evidence, the Owner shall not materially vary such financial arrangements without prior notice to the Contractor.

§ 2.2.2 Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, including those required under Section 3.7.1, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

§ 2.2.3 The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site. The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

§ 2.2.4 The Owner shall furnish information or services required of the Owner by the Contract Documents with reasonable promptness. The Owner shall also furnish any other information or services under the Owner's control and relevant to the Contractor's performance of the Work with reasonable promptness after receiving the Contractor's written request for such information or services.

§ 2.2.5 Unless otherwise provided in the Contract Documents, the Owner shall furnish to the Contractor one copy of the Contract Documents for purposes of making reproductions pursuant to Section 1.5.2.

### § 2.3 OWNER'S RIGHT TO STOP THE WORK

If the Contractor fails to correct Work that is not in accordance with the requirements of the Contract Documents as required by Section 12.2 or repeatedly fails to carry out Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Section 6.1.3.

### § 2.4 OWNER'S RIGHT TO CARRY OUT THE WORK

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a ten-day period after receipt of written notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such deficiencies. In such case an appropriate Change Order shall be issued deducting from payments then or thereafter due the Contractor the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Architect's additional services made necessary by such default, neglect or failure. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect. If payments then or thereafter due the Contractor are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner.

## ARTICLE 3 CONTRACTOR

### § 3.1 GENERAL

§ 3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Contractor shall be lawfully licensed, if required in the jurisdiction where the Project is located. The Contractor shall designate in writing a representative who shall have express authority to bind the Contractor with respect to all matters under this Contract. The term "Contractor" means the Contractor or the Contractor's authorized representative.

§ 3.1.2 The Contractor shall perform the Work in accordance with the Contract Documents.

§ 3.1.3 The Contractor shall not be relieved of obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Architect in the Architect's administration of the Contract, or by tests, inspections or approvals required or performed by persons or entities other than the Contractor.



### § 3.2 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR

§ 3.2.1 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed and correlated personal observations with requirements of the Contract Documents.

§ 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.2.3, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information in such form as the Architect may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

§ 3.2.3 The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Architect any nonconformity discovered by or made known to the Contractor as a request for information in such form as the Architect may require.

§ 3.2.4 If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect issues in response to the Contractor's notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall make Claims as provided in Article 15. If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those obligations, the Contractor shall not be liable to the Owner or Architect for damages resulting from errors, inconsistencies or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities.

### § 3.3 SUPERVISION AND CONSTRUCTION PROCEDURES

§ 3.3.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract, unless the Contract Documents give other specific instructions concerning these matters. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences or procedures, the Contractor shall evaluate the jobsite safety thereof and, except as stated below, shall be fully and solely responsible for the jobsite safety of such means, methods, techniques, sequences or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely written notice to the Owner and Architect and shall not proceed with that portion of the Work without further written instructions from the Architect. If the Contractor is then instructed to proceed with the required means, methods, techniques, sequences or procedures without acceptance of changes proposed by the Contractor, the Owner shall be solely responsible for any loss or damage arising solely from those Owner-required means, methods, techniques, sequences or procedures.

§ 3.3.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors.

§ 3.3.3 The Contractor shall be responsible for inspection of portions of Work already performed to determine that such portions are in proper condition to receive subsequent Work.

### § 3.4 LABOR AND MATERIALS

§ 3.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.



§ 3.4.2 Except in the case of minor changes in the Work authorized by the Architect in accordance with Sections 3.12.8 or 7.4, the Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect and in accordance with a Change Order or Construction Change Directive.

§ 3.4.3 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to them.

### § 3.5 WARRANTY

The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

### § 3.6 TAXES

The Contractor shall pay sales, consumer, use and similar taxes for the Work provided by the Contractor that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

### § 3.7 PERMITS, FEES, NOTICES AND COMPLIANCE WITH LAWS

§ 3.7.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit as well as for other permits, fees, licenses, and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.

§ 3.7.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work.

§ 3.7.3 If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

§ 3.7.4 **Concealed or Unknown Conditions.** If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature, that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner and the Architect before conditions are disturbed and in no event later than 21 days after first observance of the conditions. The Architect will promptly investigate such conditions and, if the Architect determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend an equitable adjustment in the Contract Sum or Contract Time, or both. If the Architect determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall promptly notify the Owner and Contractor in writing, stating the reasons. If either party disputes the Architect's determination or recommendation, that party may proceed as provided in Article 15.

§ 3.7.5 If, in the course of the Work, the Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Documents, the Contractor shall immediately suspend any operations that would affect them and shall notify the Owner and Architect. Upon receipt of such notice, the Owner shall promptly take any action necessary to obtain governmental authorization required to resume the operations. The Contractor shall continue to suspend such operations until otherwise instructed by the Owner but shall continue with all other operations that do not affect those remains or features. Requests for adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in Article 15.

Init.



### § 3.8 ALLOWANCES

§ 3.8.1 The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities to whom the Contractor has reasonable objection.

§ 3.8.2 Unless otherwise provided in the Contract Documents,

- .1 Allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;
- .2 Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowances; and
- .3 Whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Section 3.8.2.1 and (2) changes in Contractor's costs under Section 3.8.2.2.

§ 3.8.3 Materials and equipment under an allowance shall be selected by the Owner with reasonable promptness.

### § 3.9 SUPERINTENDENT

§ 3.9.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor.

§ 3.9.2 The Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner through the Architect the name and qualifications of a proposed superintendent. The Architect may reply within 14 days to the Contractor in writing stating (1) whether the Owner or the Architect has reasonable objection to the proposed superintendent or (2) that the Architect requires additional time to review. Failure of the Architect to reply within the 14 day period shall constitute notice of no reasonable objection.

§ 3.9.3 The Contractor shall not employ a proposed superintendent to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not change the superintendent without the Owner's consent, which shall not unreasonably be withheld or delayed.

### § 3.10 CONTRACTOR'S CONSTRUCTION SCHEDULES

§ 3.10.1 The Contractor, promptly after being awarded the Contract, shall prepare and submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall not exceed time limits current under the Contract Documents, shall be revised at appropriate intervals as required by the conditions of the Work and Project, shall be related to the entire Project to the extent required by the Contract Documents, and shall provide for expeditious and practicable execution of the Work.

§ 3.10.2 The Contractor shall prepare a submittal schedule, promptly after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, and shall submit the schedule(s) for the Architect's approval. The Architect's approval shall not unreasonably be delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's construction schedule, and (2) allow the Architect reasonable time to review submittals. If the Contractor fails to submit a submittal schedule, the Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time based on the time required for review of submittals.

§ 3.10.3 The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner and Architect.

### § 3.11 DOCUMENTS AND SAMPLES AT THE SITE

The Contractor shall maintain at the site for the Owner one copy of the Drawings, Specifications, Addenda, Change Orders and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and one copy of approved Shop Drawings, Product Data, Samples and similar required submittals. These shall be available to the Architect and shall be delivered to the Architect for submittal to the Owner upon completion of the Work as a record of the Work as constructed.

Init.



### § 3.12 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

§ 3.12.1 Shop Drawings are drawings, diagrams, schedules and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier or distributor to illustrate some portion of the Work.

§ 3.12.2 Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.

§ 3.12.3 Samples are physical examples that illustrate materials, equipment or workmanship and establish standards by which the Work will be judged.

§ 3.12.4 Shop Drawings, Product Data, Samples and similar submittals are not Contract Documents. Their purpose is to demonstrate the way by which the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals. Review by the Architect is subject to the limitations of Section 4.2.7. Informational submittals upon which the Architect is not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the Architect without action.

§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve and submit to the Architect Shop Drawings, Product Data, Samples and similar submittals required by the Contract Documents in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of separate contractors.

§ 3.12.6 By submitting Shop Drawings, Product Data, Samples and similar submittals, the Contractor represents to the Owner and Architect that the Contractor has (1) reviewed and approved them, (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

§ 3.12.7 The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples or similar submittals until the respective submittal has been approved by the Architect.

§ 3.12.8 The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data, Samples or similar submittals unless the Contractor has specifically informed the Architect in writing of such deviation at the time of submittal and (1) the Architect has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples or similar submittals by the Architect's approval thereof.

§ 3.12.9 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples or similar submittals, to revisions other than those requested by the Architect on previous submittals. In the absence of such written notice, the Architect's approval of a resubmission shall not apply to such revisions.

§ 3.12.10 The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. The Contractor shall not be required to provide professional services in violation of applicable law. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will specify all performance and design criteria that such services must satisfy. The Contractor shall cause such services or certifications to be provided by a properly licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Architect. The Owner and the Architect shall be entitled to rely upon the adequacy, accuracy and

Init.



completeness of the services, certifications and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor all performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review, approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Contractor shall not be responsible for the adequacy of the performance and design criteria specified in the Contract Documents.

### § 3.13 USE OF SITE

The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

### § 3.14 CUTTING AND PATCHING

§ 3.14.1 The Contractor shall be responsible for cutting, fitting or patching required to complete the Work or to make its parts fit together properly. All areas requiring cutting, fitting and patching shall be restored to the condition existing prior to the cutting, fitting and patching, unless otherwise required by the Contract Documents.

§ 3.14.2 The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or separate contractors by cutting, patching or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter such construction by the Owner or a separate contractor except with written consent of the Owner and of such separate contractor; such consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold from the Owner or a separate contractor the Contractor's consent to cutting or otherwise altering the Work.

### § 3.15 CLEANING UP

§ 3.15.1 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials or rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery and surplus materials from and about the Project.

§ 3.15.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and Owner shall be entitled to reimbursement from the Contractor.

### § 3.16 ACCESS TO WORK

The Contractor shall provide the Owner and Architect access to the Work in preparation and progress wherever located.

### § 3.17 ROYALTIES, PATENTS AND COPYRIGHTS

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner and Architect harmless from loss on account thereof, but shall not be responsible for such defense or loss when a particular design, process or product of a particular manufacturer or manufacturers is required by the Contract Documents, or where the copyright violations are contained in Drawings, Specifications or other documents prepared by the Owner or Architect. However, if the Contractor has reason to believe that the required design, process or product is an infringement of a copyright or a patent, the Contractor shall be responsible for such loss unless such information is promptly furnished to the Architect.

### § 3.18 INDEMNIFICATION

§ 3.18.1 To the fullest extent permitted by law the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss 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), but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity that would otherwise exist as to a party or person described in this Section 3.18.

Init.



§ 3.18.2 In claims against any person or entity indemnified under this Section 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under Section 3.18.1 shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts or other employee benefit acts.

#### ARTICLE 4 ARCHITECT

##### § 4.1 GENERAL

§ 4.1.1 The Owner shall retain an architect lawfully licensed to practice architecture or an entity lawfully practicing architecture in the jurisdiction where the Project is located. That person or entity is identified as the Architect in the Agreement and is referred to throughout the Contract Documents as if singular in number.

§ 4.1.2 Duties, responsibilities and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified or extended without written consent of the Owner, Contractor and Architect. Consent shall not be unreasonably withheld.

§ 4.1.3 If the employment of the Architect is terminated, the Owner shall employ a successor architect as to whom the Contractor has no reasonable objection and whose status under the Contract Documents shall be that of the Architect.

##### § 4.2 ADMINISTRATION OF THE CONTRACT

§ 4.2.1 The Architect will provide administration of the Contract as described in the Contract Documents and will be an Owner's representative during construction until the date the Architect issues the final Certificate for Payment. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

§ 4.2.2 The Architect will visit the site at intervals appropriate to the stage of construction, or as otherwise agreed with the Owner, to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect will not have control over, charge of, or responsibility for, the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents, except as provided in Section 3.3.1.

§ 4.2.3 On the basis of the site visits, the Architect will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and report to the Owner (1) known deviations from the Contract Documents and from the most recent construction schedule submitted by the Contractor, and (2) defects and deficiencies observed in the Work. The Architect will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect will not have control over or charge of and will not be responsible for acts or omissions of the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

##### § 4.2.4 COMMUNICATIONS FACILITATING CONTRACT ADMINISTRATION

Except as otherwise provided in the Contract Documents or when direct communications have been specially authorized, the Owner and Contractor shall endeavor to communicate with each other through the Architect about matters arising out of or relating to the Contract. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and material suppliers shall be through the Contractor. Communications by and with separate contractors shall be through the Owner.

§ 4.2.5 Based on the Architect's evaluations of the Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

§ 4.2.6 The Architect has authority to reject Work that does not conform to the Contract Documents. Whenever the Architect considers it necessary or advisable, the Architect will have authority to require inspection or testing of the Work in accordance with Sections 13.5.2 and 13.5.3, whether or not such Work is fabricated, installed or completed. However, neither this authority of the Architect nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect to the Contractor, Subcontractors, material and equipment suppliers, their agents or employees, or other persons or entities performing portions of the Work.

Init.



§ 4.2.7 The Architect will review and approve, or take other appropriate action upon, the Contractor's submittals such as Shop Drawings, Product Data and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Architect's action will be taken in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Architect's professional judgment to permit adequate review. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Architect's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Sections 3.3, 3.5 and 3.12. The Architect's review shall not constitute approval of safety precautions or, unless otherwise specifically stated by the Architect, of any construction means, methods, techniques, sequences or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

§ 4.2.8 The Architect will prepare Change Orders and Construction Change Directives, and may authorize minor changes in the Work as provided in Section 7.4. The Architect will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

§ 4.2.9 The Architect will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion pursuant to Section 9.8; receive and forward to the Owner, for the Owner's review and records, written warranties and related documents required by the Contract and assembled by the Contractor pursuant to Section 9.10; and issue a final Certificate for Payment pursuant to Section 9.10.

§ 4.2.10 If the Owner and Architect agree, the Architect will provide one or more project representatives to assist in carrying out the Architect's responsibilities at the site. The duties, responsibilities and limitations of authority of such project representatives shall be as set forth in an exhibit to be incorporated in the Contract Documents.

§ 4.2.11 The Architect will interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness.

§ 4.2.12 Interpretations and decisions of the Architect will be consistent with the intent of, and reasonably inferable from, the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either and will not be liable for results of interpretations or decisions rendered in good faith.

§ 4.2.13 The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

§ 4.2.14 The Architect will review and respond to requests for information about the Contract Documents. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information.

## ARTICLE 5 SUBCONTRACTORS

### § 5.1 DEFINITIONS

§ 5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include a separate contractor or subcontractors of a separate contractor.

§ 5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term "Sub-subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.



## § 5.2 AWARD OF SUBCONTRACTS AND OTHER CONTRACTS FOR PORTIONS OF THE WORK

§ 5.2.1 Unless otherwise stated in the Contract Documents or the bidding requirements, the Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner through the Architect the names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for each principal portion of the Work. The Architect may reply within 14 days to the Contractor in writing stating (1) whether the Owner or the Architect has reasonable objection to any such proposed person or entity or (2) that the Architect requires additional time for review. Failure of the Owner or Architect to reply within the 14-day period shall constitute notice of no reasonable objection.

§ 5.2.2 The Contractor shall not contract with a proposed person or entity to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

§ 5.2.3 If the Owner or Architect has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner or Architect has no reasonable objection. If the proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor's Work. However, no increase in the Contract Sum or Contract Time shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required.

§ 5.2.4 The Contractor shall not substitute a Subcontractor, person or entity previously selected if the Owner or Architect makes reasonable objection to such substitution.

## § 5.3 SUBCONTRACTUAL RELATIONS

By appropriate agreement, written where legally required for validity, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor's Work, which the Contractor, by these Documents, assumes toward the Owner and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement that may be at variance with the Contract Documents. Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

## § 5.4 CONTINGENT ASSIGNMENT OF SUBCONTRACTS

§ 5.4.1 Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner, provided that

- .1 assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.2 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor in writing; and
- .2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

When the Owner accepts the assignment of a subcontract agreement, the Owner assumes the Contractor's rights and obligations under the subcontract.

§ 5.4.2 Upon such assignment, if the Work has been suspended for more than 30 days, the Subcontractor's compensation shall be equitably adjusted for increases in cost resulting from the suspension.

§ 5.4.3 Upon such assignment to the Owner under this Section 5.4, the Owner may further assign the subcontract to a successor contractor or other entity. If the Owner assigns the subcontract to a successor contractor or other entity, the

Int.



Owner shall nevertheless remain legally responsible for all of the successor contractor's obligations under the subcontract.

## ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

### § 6.1 OWNER'S RIGHT TO PERFORM CONSTRUCTION AND TO AWARD SEPARATE CONTRACTS

§ 6.1.1 The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and to award separate contracts in connection with other portions of the Project or other construction or operations on the site under Conditions of the Contract identical or substantially similar to these including those portions related to insurance and waiver of subrogation. If the Contractor claims that delay or additional cost is involved because of such action by the Owner, the Contractor shall make such Claim as provided in Article 15.

§ 6.1.2 When separate contracts are awarded for different portions of the Project or other construction or operations on the site, the term "Contractor" in the Contract Documents in each case shall mean the Contractor who executes each separate Owner-Contractor Agreement.

§ 6.1.3 The Owner shall provide for coordination of the activities of the Owner's own forces and of each separate contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with other separate contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to the construction schedule deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, separate contractors and the Owner until subsequently revised.

§ 6.1.4 Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner's own forces, the Owner shall be deemed to be subject to the same obligations and to have the same rights that apply to the Contractor under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6 and Articles 10, 11 and 12.

### § 6.2 MUTUAL RESPONSIBILITY

§ 6.2.1 The Contractor shall afford the Owner and separate contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.

§ 6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner or a separate contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly report to the Architect apparent discrepancies or defects in such other construction that would render it unsuitable for such proper execution and results. Failure of the Contractor so to report shall constitute an acknowledgment that the Owner's or separate contractor's completed or partially completed construction is fit and proper to receive the Contractor's Work, except as to defects not then reasonably discoverable.

§ 6.2.3 The Contractor shall reimburse the Owner for costs the Owner incurs that are payable to a separate contractor because of the Contractor's delays, improperly timed activities or defective construction. The Owner shall be responsible to the Contractor for costs the Contractor incurs because of a separate contractor's delays, improperly timed activities, damage to the Work or defective construction.

§ 6.2.4 The Contractor shall promptly remedy damage the Contractor wrongfully causes to completed or partially completed construction or to property of the Owner or separate contractors as provided in Section 10.2.5.

§ 6.2.5 The Owner and each separate contractor shall have the same responsibilities for cutting and patching as are described for the Contractor in Section 3.14.

### § 6.3 OWNER'S RIGHT TO CLEAN UP

If a dispute arises among the Contractor, separate contractors and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and the Architect will allocate the cost among those responsible.



## ARTICLE 7 CHANGES IN THE WORK

### § 7.1 GENERAL

§ 7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents.

§ 7.1.2 A Change Order shall be based upon agreement among the Owner, Contractor and Architect; a Construction Change Directive requires agreement by the Owner and Architect and may or may not be agreed to by the Contractor; an order for a minor change in the Work may be issued by the Architect alone.

§ 7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents, and the Contractor shall proceed promptly, unless otherwise provided in the Change Order, Construction Change Directive or order for a minor change in the Work.

### § 7.2 CHANGE ORDERS

§ 7.2.1 A Change Order is a written instrument prepared by the Architect and signed by the Owner, Contractor and Architect stating their agreement upon all of the following:

- .1 The change in the Work;
- .2 The amount of the adjustment, if any, in the Contract Sum; and
- .3 The extent of the adjustment, if any, in the Contract Time.

### § 7.3 CONSTRUCTION CHANGE DIRECTIVES

§ 7.3.1 A Construction Change Directive is a written order prepared by the Architect and signed by the Owner and Architect, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

§ 7.3.2 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order.

§ 7.3.3 If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:

- .1 Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
- .2 Unit prices stated in the Contract Documents or subsequently agreed upon;
- .3 Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or
- .4 As provided in Section 7.3.7.

§ 7.3.4 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed in a proposed Change Order or Construction Change Directive so that application of such unit prices to quantities of Work proposed will cause substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

§ 7.3.5 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Architect of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

§ 7.3.6 A Construction Change Directive signed by the Contractor indicates the Contractor's agreement therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

§ 7.3.7 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Architect shall determine the method and the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount



for overhead and profit as set forth in the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Architect may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.7 shall be limited to the following:

- .1 Costs of labor, including social security, old age and unemployment insurance, fringe benefits required by agreement or custom, and workers' compensation insurance;
- .2 Costs of materials, supplies and equipment, including cost of transportation, whether incorporated or consumed;
- .3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;
- .4 Costs of premiums for all bonds and insurance, permit fees, and sales, use or similar taxes related to the Work; and
- .5 Additional costs of supervision and field office personnel directly attributable to the change.

§ 7.3.8 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Architect. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

§ 7.3.9 Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Architect determines, in the Architect's professional judgment, to be reasonably justified. The Architect's interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15.

§ 7.3.10 When the Owner and Contractor agree with a determination made by the Architect concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and the Architect will prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

#### § 7.4 MINOR CHANGES IN THE WORK

The Architect has authority to order minor changes in the Work not involving adjustment in the Contract Sum or extension of the Contract Time and not inconsistent with the intent of the Contract Documents. Such changes will be effected by written order signed by the Architect and shall be binding on the Owner and Contractor.

### ARTICLE 8 TIME

#### § 8.1 DEFINITIONS

§ 8.1.1 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

§ 8.1.2 The date of commencement of the Work is the date established in the Agreement.

§ 8.1.3 The date of Substantial Completion is the date certified by the Architect in accordance with Section 9.8.

§ 8.1.4 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

#### § 8.2 PROGRESS AND COMPLETION

§ 8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

§ 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, prematurely commence operations on the site or elsewhere prior to the effective date of insurance required by Article 11 to be furnished by the Contractor and Owner. The date of commencement of the Work shall not be changed by the effective date of such insurance.



§ 8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

### § 8.3 DELAYS AND EXTENSIONS OF TIME

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by an act or neglect of the Owner or Architect, or of an employee of either, or of a separate contractor employed by the Owner; or by changes ordered in the Work; or by labor disputes, fire, unusual delay in deliveries, unavoidable casualties or other causes beyond the Contractor's control; or by delay authorized by the Owner pending mediation and arbitration; or by other causes that the Architect determines may justify delay, then the Contract Time shall be extended by Change Order for such reasonable time as the Architect may determine.

§ 8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Article 15.

§ 8.3.3 This Section 8.3 does not preclude recovery of damages for delay by either party under other provisions of the Contract Documents.

## ARTICLE 9 PAYMENTS AND COMPLETION

### § 9.1 CONTRACT SUM

The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

### § 9.2 SCHEDULE OF VALUES

Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, the Contractor shall submit to the Architect, before the first Application for Payment, a schedule of values allocating the entire Contract Sum to the various portions of the Work and prepared in such form and supported by such data to substantiate its accuracy as the Architect may require. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment.

### § 9.3 APPLICATIONS FOR PAYMENT

§ 9.3.1 At least ten days before the date established for each progress payment, the Contractor shall submit to the Architect an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2, for completed portions of the Work. Such application shall be notarized, if required, and supported by such data substantiating the Contractor's right to payment as the Owner or Architect may require, such as copies of requisitions from Subcontractors and material suppliers, and shall reflect retainage if provided for in the Contract Documents.

§ 9.3.1.1 As provided in Section 7.3.9, such applications may include requests for payment on account of changes in the Work that have been properly authorized by Construction Change Directives, or by interim determinations of the Architect, but not yet included in Change Orders.

§ 9.3.1.2 Applications for Payment shall not include requests for payment for portions of the Work for which the Contractor does not intend to pay a Subcontractor or material supplier, unless such Work has been performed by others whom the Contractor intends to pay.

§ 9.3.2 Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable insurance, storage and transportation to the site for such materials and equipment stored off the site.

§ 9.3.3 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information and belief, be free and clear of liens, claims, security interests or

Init.



encumbrances in favor of the Contractor, Subcontractors, material suppliers, or other persons or entities making a claim by reason of having provided labor, materials and equipment relating to the Work.

#### § 9.4 CERTIFICATES FOR PAYMENT

§ 9.4.1 The Architect will, within seven days after receipt of the Contractor's Application for Payment, either issue to the Owner a Certificate for Payment, with a copy to the Contractor, for such amount as the Architect determines is properly due, or notify the Contractor and Owner in writing of the Architect's reasons for withholding certification in whole or in part as provided in Section 9.5.1.

§ 9.4.2 The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on the Architect's evaluation of the Work and the data comprising the Application for Payment, that, to the best of the Architect's knowledge, information and belief, the Work has progressed to the point indicated and that the quality of the Work is in accordance with the Contract Documents. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion and to specific qualifications expressed by the Architect. The issuance of a Certificate for Payment will further constitute a representation that the Contractor is entitled to payment in the amount certified. However, the issuance of a Certificate for Payment will not be a representation that the Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work, (2) reviewed construction means, methods, techniques, sequences or procedures, (3) reviewed copies of requisitions received from Subcontractors and material suppliers and other data requested by the Owner to substantiate the Contractor's right to payment, or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

#### § 9.5 DECISIONS TO WITHHOLD CERTIFICATION

§ 9.5.1 The Architect may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect's opinion the representations to the Owner required by Section 9.4.2 cannot be made. If the Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as provided in Section 9.4.1. If the Contractor and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in Section 3.3.2, because of

- .1 defective Work not remedied;
- .2 third party claims filed or reasonable evidence indicating probable filing of such claims unless security acceptable to the Owner is provided by the Contractor;
- .3 failure of the Contractor to make payments properly to Subcontractors or for labor, materials or equipment;
- .4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
- .5 damage to the Owner or a separate contractor;
- .6 reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
- .7 repeated failure to carry out the Work in accordance with the Contract Documents.

§ 9.5.2 When the above reasons for withholding certification are removed, certification will be made for amounts previously withheld.

§ 9.5.3 If the Architect withholds certification for payment under Section 9.5.1.3, the Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or material or equipment suppliers to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. If the Owner makes payments by joint check, the Owner shall notify the Architect and the Architect will reflect such payment on the next Certificate for Payment.

#### § 9.6 PROGRESS PAYMENTS

§ 9.6.1 After the Architect has issued a Certificate for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents, and shall so notify the Architect.



§ 9.6.2 The Contractor shall pay each Subcontractor no later than seven days after receipt of payment from the Owner the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.

§ 9.6.3 The Architect will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Architect and Owner on account of portions of the Work done by such Subcontractor.

§ 9.6.4 The Owner has the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and material and equipment suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within seven days, the Owner shall have the right to contact Subcontractors to ascertain whether they have been properly paid. Neither the Owner nor Architect shall have an obligation to pay or to see to the payment of money to a Subcontractor, except as may otherwise be required by law.

§ 9.6.5 Contractor payments to material and equipment suppliers shall be treated in a manner similar to that provided in Sections 9.6.2, 9.6.3 and 9.6.4.

§ 9.6.6 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

§ 9.6.7 Unless the Contractor provides the Owner with a payment bond in the full penal sum of the Contract Sum, payments received by the Contractor for Work properly performed by Subcontractors and suppliers shall be held by the Contractor for those Subcontractors or suppliers who performed Work or furnished materials, or both, under contract with the Contractor for which payment was made by the Owner. Nothing contained herein shall require money to be placed in a separate account and not commingled with money of the Contractor, shall create any fiduciary liability or tort liability on the part of the Contractor for breach of trust or shall entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.

#### § 9.7 FAILURE OF PAYMENT

If the Architect does not issue a Certificate for Payment, through no fault of the Contractor, within seven days after receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within seven days after the date established in the Contract Documents the amount certified by the Architect or awarded by binding dispute resolution, then the Contractor may, upon seven additional days' written notice to the Owner and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shut-down, delay and start-up, plus interest as provided for in the Contract Documents.

#### § 9.8 SUBSTANTIAL COMPLETION

§ 9.8.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use.

§ 9.8.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

§ 9.8.3 Upon receipt of the Contractor's list, the Architect will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Architect's inspection discloses any item, whether or not included on the Contractor's list, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect to determine Substantial Completion.



§ 9.8.4 When the Work or designated portion thereof is substantially complete, the Architect will prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion, shall establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance, and shall fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

§ 9.8.5 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in such Certificate. Upon such acceptance and consent of surety, if any, the Owner shall make payment of retainage applying to such Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

#### § 9.9 PARTIAL OCCUPANCY OR USE

§ 9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer as required under Section 11.3.1.5 and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor shall prepare and submit a list to the Architect as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Architect.

§ 9.9.2 Immediately prior to such partial occupancy or use, the Owner, Contractor and Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

§ 9.9.3 Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

#### § 9.10 FINAL COMPLETION AND FINAL PAYMENT

§ 9.10.1 Upon receipt of the Contractor's written notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection and, when the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's on-site visits and inspections, the Work has been completed in accordance with terms and conditions of the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

§ 9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect and will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner, (3) a written statement that the Contractor knows of no substantial reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment and (5), if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts, releases and waivers of liens, claims, security interests or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien. If such lien remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging such lien, including all costs and reasonable attorneys' fees.



§ 9.10.3 If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Architect so confirms, the Owner shall, upon application by the Contractor and certification by the Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Architect prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

§ 9.10.4 The making of final payment shall constitute a waiver of Claims by the Owner except those arising from

- .1 liens, Claims, security interests or encumbrances arising out of the Contract and unsettled;
- .2 failure of the Work to comply with the requirements of the Contract Documents; or
- .3 terms of special warranties required by the Contract Documents.

§ 9.10.5 Acceptance of final payment by the Contractor, a Subcontractor or material supplier shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

## ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

### § 10.1 SAFETY PRECAUTIONS AND PROGRAMS

The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the Contract.

### § 10.2 SAFETY OF PERSONS AND PROPERTY

§ 10.2.1 The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury or loss to

- .1 employees on the Work and other persons who may be affected thereby;
- .2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody or control of the Contractor or the Contractor's Subcontractors or Sub-subcontractors; and
- .3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

§ 10.2.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities bearing on safety of persons or property or their protection from damage, injury or loss.

§ 10.2.3 The Contractor shall erect and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations and notifying owners and users of adjacent sites and utilities.

§ 10.2.4 When use or storage of explosives or other hazardous materials or equipment or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.

§ 10.2.5 The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Sections 10.2.1.2 and 10.2.1.3 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 10.2.1.2 and 10.2.1.3, except damage or loss attributable to acts or omissions of the Owner or Architect or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 3.18.



§ 10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner and Architect.

§ 10.2.7 The Contractor shall not permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition.

**§ 10.2.8 INJURY OR DAMAGE TO PERSON OR PROPERTY**

If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, written notice of such injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

**§ 10.3 HAZARDOUS MATERIALS**

§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and report the condition to the Owner and Architect in writing.

§ 10.3.2 Upon receipt of the Contractor's written notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of such material or substance or who are to perform the task of removal or safe containment of such material or substance. The Contractor and the Architect will promptly reply to the Owner in writing stating whether or not either has reasonable objection to the persons or entities proposed by the Owner. If either the Contractor or Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased in the amount of the Contractor's reasonable additional costs of shut-down, delay and start-up.

§ 10.3.3 To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Architect, Architect's consultants and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in Section 10.3.1 and has not been rendered harmless, provided that such claim, damage, loss 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), except to the extent that such damage, loss or expense is due to the fault or negligence of the party seeking indemnity.

§ 10.3.4 The Owner shall not be responsible under this Section 10.3 for materials or substances the Contractor brings to the site unless such materials or substances are required by the Contract Documents. The Owner shall be responsible for materials or substances required by the Contract Documents, except to the extent of the Contractor's fault or negligence in the use and handling of such materials or substances.

§ 10.3.5 The Contractor shall indemnify the Owner for the cost and expense the Owner incurs (1) for remediation of a material or substance the Contractor brings to the site and negligently handles, or (2) where the Contractor fails to perform its obligations under Section 10.3.1, except to the extent that the cost and expense are due to the Owner's fault or negligence.

§ 10.3.6 If, without negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall indemnify the Contractor for all cost and expense thereby incurred.



## § 10.4 EMERGENCIES

In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 15 and Article 7.

## ARTICLE 11 INSURANCE AND BONDS

### § 11.1 CONTRACTOR'S LIABILITY INSURANCE

§ 11.1.1 The Contractor shall purchase from and maintain in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located such insurance as will protect the Contractor from claims set forth below which may arise out of or result from the Contractor's operations and completed operations under the Contract and for which the Contractor may be legally liable, whether such operations be by the Contractor or by a Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

- .1 Claims under workers' compensation, disability benefit and other similar employee benefit acts that are applicable to the Work to be performed;
- .2 Claims for damages because of bodily injury, occupational sickness or disease, or death of the Contractor's employees;
- .3 Claims for damages because of bodily injury, sickness or disease, or death of any person other than the Contractor's employees;
- .4 Claims for damages insured by usual personal injury liability coverage;
- .5 Claims for damages, other than to the Work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom;
- .6 Claims for damages because of bodily injury, death of a person or property damage arising out of ownership, maintenance or use of a motor vehicle;
- .7 Claims for bodily injury or property damage arising out of completed operations; and
- .8 Claims involving contractual liability insurance applicable to the Contractor's obligations under Section 3.18.

§ 11.1.2 The insurance required by Section 11.1.1 shall be written for not less than limits of liability specified in the Contract Documents or required by law, whichever coverage is greater. Coverages, whether written on an occurrence or claims-made basis, shall be maintained without interruption from the date of commencement of the Work until the date of final payment and termination of any coverage required to be maintained after final payment, and, with respect to the Contractor's completed operations coverage, until the expiration of the period for correction of Work or for such other period for maintenance of completed operations coverage as specified in the Contract Documents.

§ 11.1.3 Certificates of insurance acceptable to the Owner shall be filed with the Owner prior to commencement of the Work and thereafter upon renewal or replacement of each required policy of insurance. These certificates and the insurance policies required by this Section 11.1 shall contain a provision that coverages afforded under the policies will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner. An additional certificate evidencing continuation of liability coverage, including coverage for completed operations, shall be submitted with the final Application for Payment as required by Section 9.10.2 and thereafter upon renewal or replacement of such coverage until the expiration of the time required by Section 11.1.2. Information concerning reduction of coverage on account of revised limits or claims paid under the General Aggregate, or both, shall be furnished by the Contractor with reasonable promptness.

§ 11.1.4 The Contractor shall cause the commercial liability coverage required by the Contract Documents to include (1) the Owner, the Architect and the Architect's consultants as additional insureds for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's operations; and (2) the Owner as an additional insured for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's completed operations.

### § 11.2 OWNER'S LIABILITY INSURANCE

The Owner shall be responsible for purchasing and maintaining the Owner's usual liability insurance.

Init.



### § 11.3 PROPERTY INSURANCE

§ 11.3.1 Unless otherwise provided, the Owner shall purchase and maintain, in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located, property insurance written on a builder's risk "all-risk" or equivalent policy form in the amount of the initial Contract Sum, plus value of subsequent Contract Modifications and cost of materials supplied or installed by others, comprising total value for the entire Project at the site on a replacement cost basis without optional deductibles. Such property insurance shall be maintained, unless otherwise provided in the Contract Documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final payment has been made as provided in Section 9.10 or until no person or entity other than the Owner has an insurable interest in the property required by this Section 11.3 to be covered, whichever is later. This insurance shall include interests of the Owner, the Contractor, Subcontractors and Sub-subcontractors in the Project.

§ 11.3.1.1 Property insurance shall be on an "all-risk" or equivalent policy form and shall include, without limitation, insurance against the perils of fire (with extended coverage) and physical loss or damage including, without duplication of coverage, theft, vandalism, malicious mischief, collapse, earthquake, flood, windstorm, falsework, testing and startup, temporary buildings and debris removal including demolition occasioned by enforcement of any applicable legal requirements, and shall cover reasonable compensation for Architect's and Contractor's services and expenses required as a result of such insured loss.

§ 11.3.1.2 If the Owner does not intend to purchase such property insurance required by the Contract and with all of the coverages in the amount described above, the Owner shall so inform the Contractor in writing prior to commencement of the Work. The Contractor may then effect insurance that will protect the interests of the Contractor, Subcontractors and Sub-subcontractors in the Work, and by appropriate Change Order the cost thereof shall be charged to the Owner. If the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain insurance as described above, without so notifying the Contractor in writing, then the Owner shall bear all reasonable costs properly attributable thereto.

§ 11.3.1.3 If the property insurance requires deductibles, the Owner shall pay costs not covered because of such deductibles.

§ 11.3.1.4 This property insurance shall cover portions of the Work stored off the site, and also portions of the Work in transit.

§ 11.3.1.5 Partial occupancy or use in accordance with Section 9.9 shall not commence until the insurance company or companies providing property insurance have consented to such partial occupancy or use by endorsement or otherwise. The Owner and the Contractor shall take reasonable steps to obtain consent of the insurance company or companies and shall, without mutual written consent, take no action with respect to partial occupancy or use that would cause cancellation, lapse or reduction of insurance.

### § 11.3.2 BOILER AND MACHINERY INSURANCE

The Owner shall purchase and maintain boiler and machinery insurance required by the Contract Documents or by law, which shall specifically cover such insured objects during installation and until final acceptance by the Owner; this insurance shall include interests of the Owner, Contractor, Subcontractors and Sub-subcontractors in the Work, and the Owner and Contractor shall be named insureds.

### § 11.3.3 LOSS OF USE INSURANCE

The Owner, at the Owner's option, may purchase and maintain such insurance as will insure the Owner against loss of use of the Owner's property due to fire or other hazards, however caused. The Owner waives all rights of action against the Contractor for loss of use of the Owner's property, including consequential losses due to fire or other hazards however caused.

§ 11.3.4 If the Contractor requests in writing that insurance for risks other than those described herein or other special causes of loss be included in the property insurance policy, the Owner shall, if possible, include such insurance, and the cost thereof shall be charged to the Contractor by appropriate Change Order.

§ 11.3.5 If during the Project construction period the Owner insures properties, real or personal or both, at or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment

Init.



property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, the Owner shall waive all rights in accordance with the terms of Section 11.3.7 for damages caused by fire or other causes of loss covered by this separate property insurance. All separate policies shall provide this waiver of subrogation by endorsement or otherwise.

§ 11.3.6 Before an exposure to loss may occur, the Owner shall file with the Contractor a copy of each policy that includes insurance coverages required by this Section 11.3. Each policy shall contain all generally applicable conditions, definitions, exclusions and endorsements related to this Project. Each policy shall contain a provision that the policy will not be canceled or allowed to expire, and that its limits will not be reduced, until at least 30 days' prior written notice has been given to the Contractor.

#### § 11.3.7 WAIVERS OF SUBROGATION

The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents and employees, each of the other, and (2) the Architect, Architect's consultants, separate contractors described in Article 6, if any, and any of their subcontractors, sub-subcontractors, agents and employees, for damages caused by fire or other causes of loss to the extent covered by property insurance obtained pursuant to this Section 11.3 or other property insurance applicable to the Work, except such rights as they have to proceeds of such insurance held by the Owner as fiduciary. The Owner or Contractor, as appropriate, shall require of the Architect, Architect's consultants, separate contractors described in Article 6, if any, and the subcontractors, sub-subcontractors, agents and employees of any of them, by appropriate agreements, written where legally required for validity, similar waivers each in favor of other parties enumerated herein. The policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective as to a person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay the insurance premium directly or indirectly, and whether or not the person or entity had an insurable interest in the property damaged.

§ 11.3.8 A loss insured under the Owner's property insurance shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.3.10. The Contractor shall pay Subcontractors their just shares of insurance proceeds received by the Contractor, and by appropriate agreements, written where legally required for validity, shall require Subcontractors to make payments to their Sub-subcontractors in similar manner.

§ 11.3.9 If required in writing by a party in interest, the Owner as fiduciary shall, upon occurrence of an insured loss, give bond for proper performance of the Owner's duties. The cost of required bonds shall be charged against proceeds received as fiduciary. The Owner shall deposit in a separate account proceeds so received, which the Owner shall distribute in accordance with such agreement as the parties in interest may reach, or as determined in accordance with the method of binding dispute resolution selected in the Agreement between the Owner and Contractor. If after such loss no other special agreement is made and unless the Owner terminates the Contract for convenience, replacement of damaged property shall be performed by the Contractor after notification of a Change in the Work in accordance with Article 7.

§ 11.3.10 The Owner as fiduciary shall have power to adjust and settle a loss with insurers unless one of the parties in interest shall object in writing within five days after occurrence of loss to the Owner's exercise of this power; if such objection is made, the dispute shall be resolved in the manner selected by the Owner and Contractor as the method of binding dispute resolution in the Agreement. If the Owner and Contractor have selected arbitration as the method of binding dispute resolution, the Owner as fiduciary shall make settlement with insurers or, in the case of a dispute over distribution of insurance proceeds, in accordance with the directions of the arbitrators.

#### § 11.4 PERFORMANCE BOND AND PAYMENT BOND

§ 11.4.1 The Owner shall have the right to require the Contractor to furnish bonds covering faithful performance of the Contract and payment of obligations arising thereunder as stipulated in bidding requirements or specifically required in the Contract Documents on the date of execution of the Contract.

§ 11.4.2 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.



## ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

### § 12.1 UNCOVERING OF WORK

§ 12.1.1 If a portion of the Work is covered contrary to the Architect's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by the Architect, be uncovered for the Architect's examination and be replaced at the Contractor's expense without change in the Contract Time.

§ 12.1.2 If a portion of the Work has been covered that the Architect has not specifically requested to examine prior to its being covered, the Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, costs of uncovering and replacement shall, by appropriate Change Order, be at the Owner's expense. If such Work is not in accordance with the Contract Documents, such costs and the cost of correction shall be at the Contractor's expense unless the condition was caused by the Owner or a separate contractor in which event the Owner shall be responsible for payment of such costs.

### § 12.2 CORRECTION OF WORK

#### § 12.2.1 BEFORE OR AFTER SUBSTANTIAL COMPLETION

The Contractor shall promptly correct Work rejected by the Architect or failing to conform to the requirements of the Contract Documents, whether discovered before or after Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Architect's services and expenses made necessary thereby, shall be at the Contractor's expense.

#### § 12.2.2 AFTER SUBSTANTIAL COMPLETION

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 9.9.1, or by terms of an applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of written notice from the Owner to do so unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty. If the Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner or Architect, the Owner may correct it in accordance with Section 2.4.

§ 12.2.2.2 The one-year period for correction of Work shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work.

§ 12.2.2.3 The one-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Section 12.2.

§ 12.2.3 The Contractor shall remove from the site portions of the Work that are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

§ 12.2.4 The Contractor shall bear the cost of correcting destroyed or damaged construction, whether completed or partially completed, of the Owner or separate contractors caused by the Contractor's correction or removal of Work that is not in accordance with the requirements of the Contract Documents.

§ 12.2.5 Nothing contained in this Section 12.2 shall be construed to establish a period of limitation with respect to other obligations the Contractor has under the Contract Documents. Establishment of the one-year period for correction of Work as described in Section 12.2.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

Init.



### § 12.3 ACCEPTANCE OF NONCONFORMING WORK

If the Owner prefers to accept Work that is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

## ARTICLE 13 MISCELLANEOUS PROVISIONS

### § 13.1 GOVERNING LAW

The Contract shall be governed by the law of the place where the Project is located except that, if the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4.

### § 13.2 SUCCESSORS AND ASSIGNS

§ 13.2.1 The Owner and Contractor respectively bind themselves, their partners, successors, assigns and legal representatives to covenants, agreements and obligations contained in the Contract Documents. Except as provided in Section 13.2.2, neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make such an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

§ 13.2.2 The Owner may, without consent of the Contractor, assign the Contract to a lender providing construction financing for the Project, if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate such assignment.

### § 13.3 WRITTEN NOTICE

Written notice shall be deemed to have been duly served if delivered in person to the individual, to a member of the firm or entity, or to an officer of the corporation for which it was intended; or if delivered at, or sent by registered or certified mail or by courier service providing proof of delivery to, the last business address known to the party giving notice.

### § 13.4 RIGHTS AND REMEDIES

§ 13.4.1 Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights and remedies otherwise imposed or available by law.

§ 13.4.2 No action or failure to act by the Owner, Architect or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach there under, except as may be specifically agreed in writing.

### § 13.5 TESTS AND INSPECTIONS

§ 13.5.1 Tests, inspections and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules and regulations or lawful orders of public authorities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections and approvals. The Contractor shall give the Architect timely notice of when and where tests and inspections are to be made so that the Architect may be present for such procedures. The Owner shall bear costs of (1) tests, inspections or approvals that do not become requirements until after bids are received or negotiations concluded, and (2) tests, inspections or approvals where building codes or applicable laws or regulations prohibit the Owner from delegating their cost to the Contractor.

§ 13.5.2 If the Architect, Owner or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection or approval not included under Section 13.5.1, the Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection or approval by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Architect of when and where tests and inspections are to be made so that the Architect may be present for such procedures. Such costs, except as provided in Section 13.5.3, shall be at the Owner's expense.

§ 13.5.3 If such procedures for testing, inspection or approval under Sections 13.5.1 and 13.5.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by



such failure including those of repeated procedures and compensation for the Architect's services and expenses shall be at the Contractor's expense.

§ 13.5.4 Required certificates of testing, inspection or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Architect.

§ 13.5.5 If the Architect is to observe tests, inspections or approvals required by the Contract Documents, the Architect will do so promptly and, where practicable, at the normal place of testing.

§ 13.5.6 Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

#### § 13.6 INTEREST

Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at such rate as the parties may agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

#### § 13.7 TIME LIMITS ON CLAIMS

The Owner and Contractor shall commence all claims and causes of action, whether in contract, tort, breach of warranty or otherwise, against the other arising out of or related to the Contract in accordance with the requirements of the final dispute resolution method selected in the Agreement within the time period specified by applicable law, but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and Contractor waive all claims and causes of action not commenced in accordance with this Section 13.7.

### ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

#### § 14.1 TERMINATION BY THE CONTRACTOR

§ 14.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of 30 consecutive days through no act or fault of the Contractor or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, for any of the following reasons:

- .1 Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;
- .2 An act of government, such as a declaration of national emergency that requires all Work to be stopped;
- .3 Because the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4.1, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents; or
- .4 The Owner has failed to furnish to the Contractor promptly, upon the Contractor's request, reasonable evidence as required by Section 2.2.1.

§ 14.1.2 The Contractor may terminate the Contract if, through no act or fault of the Contractor or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, repeated suspensions, delays or interruptions of the entire Work by the Owner as described in Section 14.3 constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less.

§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' written notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed, including reasonable overhead and profit, costs incurred by reason of such termination, and damages.

§ 14.1.4 If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor or a Subcontractor or their agents or employees or any other persons performing portions of the Work under contract with the Contractor because the Owner has repeatedly failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven additional days' written notice to the Owner and the Architect, terminate the Contract and recover from the Owner as provided in Section 14.1.3.



**§ 14.2 TERMINATION BY THE OWNER FOR CAUSE**

**§ 14.2.1** The Owner may terminate the Contract if the Contractor

- .1 repeatedly refuses or fails to supply enough properly skilled workers or proper materials;
- .2 fails to make payment to Subcontractors for materials or labor in accordance with the respective agreements between the Contractor and the Subcontractors;
- .3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or
- .4 otherwise is guilty of substantial breach of a provision of the Contract Documents.

**§ 14.2.2** When any of the above reasons exist, the Owner, upon certification by the Initial Decision Maker that sufficient cause exists to justify such action, may without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' written notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

- .1 Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;
- .2 Accept assignment of subcontracts pursuant to Section 5.4; and
- .3 Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

**§ 14.2.3** When the Owner terminates the Contract for one of the reasons stated in Section 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

**§ 14.2.4** If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Architect's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall be certified by the Initial Decision Maker, upon application, and this obligation for payment shall survive termination of the Contract.

**§ 14.3 SUSPENSION BY THE OWNER FOR CONVENIENCE**

**§ 14.3.1** The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work in whole or in part for such period of time as the Owner may determine.

**§ 14.3.2** The Contract Sum and Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay or interruption as described in Section 14.3.1. Adjustment of the Contract Sum shall include profit. No adjustment shall be made to the extent

- .1 that performance is, was or would have been so suspended, delayed or interrupted by another cause for which the Contractor is responsible; or
- .2 that an equitable adjustment is made or denied under another provision of the Contract.

**§ 14.4 TERMINATION BY THE OWNER FOR CONVENIENCE**

**§ 14.4.1** The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

**§ 14.4.2** Upon receipt of written notice from the Owner of such termination for the Owner's convenience, the Contractor shall

- .1 cease operations as directed by the Owner in the notice;
- .2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and
- .3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

**§ 14.4.3** In case of such termination for the Owner's convenience, the Contractor shall be entitled to receive payment for Work executed, and costs incurred by reason of such termination, along with reasonable overhead and profit on the Work not executed.

Init.



**ARTICLE 15 CLAIMS AND DISPUTES**

**§ 15.1 CLAIMS**

**§ 15.1.1 DEFINITION**

A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. The responsibility to substantiate Claims shall rest with the party making the Claim.

**§ 15.1.2 NOTICE OF CLAIMS**

Claims by either the Owner or Contractor must be initiated by written notice to the other party and to the Initial Decision Maker with a copy sent to the Architect, if the Architect is not serving as the Initial Decision Maker. Claims by either party must be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.

**§ 15.1.3 CONTINUING CONTRACT PERFORMANCE**

Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents. The Architect will prepare Change Orders and issue Certificates for Payment in accordance with the decisions of the Initial Decision Maker.

**§ 15.1.4 CLAIMS FOR ADDITIONAL COST**

If the Contractor wishes to make a Claim for an increase in the Contract Sum, written notice as provided herein shall be given before proceeding to execute the Work. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4.

**§ 15.1.5 CLAIMS FOR ADDITIONAL TIME**

**§ 15.1.5.1** If the Contractor wishes to make a Claim for an increase in the Contract Time, written notice as provided herein shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay, only one Claim is necessary.

**§ 15.1.5.2** If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated and had an adverse effect on the scheduled construction.

**§ 15.1.6 CLAIMS FOR CONSEQUENTIAL DAMAGES**

The Contractor and Owner waive Claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes

- .1 damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and
- .2 damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 14. Nothing contained in this Section 15.1.6 shall be deemed to preclude an award of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

**§ 15.2 INITIAL DECISION**

**§ 15.2.1** Claims, excluding those arising under Sections 10.3, 10.4, 11.3.9, and 11.3.10, shall be referred to the Initial Decision Maker for initial decision. The Architect will serve as the Initial Decision Maker, unless otherwise indicated in the Agreement. Except for those Claims excluded by this Section 15.2.1, an initial decision shall be required as a condition precedent to mediation of any Claim arising prior to the date final payment is due, unless 30 days have passed after the Claim has been referred to the Initial Decision Maker with no decision having been rendered. Unless the Initial Decision Maker and all affected parties agree, the Initial Decision Maker will not decide disputes between the Contractor and persons or entities other than the Owner.

Init.



§ 15.2.2 The Initial Decision Maker will review Claims and within ten days of the receipt of a Claim take one or more of the following actions: (1) request additional supporting data from the claimant or a response with supporting data from the other party, (2) reject the Claim in whole or in part, (3) approve the Claim, (4) suggest a compromise, or (5) advise the parties that the Initial Decision Maker is unable to resolve the Claim if the Initial Decision Maker lacks sufficient information to evaluate the merits of the Claim or if the Initial Decision Maker concludes that, in the Initial Decision Maker's sole discretion, it would be inappropriate for the Initial Decision Maker to resolve the Claim.

§ 15.2.3 In evaluating Claims, the Initial Decision Maker may, but shall not be obligated to, consult with or seek information from either party or from persons with special knowledge or expertise who may assist the Initial Decision Maker in rendering a decision. The Initial Decision Maker may request the Owner to authorize retention of such persons at the Owner's expense.

§ 15.2.4 If the Initial Decision Maker requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of such request, and shall either (1) provide a response on the requested supporting data, (2) advise the Initial Decision Maker when the response or supporting data will be furnished or (3) advise the Initial Decision Maker that no supporting data will be furnished. Upon receipt of the response or supporting data, if any, the Initial Decision Maker will either reject or approve the Claim in whole or in part.

§ 15.2.5 The Initial Decision Maker will render an initial decision approving or rejecting the Claim, or indicating that the Initial Decision Maker is unable to resolve the Claim. This initial decision shall (1) be in writing; (2) state the reasons therefor; and (3) notify the parties and the Architect, if the Architect is not serving as the Initial Decision Maker, of any change in the Contract Sum or Contract Time or both. The initial decision shall be final and binding on the parties but subject to mediation and, if the parties fail to resolve their dispute through mediation, to binding dispute resolution.

§ 15.2.6 Either party may file for mediation of an initial decision at any time, subject to the terms of Section 15.2.6.1.

§ 15.2.6.1 Either party may, within 30 days from the date of an initial decision, demand in writing that the other party file for mediation within 60 days of the initial decision. If such a demand is made and the party receiving the demand fails to file for mediation within the time required, then both parties waive their rights to mediate or pursue binding dispute resolution proceedings with respect to the initial decision.

§ 15.2.7 In the event of a Claim against the Contractor, the Owner may, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Owner may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

§ 15.2.8 If a Claim relates to or is the subject of a mechanic's lien, the party asserting such Claim may proceed in accordance with applicable law to comply with the lien notice or filing deadlines.

### § 15.3 MEDIATION

§ 15.3.1 Claims, disputes, or other matters in controversy arising out of or related to the Contract except those waived as provided for in Sections 9.10.4, 9.10.5, and 15.1.6 shall be subject to mediation as a condition precedent to binding dispute resolution.

§ 15.3.2 The parties shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedures in effect on the date of the Agreement. A request for mediation shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the mediation. The request may be made concurrently with the filing of binding dispute resolution proceedings but, in such event, mediation shall proceed in advance of binding dispute resolution proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order. If an arbitration is stayed pursuant to this Section 15.3.2, the parties may nonetheless proceed to the selection of the arbitrator(s) and agree upon a schedule for later proceedings.



§ 15.3.3 The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

#### § 15.4 ARBITRATION

§ 15.4.1 If the parties have selected arbitration as the method for binding dispute resolution in the Agreement, any Claim subject to, but not resolved by, mediation shall be subject to arbitration which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules in effect on the date of the Agreement. A demand for arbitration shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the arbitration. The party filing a notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded.

§ 15.4.1.1 A demand for arbitration shall be made no earlier than concurrently with the filing of a request for mediation, but in no event shall it be made after the date when the institution of legal or equitable proceedings based on the Claim would be barred by the applicable statute of limitations. For statute of limitations purposes, receipt of a written demand for arbitration by the person or entity administering the arbitration shall constitute the institution of legal or equitable proceedings based on the Claim.

§ 15.4.2 The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

§ 15.4.3 The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by parties to the Agreement shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

#### § 15.4.4 CONSOLIDATION OR JOINDER

§ 15.4.4.1 Either party, at its sole discretion, may consolidate an arbitration conducted under this Agreement with any other arbitration to which it is a party provided that (1) the arbitration agreement governing the other arbitration permits consolidation, (2) the arbitrations to be consolidated substantially involve common questions of law or fact, and (3) the arbitrations employ materially similar procedural rules and methods for selecting arbitrator(s).

§ 15.4.4.2 Either party, at its sole discretion, may include by joinder persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in arbitration, provided that the party sought to be joined consents in writing to such joinder. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of any claim, dispute or other matter in question not described in the written consent.

§ 15.4.4.3 The Owner and Contractor grant to any person or entity made a party to an arbitration conducted under this Section 15.4, whether by joinder or consolidation, the same rights of joinder and consolidation as the Owner and Contractor under this Agreement.

**SECTION 00 73 00**  
**SUPPLEMENTARY CONDITIONS**  
**FOR GENERAL CONDITIONS FOR THE CONTRACT FOR CONSTRUCTION**

**PART 1 GENERAL**

The following supplements modify, change, delete from or add to AIA Document A201, General Conditions of the Contract for Construction 2007 Edition. Where any part of the AIA General Conditions is amended, voided, or superseded by the Supplementary Conditions, the unaltered provisions shall remain in effect.

**1.1 ARTICLE 1 GENERAL PROVISIONS**

**A. BASIC DEFINITIONS**

1. Add the following Subparagraphs:

1.1.9 ARCHITECT/ENGINEER

Where the term ARCHITECT is used in the Bidding documents, Contract documents, Addenda, Change Orders or other documents related to this contract it shall be defined as either "Architect" or "Engineer" depending upon which design professional has prepared the document in question. When the project has been designed and initiated under the direction of a licensed engineer, the term ENGINEER shall be substituted for the term "Architect" throughout all documents.

1.1.10 MISCELLANEOUS DEFINITIONS

- .1 "Provide:" Furnish and install, or furnish labor and materials required for installation, ready for use and in accordance with the Contract Documents.
- .2 "As shown:" As indicated, as detailed, as noted, or words of similar import refer to Contract Documents.
- .3 "Selected:" As selected by the Architect.
- .4 "Approved:" Approved by Architect.
- .5 "For Approval:" For the Architect's approval.

**B. CORRELATION AND INTENT OF THE CONTRACT DOCUMENTS**

1. Add the following to Subparagraph 1.2.1:

1.2.1.1 In the event of conflicts or discrepancies among the Contract Documents, interpretations will be based on the following priorities.

1. The Agreement.
2. Addenda, with those of later date having precedence over those of earlier date.
3. The Supplementary Conditions.
4. The General Conditions of the Contract for Construction.
5. Division 1 of the Specifications.
6. Drawings and Divisions 2- 49 of the Specifications.

In the case of conflicts or discrepancies between Drawings and Divisions 2- 49 of the Specifications or within either Document not clarified by Addendum, the Architect will determine which takes precedence in accordance with Subparagraph 4.2.11.

2. Add the following Subparagraphs:

1.2.4 If work is required in such a manner to make it impossible to produce first class work or should discrepancies appear among Contract Documents, request interpretation before proceeding with work. If Contractor fails to make such request, the Contractor will thereafter be expected to carry out work in satisfactory manner.



**SUPPLEMENTARY CONDITIONS - DOCUMENT 00 73 00**

1.2.5 Reference to codes, standard specifications, or other standards means and intends latest edition of such documents and/or adopted as of bid date. Where brand name products are specified and no installation instructions given herein, install product in accordance with the manufacturer's specifications and instructions, latest edition.

1.2.6 No provision of any reference standard specification, manual or code shall change the privileges or responsibilities of Owner, Architect, or Contractor, or any of their consultants, agents or employees from those set forth in the Contract Documents, nor shall it be effective to assign to Architect, or any of Architect's consultants, agents or employees, any duty or authority to supervise or direct the furnishing or performance of the work or any duty or authority to undertake responsibility contrary to the provision of the Contract Documents.

1.2.7 Sections of Division 1, General Requirements govern the execution of all sections of the specifications.

**1.2 ARTICLE 2 OWNER**

**A. 2.1 GENERAL**

1. Add the following Subparagraph:

2.1.3 The Owner is the Eugene School District 4J, 200 North Monroe Street, Eugene, Oregon 97402, (541) 790-7417.

The Owner's representative is Don Philpot, (541) 790-7430, 715 West Fourth Avenue, Eugene, OR 97402.

**B. INFORMATION AND SERVICES REQUIRED OF THE OWNER**

1. Delete Subparagraph 2.2.5 and substitute the following:

2.2.5 The Contractor will be furnished free of charge up to 5 copies of the Contract Documents. The Owner will furnish additional copies requested by the Contractor at the cost of reproduction, postage and handling.

**1.3 ARTICLE 3 CONTRACTOR**

**A. 3.1 GENERAL**

1. Delete the second sentence to Subparagraph 3.1.1, and add the following:

The Contractor and each subcontractor shall maintain for the duration of the Project a registration with the Oregon State Construction Contractor's Board.

2. Add the following Subparagraph 3.1.4

3.1.4 The Contractor is required to demonstrate that an employee drug testing program is in place.

3. Add the following Subparagraph 3.1.5

3.1.5 The Contractor certifies that the Contractor is not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in this Contract by any Federal department or agency. If requested by the Eugene 4J School District, the Contractor shall complete a Certification Regarding Debarment, Suspension, Ineligibility, and Voluntary Exclusion form. Any such form completed by the Contractor for this Contract shall be incorporated into this Contract by reference.

**B. 3.2 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR**

1. Delete the last sentence to Subparagraph 3.2.4, and add the following:

If the Contractor performs those obligations, the Contractor shall not be liable to the Owner or Architect for damages resulting from errors, inconsistencies or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, unless the Contractor recognized such error, inconsistency, omission or difference and knowingly failed to report it to the Architect.

C. 3.3 SUPERVISION AND CONSTRUCTION PROCEDURES

1. Add the following Subparagraphs:

3.3.4 The Contractor shall review with all Subcontractors, construction means, methods and materials to be used to verify their compliance with all safety standards and laws and be responsible for compliance with same to insure safe, hazard free conditions for all persons visiting or working on the entire project.

3.3.5 The Contractor shall comply with the provisions of Oregon Revised Statutes and 4J Board Policy. Attention is directed to ORS 279A and 279C, Public Contracting Code.

D. 3.4 LABOR AND MATERIALS

1. Add the following Subparagraphs:

3.4.4 PAYMENT OF LABORERS AND MATERIALMEN, CONTRIBUTIONS TO INDUSTRIAL ACCIDENT FUND, LIENS AND WITHHOLDING TAXES: The Contractor shall: (1) Make payment promptly, as due, to all persons supplying to such contractor labor or material for the prosecution of the Work provided for in such contract. (2) Pay all contributions or amounts due the Industrial Accident Fund from such Contractor or subcontractor incurred in the performance of the contract. (3) Not permit any lien or claim to be filed or prosecuted against the state, county, school district, municipality, municipal corporation or subdivision thereof, on account of any labor or material furnished. (4) Pay to the Department of Revenue all sums withheld from employees pursuant to ORS 316.167.

3.4.5 HOURS OF LABOR: No person shall be employed for more than ten hours in any one day, or 40 hours in any one week, except in the cases of necessity, emergency, or where the public policy absolutely requires it, and in such cases the person so employed shall be paid at least time and a half of the regular pay for all time worked.

.1 For all overtime in excess of eight hours a day or 40 hours in any one week when the work week is five consecutive days, Monday through Friday; or

.2 For all overtime in excess of 10 hours a day or 40 hours in any one week when the work week is four consecutive days, Monday through Friday; and

.3 For all work performed on Saturday and on any legal holiday specified in ORS 279C.540.

.4 Worker claims for overtime, in order to be considered, must be filed with the Contractor within 90 days from the completion of the contract, in accordance with ORS 279C.545.

The Contractor shall give notice to employees who work on a public contract in writing, either at the time of hire or before commencement of work on the contract, or by posting a notice in a location frequented by employees, of the number of hours per day and days per week the employees may be required to work.

3.4.6 PAYMENT FOR MEDICAL CARE AND PROVIDING WORKERS' COMPENSATION: The Contractor shall promptly, as due, make payment to any person, co-partnership, association or corporation, furnishing medical, surgical and hospital care or other needed care and attention, incident to sickness or injury, to the employees of such Contractor, of all sums which the Contractor agrees to pay for such services and all moneys and sums which the Contractor collected or deducted from the wages of employees pursuant to any law, contract or agreement for the purpose of providing or paying for such service. All employers working under this contract are subject employers and must comply with ORS 656.017.

3.4.7 PREVAILING WAGE RATES: When the total price of the Project is \$50,000 or more, each worker in each trade or occupation employed in the performance of this Contract either by the contractor, subcontractor or other person doing or contracting to do contracting for the whole or any part of the Work on the Contract shall be paid not less than the applicable state prevailing rate of wage. This provision applies to all contracts, regardless of the price of the individual contract, as long as the combined price of all contracts awarded on the Project is \$50,000 or more.

a. The existing Oregon prevailing rate of wage in effect at the time the specifications are first advertised for bid solicitations is the applicable rate.

**SUPPLEMENTARY CONDITIONS - DOCUMENT 00 73 00**

- b. The Owner will pay the public works fee to Oregon Bureau of Labor and Industries.
- c. Certification of rate or wage by Contractor or Subcontractor (ORS 279C.845):
  - .1 The contractor or the contractor's surety and every subcontractor or the subcontractor's surety shall file certified statements with the public agency in writing, on a form prescribed by the Commissioner of the Bureau of Labor and Industries, certifying the hourly rate of wage paid each worker whom the contractor or the subcontractor has employed upon the public works, and further certifying that no worker employed upon the public works has been paid less than the higher of the applicable state or federal prevailing rate of wage or less than the minimum hourly rate of wage specified in the contract. The certificate and statement shall be verified by the oath of the contractor or the contractor's surety or subcontractor or the subcontractor's surety that the contractor or subcontractor has read the statement and certificate and knows the contents thereof and that the same is true to the contractor or subcontractor's knowledge. The certified statements shall set out accurately and completely the payroll records for the prior week, including the name and address of each worker, the worker's correct classification, rate of pay, daily and weekly number of hours worked, deductions made, and actual wages paid.
  - .2 If the Contractor does not file certified payroll as required (at least once per month) the Owner will withhold 25% of the amounts due the Contractor, in addition to any other required retainage.
  - .3 If a first-tier Subcontractor does not file certified payroll reports as required, the prime Contractor shall withhold 25% of amounts due the first-tier Subcontractor.
  - .4 Each certified statement required by subsection (1) of this section shall be delivered or mailed by the contractor or subcontractor to the public contracting agency. Certified statements shall be submitted to the public contracting agency once a month by the fifth business day of the following month, for each week workers are employed. Information submitted on certified statements may be used only to ensure compliance with the provisions of ORS 279C.800 to 279C.870.
  - .5 Each contractor or subcontractor shall preserve the certified statements for a period of three years from the date of completion of the contract.
  - .6 Certified statements received by a public agency are public records subject to the provisions of ORS 192.410 to 192.505. As such, they must be made available upon request.
- 3.4.8 PAYMENT OF CLAIMS BY PUBLIC OFFICERS: If the Contractor fails, neglects or refuses to make prompt payment of any claims for labor or services furnished to the Contractor or a subcontractor by any person in connection with this Contract as such claim becomes due, the Owner may pay such claim and charge the amount of the payment against funds due or to become due the Contractor by reason of this Contract.
- 3.4.9 PAYMENT FOR MEDICAL CARE AND PROVIDING WORKERS' COMPENSATION: The Contractor shall promptly, as due, make payment to any person, co-partnership, association or corporation, furnishing medical, surgical and hospital care or other needed care and attention, incident to sickness or injury, to the employees of such Contractor, of all sums which the Contractor agrees to pay for such services and all moneys and sums which the Contractor collected or deducted from the wages of employees pursuant to any law, contract or agreement for the purpose of providing or paying for such service.
- 3.4.10 Any person owed for labor or material by a subcontractor or Contractor may file a complaint with the Construction Contractors Board in accordance with ORS 279C.515(3).

**E. 3.7 PERMITS, FEES AND NOTICES**

- 1. Delete Subparagraph 3.7.1, and substitute the following:

3.7.1 The OWNER will pay the plan check fee, building permit fee, and systems development charges directly to the authority having jurisdiction. The Owner will pay the initial review and approval costs for deferred submittals, which are specifically required by the governing jurisdiction during the plan review process, directly to the authority having jurisdiction. Any deferred submittal costs due to incomplete



**SUPPLEMENTARY CONDITIONS - DOCUMENT 00 73 00**

submittals, or corrections required by the governing jurisdiction shall be the responsibility of the contractor.

The CONTRACTOR shall pay for all other permits, fees, licenses and inspections necessary for the proper execution and completion of the Work which are customarily secured after execution of the Contract and which are legally required when bids are received or negotiations concluded. The Contractor shall pick up permits and call for inspections through final inspection, as required by the City Building Department.

**F. 3.12 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES**

1. Add the following to Subparagraph 3.12.5:

Submittals which are not marked as reviewed for compliance with the Contract Documents and approved by the Contractor may be returned by the Architect without action.

2. Add the following to Subparagraph 3.12.9:

Shop drawings that are submitted to the Architect for review do not constitute "in writing" unless it is brought to the attention of the Architect, in written form, that specific changes are being suggested. In any event, changes to the contract documents by means of shop drawings become the responsibility of the person initiating such changes.

**G. 3.18 INDEMNIFICATION**

1. Delete Subparagraph 3.18.1, and substitute the following:

13.18.1 To the fullest extent of the law, the Contractor will defend, indemnify, hold harmless and reimburse the Eugene School District 4J (including its officers, board members, agents, and employees) from all claims, demands, suits, actions, penalties, and damage expenses, for liability of any kind including attorney's fees. To the extent that death or bodily injury to persons or damage to property arises out of the fault of the Contractor, the Contractor's indemnity obligation exists only to the extent that the death or bodily injury to persons or damage to property arises out of the fault of the Contractor, or the fault of the Contractor's agents, representatives or subcontractors, contributed to or caused such damage, whether or not such incidents are contributed to or caused in any part by Eugene School District 4J.

**1.4 ARTICLE 4 ARCHITECT**

**A. 4.1 GENERAL**

1. Modify Paragraph 4.1.1

- a. In the first sentence delete "shall retain" and insert "may have retained" in it's place.
- b. Add sentence: "The term "Architect" means the Architect or the Architect's authorized representative."

2. Add the following to Subparagraph 4.1.2:

Written consent of the Contractor shall only apply to those items which directly or indirectly affect the work of the Contractor.

3. Add the following Subparagraph:

In the first sentence delete "shall" and insert "may" in its place.

4. Add the following Subparagraph:

4.1.4 The Architect is defined as:

PIVOT Architecture, 44 W. Broadway, Eugene, OR 97401; 541-342-7291.

**B. 4.2 ADMINISTRATION OF THE CONTRACT**

1. Add the following sentence to 4.2.1:

The architect may be retained to administer the Contract through the specified period for correction of the Work described in Section 12.2

2. Add the following to Subparagraph 4.2.4:

4.2.4.1 The Owner may communicate directly with the Contractor when necessary or appropriate. The Owner may give direction to the Contractor in matters related to access to the site, coordination with Owner's occupancy and use by the public, use of parking and staging areas, use of potentially hazardous products, drug and alcohol policy, no smoking policy, appropriate dress and behavior, safety requirements and safe work practices, where appropriate. The Owner will advise the Architect regarding any communication with or direction given to the Contractor.

4.2.4.2 Representatives of the Owner, Contractor and Architect shall meet periodically at mutually agreed-upon intervals for the purpose of establishing procedures to facilitate cooperation, communication and timely responses among the participants. By participating in this arrangement, the parties do not intend to create additional contractual obligations or modify the legal relationships which may otherwise exist. Nothing in this agreement shall give the Architect the authority to make decisions or give direction without the Owner's concurrence.

3. Add the following to Subparagraph 4.2.9:

4.2.9.1 The Architect will make one inspection for the determination of Substantial Completion and one for determination of Final Acceptance. Such inspections will be made only after receipt of written notification of readiness for such inspections from Contractor.

4.2.9.2 Should additional inspections beyond those listed in 4.2.9.1 be required due to Contractor's failure to satisfactorily complete all work, the Contractor shall become responsible for all costs incurred by the Owner in conjunction with required re-inspections. A deductive Change Order shall be prepared using the following hourly rates as the basis for calculating the amounts to be deducted:

Architect/Engineer:	\$125 per hour
District 4J Personnel:	\$ 75 per hour

4.2.9.3 The amount to be deducted from the Contract shall be calculated by multiplying the hours expended in additional inspections and documentation by the hourly rates listed in 4.2.9.2.

4. Add the following sentence to Subparagraph 4.2.11:

The architect's response will be within 10 days of receipt of written requests from the Owner or Contractor.

5. Delete Subparagraph 4.2.13, and substitute the following:

4.2.13 Decisions on matters related to aesthetic effect will be made collaboratively between the Owner and the Architect. The final decision shall be the Owner's, if consistent with the intent expressed in the Contract Documents.

6. Add the following sentence to Subparagraph 4.2.14

The architect's response will be within 10 days of receipt of written requests from the Owner or Contractor.

**1.5 ARTICLE 5 SUBCONTRACTORS**

**A. 5.3 SUBCONTRACTUAL RELATIONS**

1. Add the following Subparagraphs:

5.3.1 The Contractor shall include in each subcontract for property or services entered into by the Contractor and a subcontractor, including a material supplier, for the purpose of performing a construction contract:

- .1 A payment clause that obligates the Contractor to pay the subcontractor for satisfactory performance under its subcontract within 10 days out of such amounts as are paid to the Contractor by the owner under such contract; and
- .2 An interest penalty clause that obligates the Contractor to pay to the subcontractor an interest penalty on amounts due in the case of each payment not made in accordance with the payment clause included in the subcontract pursuant to paragraph .1 of this section for the period beginning on the day after the required payment date and ending on the date on which payment of the amount

**SUPPLEMENTARY CONDITIONS - DOCUMENT 00 73 00**

due is made; computed at the rate specified in ORS 279C.580.

5.3.2 The Contractor shall include in each of its subcontracts, for the purpose of performance of such contract condition, a provision requiring the subcontractor to include a payment clause and an interest penalty clause conforming to the requirements of Subparagraph 5.3.1 in each of its subcontracts and to require each of its subcontractors to include such clauses in their subcontracts with each lower-tier subcontractor or supplier.

**1.6 ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS**

No modifications.

**1.7 ARTICLE 7 CHANGES IN THE WORK**

**A. 7.1 GENERAL**

1. Paragraph 7.1.2, delete the following: “an order for minor changes in the Work can be issued by the Architect alone”.

2. Add the following Subparagraph 7.1.4 to Paragraph 7.1:

7.1.4 The combined overhead and profit included in the total cost or credit to the Owner of a change in the Work shall not exceed that stated in 7.1.4.4 below. In no case shall the Contractor’s or Subcontractors individual overhead and profit request exceed the following schedule:

.1 For the Contractor, for Work performed by the Contractor’s own forces, 15 percent of the cost.

.2 For the Contractor, for Work performed by the Contractor’s Subcontractors, 10 percent of the amount due the Subcontractors.

.3 For each Subcontractor involved, for Work performed by that Subcontractor’s own forces, 10 percent of the cost.

.4 The **Base Cost** to which overhead and profit is to be applied shall be determined in accordance with Subparagraph 7.3.7., articles .1, .2, .3, .4, and .5. To this **Base Cost** is added the applicable overhead and profit. In no case shall the combined overhead and profit (including all Contractor and Subcontractor(s) overhead and profit) exceed 25 percent of this **Base Cost**.

.5 In order to facilitate checking of quotations for extras or credits, all proposals, except those so minor that their propriety can be seen by inspection, shall be accompanied by a complete itemization of costs including those applicable costs from paragraph 7.3.7, .1 - .5, and Subcontractor and Contractor overhead and profit as applicable.

.6 Cost of preparing change order shall not be included in cost of Change Order.

3. Add the following Subparagraph 7.1.5 to Paragraph 7.1:

7.1.5 A Change Order providing a CREDIT to the Owner shall include a credit for overhead and profit based on the following schedule:

.1 For the Contractor, 5 percent of the Cost to be credited.

.2 For each Subcontractor, 5 percent of the Cost to be credited.

.3 For each Sub-subcontractor, 5 percent of the Cost to be credited.

.4 All other provisions of Subparagraph 7.1.4 shall apply to Credit Change Orders.

**B. 7.3 CONSTRUCTION CHANGE DIRECTIVES**

1. Add the following to Subparagraph 7.3.1:

For the purposes of this Agreement, The Owner’s “CHANGE REQUEST/PROCEED ORDER” may be substituted for and used interchangeably with “CONSTRUCTION CHANGE DIRECTIVE”.

2. Modify Subparagraph 7.3.7 as follows:

In the first sentence, delete the words "a reasonable amount." and substitute "an amount for overhead



and profit in accordance with Paragraph 7.1.4 or 7.1.5.”

3. Delete Subparagraph 7.3.7.1 and substitute the following:

7.3.7.1 The maximum allowable hourly wage rate for Changes to the Work shall be the appropriate Base Wage Rate plus Fringe Rate as listed for each occupation in the Prevailing Wage Rate for Public Works Contracts in Oregon manual issued by the Oregon Bureau of Industries; multiplied by 1.20. An amount for Overhead and Profit may be added in accordance with Paragraph 7.1.4 or 7.1.5.

4. Delete 7.3.7.3, and substitute the following:

7.3.7.3 Rental costs of machinery and equipment, exclusive of hand tools and motor vehicles, when rented from the Contractor or others;

5. Change the first sentence of Subparagraph 7.3.8 to read as follows:

The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost, including overhead and profit according to the schedule in Subparagraph 7.1.5 above.

6. Change the first sentence of Subparagraph 7.3.9 to read as follows:

Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in the Application for Payment accompanied by an executed Change Order indicating the parties’ agreement with part or all of such costs.

1.8 ARTICLE 8 TIME

A. 8.2 PROGRESS AND COMPLETION

1. Add the following Subparagraph 8.2.4

8.2.4 The Contractor agrees that said work shall be executed regularly, diligently, at such a rate of progress as will insure Substantial Completion thereof within the time specified. It is expressly understood and agreed by and between the Contractor and the Owner that the time for the completion of the work described herein is reasonable taking into consideration the average climatic range and usual industrial conditions prevailing in this locality.

1.9 ARTICLE 9 PAYMENT AND COMPLETION

A. 9.2 SCHEDULE OF VALUES

1. Revise the first sentence of Subparagraph 9.2 to read as follows:

“... the Contractor shall submit to the Architect and the Owner,.....”

2. Add the following sentence to Paragraph 9.2:

Submit on AIA Document A703, latest edition.

B. 9.3 APPLICATIONS FOR PAYMENT

1. Add the following sentence to Subparagraph 9.3.1:

The form of Application for Payment shall be a notarized AIA Document G702, Application and Certification for Payment, supported by AIA Document G703, Continuation Sheet.

2. Delete Clause 9.3.1.1, and substitute the following:

9.3.1.1 As provided in Section 7.3.9, such applications may include requests for payment on account of changes in the Work that have been properly authorized by Construction Change Directives, accompanied by an executed Change Order.

C. 9.5 DECISIONS TO WITHHOLD CERTIFICATION

1. Delete Subparagraph 9.5.3.

D. 9.6 PROGRESS PAYMENTS

1. Add the following Clause to Subparagraph 9.6.1:

9.6.1.1 After the Architect has issued a certificate for payment and it has been approved by the Owner, the Owner will pay the Contractor 95 percent (95%) of the total value of material and labor incorporated into the project as indicated on the Application for Payment less the aggregate of previous payments. Progress schedule update shall accompany each payment request.

9.6.1.2 Payment will be made within fifteen (15) days of approval of the Application for Payment by School District 4J ("Progress Payment Due Date").

9.6.1.3 The first Application for Payment and each subsequent Application for Payment will not be considered complete unless it is accompanied by the certified payroll for the contractor and all subcontractors requesting payment.

2. Add the following Subparagraph to Paragraph 9.6:

9.6.8 In lieu of cash retainage to be held by the Owner, the Contractor may select one of the following options:

- .1 The Contractor may deposit bonds or securities with the Owner or in any bank or trust company to be held for the benefit of the Owner. In such event, the Owner shall reduce the retainage in an equal amount to the value of the bonds and securities.
- .2 Upon written request of the Contractor, the Owner will deposit any amounts withheld as retainage in an interest-bearing account in a bank, savings bank, trust company or savings association for the benefit of the Owner. Interest earned shall accrue to the Contractor.
- .3 If the Owner incurs additional costs as a result of the exercise of any of the options for retainage described herein, the Owner may recover such costs from the Contractor by reduction of final payment.

E. 9.8 SUBSTANTIAL COMPLETION

1. Delete Subparagraph 9.8.1 and substitute the following:

9.8.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so the Owner can fully occupy and fully utilize the Work for its intended use with only minor corrective work remaining which can be accomplished without disruption of the occupants.

2. Delete the last two sentences to Subparagraph 9.8.5 and add the following:

9.8.5 Upon Substantial Completion of the Work, the Contractor may submit an application for payment in accordance with Subparagraph 9.3.1 in an amount sufficient to increase the total payments to ninety-five percent (95%) of the Contract Sum, less such amounts as the Architect determines for incomplete Work or unsettled claims.

F. 9.10 FINAL COMPLETION AND FINAL PAYMENT

1. Add the following Subparagraph to Paragraph 9.10:

9.10.6 The Contractor shall not permit any lien or claim to be filed or prosecuted against the Owner on account of any labor or material furnished in connection with the Work.

G. Add the following Paragraphs to Article 9:

1. 9.11 LIQUIDATED DAMAGES

9.11.1 The Owner will suffer financial loss if the Work is not Substantially Complete, as defined in Article 9.8.1 above, on the dates specified in Section 01 11 00. The Contractor and the Contractor's surety shall be liable for and shall pay the Owner the sum hereinafter stipulated as fixed, agreed, and liquidated damages for each calendar day of delay until the date established in the Certificate of Substantial Completion.

**SUPPLEMENTARY CONDITIONS - DOCUMENT 00 73 00**

The agreed amount of liquidated damages is \$1,000 per each calendar day. The amount of liquidated damages may be reduced in cases of partial occupancy, at the sole discretion of the Owner.

**2. 9.12 AGENCY PAYMENT FOR UNPAID LABOR OR SUPPLIES**

9.12.1 Contract incomplete. If the Contract is still in force, the Agency may, in accordance with ORS 279C.515, pay a valid claim to the Entity furnishing the labor or services, and charge the amount against payments due or to become due to the Contractor under the Contract. If an Agency chooses to make such a payment as provided in 279C.515, the Contractor and the Contractor's surety shall not be relieved from liability for unpaid claims.

9.12.2 Contract completed. If the Contract has been completed and all funds disbursed to the prime Contractor, all claims shall be referred to the Contractor's surety for resolution. The Agency shall not make payments to subcontractors or suppliers for Work already paid for by the Agency.

**1.10 ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY**

**A. 10.1 SAFETY PRECAUTIONS AND PROGRAMS**

**1. Add the following sentence to Article 10.1**

Where asbestos abatement is part of the Work, the Contractor or appropriate subcontractor shall be licensed by the Department of Environmental Quality to perform "asbestos abatement work", OAR 340-248-0120, Adopted January 25, 1990, and meet requirements of AHERA, as specified in Federal Register 40CFR, Part 763.

**B. 10.3 HAZARDOUS MATERIALS**

**1. Delete Subparagraph 10.3.3.**

**1.11 ARTICLE 11 INSURANCE AND BONDS**

**A. 11.1 CONTRACTOR'S LIABILITY INSURANCE**

**1. Modify the second sentence of Subparagraph 11.1.2 as follows:**

a. Delete the following: "...and, with respect to the Contractor's completed operations coverage, until the expiration of the period for correction of Work or for such other period for maintenance of coverage as specified in the Contract Documents."

**2. Add the following Clause to Subparagraph 11.1.2:**

.1. The Contractor shall provide and maintain in force for the duration of this agreement, the following:

**.1 General Insurance:**

The Contractor shall maintain in force for the duration of this agreement a Umbrella Insurance Policy with the limits not less than \$5,000,000, a Commercial General Liability, Automobile Liability (owned, non-owned and hired) Insurance policy(s) written on an occurrence basis with limits not less than \$1,000,000 per occurrence and \$2,000,000 in the aggregated naming the District, its employees, officials and agents as an additional insured as respects to work or services performed under this agreement. This insurance will be primary to any insurance the District may carry on its own. If the District requires Professional Liability coverage, the terms, conditions, and limits must be approved by the District's Risk Manager. (eff. 4/2/13)

**.2 Workers' Compensation:**

Contractor shall provide and maintain workers' compensation coverage for its employees, officers, agents, or partners, as required by applicable workers' compensation laws.

**.3 Evidence of Coverage:**

Evidence of the above coverages issued by a company satisfactory to the District shall be provided to the District by way of a certificate of insurance before any work or services commence. A 30-day notice of cancellation or material change in coverage clause shall be included. It is the Contractor's obligation to provide the 30 days notice if not done so by the



**SUPPLEMENTARY CONDITIONS - DOCUMENT 00 73 00**

Contractor's insurance company(s). Failure to maintain the proper insurance shall be grounds for immediate termination of this Agreement.

.4 Subcontractors:

The Contractor shall require all subcontractors to provide and maintain general liability, auto liability, professional liability (as applicable) and Workers' Compensation insurance with coverage's equivalent to those required of the General Contractor in this Agreement. The Contractor shall require certificates of insurance from all subcontractors as evidence of coverage.

.5 Exceptions or Waivers:

Any exception or waiver of these requirements shall be subject to review and written approval from the Eugene School District Risk Manager.

3. Delete the third sentence of Subparagraph 11.1.3

**B. 11.3 PROPERTY INSURANCE**

1. Modify the first sentence of Subparagraph 11.3.1 as follows:

- a. Delete "Unless otherwise provided, the Owner" and substitute "The Contractor".
- b. Modify the last sentence by adding "Architect," after the word "Owner".

2. Add the following to Clause 11.3.1.1:

The form of policy for this coverage shall be Completed Value. If the Owner is damaged by the failure of the Contractor to maintain such insurance, then the Contractor shall bear all reasonable costs properly attributed thereto.

3. Delete Clause 11.3.1.2.

4. Modify Clause 11.3.1.3 by substituting "Contractor" for "Owner".

5. Delete Clause 11.3.1.4.

6. Modify the first sentence of Subparagraph 11.3.2 to read: "The Owner, at the Owner's option, may purchase..."

7. Delete Subparagraph 11.3.4.

8. Delete Subparagraph 11.3.6, and substitute the following:

11.3.6 Evidence of the above coverages issued by a company satisfactory to the District shall be provided to the District by way of a certificate of insurance before any work or services commence. A 30-day notice of cancellation or material change in coverage clause shall be included. It is the Contractor's obligation to provide the 30 days notice if not done so by the Contractor's insurance company(s). Failure to maintain the proper insurance shall be grounds for immediate termination of this Agreement.

9. Modify 11.3.7 by substituting "Contractor" for "Owner" at the end of the first sentence.

10. Modify the first sentence of Subparagraph 11.3.8 to read as follows:

11.3.8 A loss insured under the Contractor's property insurance shall be adjusted by the Contractor as fiduciary and made payable to the Contractor and Owner, as their interests may appear, subject to requirements of any applicable mortgagee clause.

11. Delete Subparagraph 11.3.9.

12. Modify the first sentence of Subparagraph 11.3.10 by substituting "Contractor" for "Owner" the first two times it occurs. Modify the last sentence by substituting "Contractor" for "Owner" the second time it occurs.

13. Add the following Subparagraph:

11.3.11 EQUIPMENT AND MATERIAL:

The Contractor shall be responsible for any loss, damage, or destruction of Contractor's own property, equipment, and materials used in conjunction with the Work.

C. 11.4 PERFORMANCE BOND AND PAYMENT BOND

1. Delete 11.4.1 and 11.4.2 and substitute the following:

11.4.1 Unless otherwise stated in the solicitation document, prior to execution of the Agreement, the Bidder shall furnish separate bonds that in all respects conform to the requirements of ORS 279C.380 covering the faithful performance of the Contract, and the payment of all obligations arising thereunder, each in an amount equal to one hundred percent (100%) of the Contract sum. The duration of the performance bond shall match the length of the project warranty.

11.4.2 The surety issuing such bonds shall be duly authorized and licensed to issue bonds in the State of Oregon. The bonds shall be executed by an Attorney-in-fact, principal or other authorized representative for the surety company, showing the Oregon agent for service, and bears the seal of the surety company. Where the bond is executed by a person outside the state of Oregon, his authority to execute bond shall be shown.

11.4.3 Bonds are to be obtained through a company that is on the US Government Treasury list for approved sureties and/or approved by the Owner's Risk Manager.

11.4.4 Bonds shall be submitted on AIA Document A312, latest edition.

11.4.5 The cost of furnishing such bonds shall be included in the bid.

11.4.6 The Contractor shall deliver the required bonds to the Owner with the signed Agreement to:

Don Philpot, Project Manager  
Facilities Management Office  
Eugene Public School District 4J  
715 West Fourth  
Eugene, Oregon 97402

11.4.7 The Contractor shall require the Attorney-in-fact who executes the required bonds on behalf of the surety to affix thereto a certified and current copy of their power of attorney.

D. Add the following Paragraphs to Article 11:

1. 11.5 PUBLIC WORKS BOND:

11.5.1 Pursuant to ORS 279C.836, for any contract awarded where the contract price is \$100,000 or greater, the Contractor and every subcontractor shall have a Public Works bond, in the amount of \$30,000 filed with the Construction Contractors Board (CCB) before starting work on the project unless exempt. This bond is in addition to performance bond and payment bond requirements. **A copy of the Contractor's State of Oregon Statutory Public Works Bond shall be provided with the executed contract documents.**

11.5.2 Contractor shall include in every subcontract a provision requiring their Subcontractors to have a public works bond filed with the CCB before starting work on the project, unless exempt. Contractors shall verify that all of their subcontractors have filed a public works bond with the CCB.

1.12 ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

A. 12.2 AFTER SUBSTANTIAL COMPLETION

1. Add the following sentence to Clause 12.2.2.1:

The correction period relating to faulty products and workmanship will begin on the date appearing on the Certificate of Substantial Completion, or if a Certificate of Substantial Completion is not issued, on the date appearing on the Final Certificate of Payment to the Contractor, whichever is earlier. The Owner's use of the project will not alter the warranty period herein defined.

2. Add the following sentence to Clause 12.2.2.2:

The correction periods specified are an extension of the one-year correction period called for in the General Conditions and are in addition to any guaranty bond called for elsewhere.

1.13 ARTICLE 13 MISCELLANEOUS PROVISIONS

A. 13.1 GOVERNING LAW

1. Change Paragraph 13.1 to read as follows:

13.1 The Contract shall be governed by the law of the place where the Project is located.

B. Add the following Subparagraph 13.1.1:

13.1.1 Contractor shall be in compliance with the Oregon Department of Revenue tax certification rules including OAR 150-305.385 (6)-A, (6)-B, (6)-C and (7).

C. Revise Subparagraph 13.2.1 as follows:

Delete last two sentences, and replace with:

Contractor shall not assign, sell, dispose of, or transfer rights, nor delegate duties under the contract, either in whole or in part, without the Contracting Agency's prior written consent. Unless otherwise agreed by the Contracting Agency in writing, such consent shall not relieve the Contractor of any obligations under the contract. Any assignee or transferee shall be considered the agent of the Contractor and be bound to abide by all provisions of the contract. If the Contracting Agency consents in writing to an assignment, sale, disposal or transfer of the Contractor's rights or delegation of Contractor's duties, the Contractor and its surety, if any, shall remain liable to the Contracting Agency for complete performance of the contract as if no such assignment, sale, disposal, transfer or delegation had occurred unless the Contracting Agency otherwise agrees in writing, in accordance with ORS 279A.065.

D. Delete Subparagraph 13.2.2

E. Add the following Paragraphs to Article 13:

1. 13.8 ENVIRONMENTAL AND NATURAL RESOURCES LAWS AND RULES

13.8.1 The Contractor and subcontractors shall comply with federal, state, and local ordinances and regulations dealing with prevention of pollution and preservation of natural resources that affect Work of this project.

13.8.2 Pursuant to ORS 279C.525, If the Contractor is delayed or must undertake additional work by reason of existing regulation or ordinances of agencies not cited in the Contract Documents or due to the enactment of new or the amendment of existing statutes, ordinances, or regulations relating to the prevention of environmental pollution and the preservation of natural resources occurring after the Bid Date, the Owner will grant a time extension and issue a change order setting forth the additional work that must be undertaken. The change order shall not invalidate the contract and there shall be, in addition to a reasonable extension of the Contract time, a reasonable adjustment in the Contract price to compensate the successful bidder for all costs and expenses incurred, including overhead and profits, as a result of such delay or additional work.

2. 13.9 FOREIGN CONTRACTORS

In the event this Contract is awarded to a Contractor not domiciled in or registered to do business in the State of Oregon and the contract price exceeds \$10,000, the Contractor shall promptly report to the Department of Revenue the total price, terms of payment, length of contract, and such other information as the Department of Revenue may require before final payment can be received on the public contract. The Owner will satisfy itself that the requirement of this subsection has been complied with before it issues a Final Payment.

3. 13.10 EQUAL OPPORTUNITY

13.10.1 The Contractor shall maintain policies of employment as follows:



13.10.1.1 The Contractor and the Contractor's subcontractors shall not discriminate against any employee or applicant for employment because of race, religion, color, sex or national origin. The Contractor shall take affirmative action to insure that applicants are employed, and that employees are treated during employment without regard to their race, religion, color, sex, national origin, physical or mental handicap, sexual orientation or age, unless based upon bona fide occupational qualifications; and that they are otherwise in compliance with all federal, state and local laws prohibiting discrimination. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. It is further understood that any vendor who is in violation of this clause shall be barred forthwith from receiving awards of any purchase order from the School District, unless a satisfactory showing is made that discriminatory practices have terminated and that a recurrence of such acts is unlikely. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the policies of nondiscrimination.

13.10.1.2 The Contractor and the Contractor's subcontractors shall, in all solicitations or advertisements for employees placed by them or on their behalf, state that all qualified applicants will receive consideration for employment without regard to race, religion, color, sex or national origin.

4. 13.11 DRUG-TESTING PROGRAM

13.11.1 The contractor agrees with the provisions of Oregon Revised Statutes 279C.505, which requires that the contractor shall demonstrate it has established a drug-testing program for employees and will require each subcontractor providing labor for the Project to do the same.

1.14 ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

No modifications.

1.15 ARTICLE 15 CLAIMS AND DISPUTES

A. 15 CLAIMS AND DISPUTES

1. Add the following to Clause 15.1.5.2

Abnormal weather conditions for the purposes of this agreement are defined as conditions more extreme than any conditions experienced within the general vicinity of the site for each project for a comparable period at any time within the past ten years.

2. Delete Subparagraph 15.1.6.

B. 15.2 INITIAL DECISION

1. Modify Subparagraph 15.2.1 as follows:

In the third sentence, change "30 days" to read "10 days" and add the following: The Initial Decision Maker shall review all submitted claims and render decisions as soon as possible.

2. Modify Clause 15.2.6.1 as follows:

In the first sentence, change the "30 days and "60 days" to read "10 days" and "30 days" respectively.

C. 15.3 MEDIATION

1. Delete Paragraph 15.3 MEDIATION, and substitute the following:

15.3 MEDIATION AND ARBITRATION

15.3.1 Parties shall attempt to resolve all disputes at the lowest possible level. Both parties to this Agreement agree to provide other resources and personnel to negotiate and find resolution to disputes that cannot be resolved at the Project Manager level. As a next step, claims, disputes or other matters in question between the parties to this Agreement arising out of or relating to this Agreement or breach thereof shall be determined by mediation, arbitration or litigation. Disputes shall be initially submitted to mediation by a mediator chosen by the parties. The cost of mediation shall be borne equally by the parties. If the parties are unable to agree upon a mediator within five days or if mediation fails to resolve

**SUPPLEMENTARY CONDITIONS - DOCUMENT 00 73 00**

the dispute, either party may request that the dispute be submitted to arbitration before a single arbitrator agreed to by the parties in an additional five days. If both parties agree to arbitration but are unable to agree upon an arbitrator, each party shall select an arbitrator, the arbitrators so chosen shall select a third, and the decision of a majority of the arbitrators shall be final, binding the parties, and any judgment may be entered thereon. Unless the parties mutually agree otherwise, any arbitration proceeding shall be conducted in accordance with the currently in effect Construction Industry Arbitration Rules of the American Arbitration Association.

Notwithstanding the above, the Owner may, at the Owner's sole discretion, elect to resolve disputes in excess of \$50,000 by litigation, if mediation is not successful.

15.3.2 In the event of arbitration or litigation arising out of the execution of this Agreement, the prevailing party shall be entitled to recover from the adverse party, reasonable attorney fees and costs for the arbitration proceedings, trial court or any appellate proceeding, in the amount determined by the arbitrator or the court, as appropriate.

For the purposes of the above provisions referring to attorney fees and related costs, the prevailing party in an arbitration proceeding or trial shall be a claimant who receives an award or damages in excess of the adverse party's pretrial or prehearing offer made at least 10 days before trial or hearing. If the claimant receives an award of damages no greater than the adverse party's pretrial or prehearing offer, the adverse party shall be deemed to be the prevailing party. In the event both sides are awarded damages, the prevailing party shall be the party who recovers the net award, provided the recovery exceeds the adverse party's pretrial or prehearing offer. If the claimant net recovery is no greater than the adverse party's pretrial or prehearing offer, the adverse party shall be deemed the prevailing party.

D. 15.4 ARBITRATION

1. Delete Paragraph 15.4 ARBITRATION.

END OF DOCUMENT 00 73 00





SECTION 00 7343  
PREVAILING WAGE RATES

PART 1 GENERAL

The Prevailing Wage Rates dated January 2014, including any subsequent corrections or amendments issued by the Oregon Bureau of Labor and Industries, are included as a portion of the Contract Documents by reference. Copies are available for review at the office of Facilities Management, School District 4J, and can be viewed on line at [www.boli.state.or.us](http://www.boli.state.or.us). Click on Prevailing Wages, then PWR Rate Publications, and then Prevailing Wage Rates for Public Works Contracts in Oregon (subject only to state law).

END OF DOCUMENT 00 73 43



**SECTION 00 3100**  
**AVAILABLE PROJECT INFORMATION**

**PART 1 GENERAL**

**1.01 EXISTING REPORTS AND SURVEYS**

**A. SUBSURFACE INVESTIGATION REPORT**

1. A copy of a geotechnical report with respect to the building site is included with this document:
  - a. Title: Geotechnical Investigation
  - b. Date: 12.3.2013
  - c. Prepared by:
    - 1) Foundation Engineering, Inc.
    - 2) 820 NW Cornell Avenue, Corvallis, OR 97330-4517
    - 3) Phone: 541/757-7645, Fax: 541/ 757-7650
  - d. Note: This document is described as a Draft because it also applies to the future New Howard Elementary School project, and the recommendations for the building foundation site prep requirements have not been confirmed yet.
2. This report identifies properties of below grade conditions and offers recommendations for the design of foundations, prepared primarily for the use of Architect.
3. The recommendations described shall not be construed as a requirement of this Contract, unless specifically referenced in the Contract Documents.
4. This report, by its nature, cannot reveal all conditions that exist on the site. Should subsurface conditions be found to vary substantially from this report, changes in the design and construction of foundations will be made, with resulting credits or expenditures to the Contract Price accruing to Owner.
5. The report is included in the Appendix Section of this Project Manual.

**B. TOPOGRAPHIC SURVEY**

1. A copy of a topographic survey with respect to the project site is included with this document:
  - a. Title: Sheet G021 - West Survey, and Sheet G022 - East Survey
  - b. Date: 09.10.2013
  - c. Prepared by:
    - 1) Balzhiser and Hubbard Engineering
    - 2) P.O. Box 10347, Eugene, OR 97440
    - 3) Phone: 541/686-8478, Fax: 541/345-5303
2. This survey identifies grade elevations prepared primarily for the use of Architect in establishing new grades and identifying natural water shed.

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION (NOT USED)**

**END OF SECTION**





# ***DRAFT* - Geotechnical Investigation**

**Howard Elementary School**

**Eugene, Oregon**

**Prepared for:**

**Lane County School District 4J  
Eugene, Oregon**

**December 3, 2013**

Ben Brantley, Manager  
Capital Improvement Program  
Eugene Public Schools  
Lane County School District 4J  
715 West 4<sup>th</sup> Avenue  
Eugene, Oregon 97402

December 3, 2013

**Howard Elementary School  
Geotechnical Investigation and Seismic Hazard Study - *DRAFT*  
Eugene, Oregon**

**Project 2131078**

Dear Mr. Brantley:

We have completed the requested geotechnical investigation for the replacement of Howard Elementary School in Eugene, Oregon. Our report includes a description of our work, a discussion of site and subsurface conditions, a summary of laboratory and field testing and a discussion of key geotechnical issues pertaining to the proposed project. Recommendations for site preparation, foundation design and construction, and pavements are also provided. Our report also includes a site-specific seismic hazard study that is intended to meet current Oregon Structural Specialty Code (OSSC) requirements.

It has been a pleasure assisting you with this phase of your project. Please do not hesitate to contact us if you have any questions or if you require further assistance.

Sincerely,

FOUNDATION ENGINEERING, INC.

Matthew D. Mason  
Geotechnical staff

James K. Maitland, P.E., G.E.  
Principal

MDM/JKM/zc  
enclosure



**GEOTECHNICAL INVESTIGATION AND SEISMIC HAZARD STUDY  
HOWARD ELEMENTARY SCHOOL  
EUGENE, OREGON**

**BACKGROUND**

Lane County School District 4J plans to replace Howard Elementary School located at 700 Howard Avenue in Eugene, Oregon. The location is shown on the Vicinity Map (Figure 1A, Appendix A). Conceptual site plans indicate the replacement facility will include a new, two-story classroom building and separate gym/cafeteria structure with an estimated total plan area of  $\pm 79,700$  SF. The project will also include play fields and a synthetic turf field (to be built south of Kelly Middle School). The existing school building will be demolished and replaced by paved bus and parent drop-off lanes and a parking lot. A site layout with the existing and proposed facilities is shown on Figure 2A (Appendix A).

PIVOT Architecture (PIVOT) and DOWA-IBI Group Architects, Inc. are the project architects. Balzhiser & Hubbard Engineers (BHE) is the civil engineering consultant. Hohbach-Lewin, Inc. (HBI) is the structural consultant. Foundation Engineering, Inc. (FEI) was retained by the school district as the geotechnical consultant. Our scope of work was outlined in a proposal dated October 31, 2013, and authorized by a contract dated November 18, 2013.

**LOCAL GEOLOGY**

Detailed discussions of the regional geology, tectonic setting, local faulting and historical seismicity are presented in the Seismic Hazard Study (Appendix D). References cited in this section can be found in Appendix D. An abbreviated discussion of local geology is provided below.

Eugene is situated within the southern extent of the Willamette Valley, which is bordered by the Western Cascades to the east and the Coast Range to the west. The Willamette and McKenzie Rivers have deposited a mantle of alluvial material consisting of clayey fan-delta alluvial deposits that typically underlie the city (Madin and Murray, 2006).

Local geological mapping indicates the site is underlain at an unknown depth by fan-delta alluvial deposits (Madin and Murray, 2006; McClaughry et al., 2010). These deposits consist of silt to boulder-size material, with primarily sandy gravel covering most of the area. With depth, the alluvial deposits are underlain by marine, tuffaceous sandstone and siltstone of the Eugene Formation (Yeats et al., 1996; Madin and Murray, 2006).

Consistent with the mapped geology, our site investigation encountered primarily stiff clayey silt overlying dense sandy gravel. Two nearby borings were reviewed including ES-14,  $\pm 1/2$  mile to the north, at North Eugene High School, and SB-1 at Kelly Middle School. Both borings encountered similar conditions relative to our explorations.

## FIELD EXPLORATION

### Exploratory Drilling

We drilled seven exploratory boreholes (BH-1 through BH-7) at the site between November 11 and 13, 2013. The borings were located in consultation with PIVOT to establish overall subsurface conditions for the classroom building and the gym/cafeteria. Some of the locations were established based on available access or conflicts with existing structures. The approximate borehole locations are shown on Figure 2A (Appendix A).

Borings BH-2, BH-4 and BH-5 were drilled using a small track rig with hollow stem auger drilling techniques. The small tracked rig had difficulty penetrating the gravels at some locations. Therefore, the remaining four borings were completed using a larger, CME-55, track-mounted drill rig using mud rotary drilling techniques. Maximum drilling depths ranged from  $\pm 7$  to 36.5 feet.

Samples were obtained at 2.5-foot intervals to the surface of the gravels and at 5-foot intervals thereafter. Disturbed samples were obtained with a split-spoon sampler in conjunction with the Standard Penetration Test (SPT). The SPT provides an indication of the relative stiffness or density of the foundation soils. Relatively undisturbed samples were obtained at various depths using thin-walled Shelby tubes. At some locations, the borings were supplemented by hand sampling of the near-surface soils.

The borings were continuously logged during drilling. The final logs (Appendix B) were prepared based on a review of the field logs, laboratory test results, and an examination of the soil samples in our office. Ground surface elevations reported on the boring logs were estimated using a topographic site plan prepared by BHE and should be considered approximate only.

### Exploratory Test Pits

We dug seven exploratory test pits (TP-1 through TP-7) on November 14, 2013, using a small tracked excavator. Their approximate locations are shown in Figure 2A (Appendix A). The locations were selected in consultation with PIVOT. Six of the test pits were located south of Kelly Middle School and were intended to establish overall subsurface conditions within the planned play fields and the new synthetic turf field. TP-7 was dug between BH-1 and BH-3 to determine if any site fill was present near the west edge of the proposed new gym/cafeteria building.

The test pits typically extended to maximum depths ranging from  $\pm 3$  to 4 feet, with the exception of TP-4, which extended to  $\pm 9\frac{1}{2}$  feet. Disturbed soil samples were obtained for possible laboratory testing and undrained shear strength measurements were made on the test pit side walls using a Torvane shear device. The soil profile, sampling depths and strength measurements are summarized on the appended test pit logs. The final logs (Appendix B) were prepared based on a review of the field logs, an examination of the soil samples in our laboratory and the results of laboratory testing. Ground surface elevations reported on the test pit

logs were estimated using a topographic site plan prepared by BHE and should be considered approximate only.

## **DISCUSSION OF SITE CONDITIONS**

### **Site Topography and Vegetation**

The new school buildings are to be built in the open area south of the existing school. The site for the classroom building is presently a baseball field. A topographic site plan prepared by BHE indicates the ground surface within this portion of the site ranges from  $\pm$ El. 394 (along the eastern and western edges of the field) to  $\pm$ El. 395 (near the center). The planned gym/cafeteria building will extend partially over an existing soccer field and track. The ground surface within the soccer field to the west ranges from  $\pm$ El. 397.5 to  $\pm$ El. 398.5. The topographic site plan was used to estimate the ground surface at the test pits and borings. The elevations shown on the logs are approximate only.

The site is presently covered with grass, but contains a gravel track, baseball backstop and other miscellaneous structures.

### **Subsurface Conditions at Proposed School Buildings**

The exploratory boreholes suggest the soil profile beneath the planned building site generally consists of the following soil units:

- Site Fill
- Clayey silt and silty sand
- Sandy gravel

Site Fill. Site fill was encountered only in BH-5. At this location, the fill is limited to the upper  $\pm$ 12 inches and consists of medium stiff silt with scattered organics. We anticipate the fill was placed to create the existing baseball infield.

Clayey silt and silty sand (alluvium). The surficial soil predominantly consists of brown, damp, stiff, medium to high plasticity, clayey silt (alluvium). An Atterberg limits test run on a sample obtained from BH-1 from a depth of  $\pm$ 2.5 to 4.0 feet indicated a plasticity index (PI) of 23 and a Unified Soil Classification System (USCS) designation of MH. This soil unit grades to low plasticity silt with depth. At BH-1, the soil had a PI of 12 at a depth of  $\pm$ 7 to 8.5 feet, and a USCS designation of ML. At BH-7, a sample from 3.5 to 5.5 feet had  $\pm$ 65% fines (i.e., fraction of material passing the No. 200 sieve).

The clayey silt is typically thicker in the western portion of the proposed building footprint. Some of the variation may be due to previous grading activities. We observed the sod and fine roots were typically limited to a depth of  $\pm$ 4 inches.



Field vane tests run in the Shelby tube samples indicate undrained shear strengths ranging from  $\pm 0.18$  tons/ft<sup>2</sup> (tsf) to  $> 1.0$  tsf. The strength tests and field observations indicate the silt is typically stiff to very stiff near the ground surface, becoming softer, sandier and moister with depth.

The surficial silt typically grades with depth to sandy silt or silty sand. The soil has essentially the same appearance as the silt (described above), but has an increased fraction of fine sand. Fines content determination tests on samples SS-4-3 and SH-7-1 indicated 47.8% and 64.8% fines, respectively. Although the logs show distinct layers for the silt and sand, in the field the two materials may be difficult to distinguish.

*Sandy Gravel (alluvium).* Sandy gravel (alluvium) was encountered below the silt in all the borings, but at significantly different depths. The depth to the surface of the gravel ranges from  $\pm 2.5$  (at BH-5) to  $\pm 10$  feet (at BH-1) and  $\pm 15.5$  feet (BH-3). The gravels extend to at least 35 feet (the limits of our exploration). Nearby water wells indicate the alluvial gravel extends to at least  $\pm 80$  feet and may be interbedded with clayey gravel.

The gravel encountered in the borings is typically sandy, contains trace to some silt and is well graded. A gradation test on sample SS-4-4 from  $\pm 7.5$  to 9 feet (BH-4) indicated the soil consists of  $\pm 56.4\%$  gravel, 36.4% sand, and 7.2% fines (i.e., silt). SPT (N) values of between 24 and 67 were recorded in the gravels, suggesting they are predominantly medium dense, grading to dense or very dense within the limits of our exploration.

#### **Subsurface Conditions at Play Fields**

Six exploratory test pits were completed within the footprint of the planned play fields and the synthetic turf fields. The explorations indicate the subsurface profile typically consists of topsoil followed by alluvial clayey silt.

The topsoil is typically  $\pm 1$  to 1.5 feet thick and consists of brown, damp, low plasticity silt with a trace of sand and gravel. This soil had a PI of 13 and a USCS designation of ML. We assume this material was imported to create the existing play fields. At the time of our exploration, the topsoil was relatively stiff. However, it is a moisture-sensitive soil and is expected to soften significantly when exposed to rainfall.

The topsoil is underlain by brown, moist, medium plasticity, clayey silt. The silt is typically stiff and softens with depth. Laboratory tests on a sample of this soil indicated a PI of 20 and a USCS designation of MH (similar to the soil beneath the planned school site).

Medium dense, silty gravel with some sand was encountered in TP-1 at  $\pm 3.6$  feet and in TP-2 at 2.8 feet. The gravels are typically dirty (i.e., silty) near the contact with the silt, becoming cleaner and sandier with depth. No gravel was encountered in the other test pits, suggesting the gravel surface is relatively deep beneath the middle and eastern portion of the planned play fields. The gravels are similar to those encountered in the borings.

## **Ground Water**

The borings were advanced using hollow stem augers. During drilling, ground water was encountered at  $\pm 14.5$  feet (BH-4) and  $\pm 14$  feet (BH-6). These depths correspond to  $\pm$ El. 380.2 and  $\pm$ El. 380.6, respectively. Given the approximate nature of the estimated ground surface elevations, it should be assumed that the water table currently lies at an average  $\pm$ El. 380.4. No ground water seepage was observed in the exploratory test pits.

There are several dozen water well logs, as well as a few geotechnical and Geoprobe holes within a  $\pm 3,000$ -foot radius of the school site. In general, relatively shallow gravels were reported in all water wells. The reported depth of the static water level in most water wells ranged from  $\pm 10$  to 12 feet for wells completed during the summer or fall months. These levels are within 2 to 4 feet of those encountered in the recent FEI borings. Wells completed during the winter or spring typically reported water levels at  $\pm 7$  to 10 feet. A well drilled at the adjacent Kelly Middle School in March 1995 reported a static water level at 7 feet. This level is probably the best indication of a seasonally high water table.

## **LABORATORY AND FIELD TESTING**

### **Laboratory Tests**

The laboratory work included natural water content and Atterberg limits tests to classify the foundation soils, determine their homogeneity and estimate their overall engineering properties. Results of these tests are summarized in Table 1C (Appendix C).

A one-dimensional consolidation test was run on sample SH-7-1 to estimate the compressibility of the fine-grained foundation soils. The results are summarized on Figure 1C (Appendix C). The results indicate modified compression and recompression indices ( $c_{c_e}$  and  $c_{r_e}$ ) of 0.13 and 0.005, respectively, and a preconsolidation pressure ( $p_c$ ) of 1.1 ksf.

Laboratory pH tests were also run on selected soil samples. Those test results are summarized in Table 2C and indicate pH values of 6.2 to 6.3 (i.e., slightly acidic).

### **Resistivity Testing**

In-situ resistivity tests were completed near the middle of the site, within the panned play courts adjacent to the proposed classroom building. The tests were using a Nilsson 400, 4-pin, soil resistance meter (ASTM G57). The approximate location of the resistivity tests are shown on Figures 2A (Appendix A).

The 4-pin resistance meter provides an estimate of the average resistivity of a soil profile extending to a depth equal to the spacing between the pins. The tests were performed with the pins spaced at  $\pm 2$  to 8 feet. The resistivity values, summarized in Table 3C (Appendix C), ranged from  $\pm 3,064$  to 6,128 ohm-cm. These average values are relatively low, possibly due to the influence of the silt, and may not reflect the resistivity of the underlying gravels.

### **DCP Testing**

Dynamic Cone Penetration (DCP) Tests were run at selected locations to estimate the strength of the existing subgrade for pavement analysis and design. Figure 2A shows the approximate locations of the DCP tests. The DCP test consists of driving the cone of the DCP apparatus into the soil and recording the penetration versus blow count (mm/blow) as the DCP value. The Oregon Department of Transportation (ODOT) Pavement Design Guide (2011) provides a correlation for estimating the in-situ resilient modulus from results of the DCP testing. A summary of the DCP test results and the correlated in-situ subgrade modulus values are summarized in Table 4C (Appendix C).

## **DISCUSSION OF KEY GEOTECHNICAL ISSUES**

### **Construction Timing**

The site is underlain by fine-grained surficial fill and fine-grained alluvium, which are moisture-sensitive and will soften considerably during wet weather (i.e., during the winter and spring). Thickened building pads, base rock sections and access roads are typically required to support construction traffic during wet weather and mitigate severe rutting and subgrade pumping. Wet weather construction substantially increases the earthwork costs and construction difficulty.

Compaction of the surficial soils will only be practical in dry summer months when moisture-conditioning is possible. Therefore, the recommendations provided in this report assume the site grading and foundation construction will be completed during dry weather.

### **Soft Ground Conditions**

During the field exploration, isolated seams of soft soil were observed beneath the stiff, dry surficial material. The soil in these soft zones was atypically moist and/or sandy. It is possible that more soft soils may be present at the time of construction due to exposure to wet weather. Depending on the weather at the time of the site grading or the contractor's schedule, the soft soils will have to be moisture conditioned (dried) and re-compacted or replaced with granular material (e.g. Select Fill or Granular Site Fill, as defined below). The extent of soft soils and the required mitigation, if any, should be established by FEI at the time of construction. Our settlement analysis (discussed below) assumes that all soft ground conditions are mitigated prior to foundation construction.

### **Play Fields and Synthetic Turf Field Construction**

The subgrade beneath the proposed new play fields and the synthetic turf field south of Kelly Middle School was relatively stiff at the time of the field exploration. However, the subgrade soils are moisture-sensitive and will tend to soften significantly when exposed to rainfall (as indicated above). If moist, the subgrade will tend to pump or rut under truck or construction equipment traffic. In addition, an excessively moist subgrade cannot be compacted.



We have assumed herein that the construction of these fields will be delayed until the soils are sufficiently dry and stiff to permit moisture-conditioning and compaction, and to support the required construction activities without damage to the subgrade. If soft soils are present, subgrade stabilization in the form of a separation geotextile and additional granular subbase will be required. Subgrade treatment in the form of lime or cement is possible to mitigate soft, wet soils, but could significantly add to earthwork costs. Development of construction guidelines for this option of subgrade stabilization was beyond the current scope of work.

### **On-Site Storm Retention**

The site is underlain by a relatively thin mantle of silt followed by gravel. Local water wells suggest the local ground water level typically lies at  $\pm 10$  to 12 feet below the ground surface in the summer and fall, rising to  $\pm 7$  to 10 feet in the winter. At the time of exploration (November 2013), ground water was encountered in some of the borings at  $\pm 14$  to 14.5 feet. However, no long-term ground water data is available. A log for a well drilled on the Kelly Middle School property reported a static water level at  $\pm 7$  feet. That is the closest available information and we have assumed this depth to be representative of a seasonally high ground water levels.

Supplemental infiltration tests are planned. Results of those tests will be provided in a supplemental memorandum.

## ENGINEERING ANALYSIS

### Foundations for Structures

We have assumed the new buildings will have a finished floor elevation (FFE) of  $\pm$ El. 397. Assuming  $\pm$  1 foot for the floor slab and crushed rock leveling course, we estimate the subgrade elevation will be  $\pm$ El. 396. As a result, very little site grading (i.e., new site fill or excavation) will be required.

For our foundation analysis, we assumed new footings would bear on a nominal 1 foot of compacted crushed rock followed by medium stiff silt. At most locations, the gravels are deep enough that they lie below the influence depth of the footings. At BH-2 and BH-5, the gravels are relatively shallow and provide a positive influence on the foundations by reducing overall settlement.

Bearing Capacity. Footing dimensions and loads were not available for the building unit foundations at the time this report was prepared. Vikki Bourcier, S.E. (HLI) provided an estimate of the loads based on their previous experience with similar schools. They indicated a maximum column load of 50 kips (22 kips dead plus 28 kips live) and a maximum wall load of 2.5 kips per lineal foot (klf) (1.1 klf dead plus 1.4 klf live). The live load is estimated to comprise  $\pm$ 56% of the total load, which should represent the worst case condition.

We have assumed that column spread footings will have maximum dimensions of 4x4 to 5x5 feet. Continuous wall footings are expected to be 2 to 3 feet wide.

We estimated a bearing capacity of the foundation soils assuming a nominal footing depth of  $\pm$  2 feet (below FFE), bearing on 12 inches of Select Fill followed by silt with a minimum undrained shear strength of 1,000 psf for the native silt. Our analysis suggests an allowable bearing pressure of 2,300 psf for column footings and 2,100 psf for strip footings. This assumes a typical factor of safety of 3.

Our bearing capacity analysis assumes that FEI will be present during foundation construction to confirm the presence and extent of any soft soils beneath new footings. If present, soft soils will be mitigated by recompaction or replacement with granular fill.

Settlement. Potential foundation settlements were estimated using the assumed range of footing dimensions and preliminary foundation loads provided by HLI. For settlement analysis we included the dead load and half of the estimated live load, resulting in a maximum column load of  $\pm$ 36 kips and maximum wall load of  $\pm$  1.8 klf. The subsurface profile encountered in the exploratory borings was used to model foundation conditions. Results of the consolidation test (Appendix C) were used to estimate the compressibility of the fine-grained soil that underlies the site. The gravels were assumed to be relatively incompressible.

Our analysis indicates total settlement under the largest column loads should be less than  $\pm$   $\frac{3}{4}$  inch. Total settlement of a 2 to 3-foot wide continuous wall footing is estimated to be less than  $\pm$   $\frac{1}{4}$  inch for the maximum wall load. For design, we recommend assuming a maximum differential settlement of  $\pm$   $\frac{1}{2}$  inch between the

columns or between the columns and perimeter walls. Because the bearing pressure used in our analysis is close to the estimated preconsolidation pressure, it is important that we review the final design loads to confirm the calculated settlements.

Our settlement analysis assumes that FEI will be present during foundation construction to confirm the presence and extent of any soft soils beneath new footings and slabs. If present, soft soils will be mitigated by recompaction or replacement with granular fill.

### **Pavement Analysis and Design**

A bus loop and a parking lot are planned for the new school. Additional paved access to the back of the new school is also planned but its location had not been determined at the time this report was prepared.

For the bus loop an estimate of average daily traffic (ADT) of 29 was provided to us by the design team. The traffic consists of 16 full-sized buses, 8 smaller special needs buses and 5 delivery trucks (2 to 3-axle). An ADT of 300 was estimated for the parking lot. We have assumed 1% of the total traffic for the parking area would consist of 2 to 3-axle delivery trucks.

The pavement subgrade is expected to consist of predominantly medium stiff to stiff, medium plasticity, clayey silt. The DCP test results suggest the subgrade resilient modulus ( $M_r$ ) value ranges from  $\pm 3,100$  to 4,600 lb/in<sup>2</sup> (psi). For design, a  $M_r$  value of 3,100 psi was selected to account for variability within the subgrade.

Pavement analysis was completed using the AASHTO (1993) procedure and input parameters recommended in the ODOT Pavement Design Guide (ODOT, 2011). Using the design traffic and  $M_r$  value, we calculated a flexible pavement section consisting of 2.5 inches of asphaltic concrete (AC) over 13 inches of base rock for the parking lot, and a flexible pavement section of 4 inches of AC over 14 inches of base rock for the bus loop and for other areas subject to increase truck traffic (e.g., in driveways and near trash/recycle bins). These sections are similar to the sections currently used by the school district.

Native gravel or gravel fill from past site grading may be present north of, or in the vicinity of, the existing school buildings. Where gravel is present, the thickness of the base rock section may be reduced. The presence of shallow gravel and a subsequent reduction in base rock thickness should be confirmed by an FEI representative at the time of construction.

### **Seismic Analysis**

A spectral acceleration response spectrum for the site was established based on Section 1613 of the Oregon Structural Specialty Code (OSSC) 2010. Based on our explorations, we recommend using a Site Class D. The seismic design parameters and OSSC response spectrum are shown on Figure 3A (Appendix A).



## **DISCUSSION OF SEISMIC HAZARDS**

A site-specific hazard study was completed by Brooke Running, C.E.G. for the school site and provided in Appendix D. That study concluded there are not seismic hazards that would preclude the construction of the planned school project.

To expedite review by the City, we have summarized the soil and seismic issues based on the requirements of OSSC Sections 1803.2 through 1803.6, and the headings from the code.

### **1803.2 Investigations Required**

The field exploration and sampling program and the associated geotechnical investigation performed by FEI for this site meet the requirements of this section and address the appropriate items listed.

#### **1803.5.1 Classification**

Soils present at the site are described in this report and on the test pits logs (Appendix B). Laboratory tests used to classify the soils are described above and are summarized in Appendix C.

#### **1803.5.2 Questionable Soils**

There are no questionable soils on the site. However, soft subgrade conditions were noted in isolated conditions. Furthermore, the surficial soils are moisture sensitive and are expected to soften significantly when exposed to rainfall. It is anticipated the site grading will remove and replaced or reprocess any soft surficial soil beneath the planned structures. We have recommended herein that an FEI representative be present to confirm foundation conditions in new footing excavations.

#### **1803.5.3 Expansive Soils**

No high plasticity clays were encountered during the field exploration. Therefore, no significant impact to foundations is anticipated from expansive soils.

#### **1803.5.4 Ground Water Table**

No below-grade construction is planned. Ground water levels at the site should lie below footings and slab levels and should not adversely impact foundations. Perimeter foundation drains are recommended to deal with potential perched ground water during the winter.

#### **1803.5.5 Deep Foundations**

No piles or piers are planned.

#### **1803.5.6 Rock Strata**

Alluvial gravel is estimated to extend to a relatively great depth below the site. Therefore, no bedrock is anticipated within the excavation limits.

### **1803.5.7 Excavation near Foundations**

No excavations near foundations are planned.

### **1803.5.8 Compacted Fill Material**

Specifications for fill materials and compaction are described below in the Recommendation section.

### **1803.5.9 Controlled low-strength material (CLSM)**

All foundations will bear on compacted Select Fill underlain by native soil.

### **1803.5.10 Alternate setback and clearance**

The site is relatively flat; therefore, no natural or man-made slopes are present and no minimum setback or clearance is required.

### **1803.5.11 Seismic Design Category C through F**

Individual seismic-related items addressed within this category of the code are discussed below.

*Slope Instability.* The site is relatively flat. Therefore, there is no risk of slope instability or earthquake-induced landslides. The Relative Earthquake Hazard Map of the Eugene-Springfield Metropolitan Area, Lane, County (Black et al., 2000) indicates the school site lies within Zone D - the lowest hazard designation.

*Liquefaction.* The new school buildings will be supported by spread footings, bearing on a layer of structural fill followed by medium stiff silt underlain by medium dense to very dense gravel. Based on the stiffness and plasticity of the foundation soil and the relative density of the underlying gravel, there is no significant risk of liquefaction. Consequently, there is no significant risk of loss of strength of the foundations soils or settlement due to a seismic event. As a result, no mitigation measures are required for the foundations.

*Differential Settlement.* There is no risk of significant differential settlement due to the conditions described under liquefaction.

*Surface displacement due to faulting or lateral spreading.* The site is underlain by a relatively thick layer of alluvial deposits. There is no known displacement of the alluvial deposits and there are no potentially active, nearby faults that would cause a surface rupture at the site.

There are no natural slopes near the planned school buildings or liquefiable soils that would allow lateral spreading to occur.

### **1803.6 Reporting**

FEI dug exploratory test pits, drilled exploratory borings, completed laboratory tests, conducted engineering analyses and summarized our findings in this report, which was prepared to meet the requirements of OSSC 2010, Section 1803.

## RECOMMENDATIONS

We have assumed the earthwork would be completed during dry weather. We should be contacted in the event that the earthwork schedule changes so that we can provide additional recommendations for wet weather construction. The contractor may still experience pumping problems in the summer if the surficial soils have not adequately dried. Therefore, we recommend an on-site conference with the contractor prior to the grading work to review site conditions.

A site grading plan was not available at the time this report was prepared. For purposes of our analysis, we assumed individual building pads will extend at least 1 foot (possibly more) above existing grades.

### Foundation Design and Construction

Design the foundations and slabs for the classroom and gym/cafeteria buildings as follows:

1. Design all continuous wall footings and isolated column footings using allowable bearing pressures of 2,100 and 2,300 psf, respectively.
2. Use of coefficient of friction of 0.35 at the base of the footing for analysis of sliding resistance, assuming all footings bear on compacted Select Fill. A lateral bearing of 200 psf can be assumed for footings backfilled with Select Fill.
3. Provided all new footings are designed and built as specified herein, assume settlement under the maximum anticipated column load to be less than  $\pm \frac{3}{4}$  inch, settlement under the maximum anticipated wall load to be less than  $\pm \frac{1}{4}$  inch. Assume a potential differential settlement between columns and walls of up to  $\pm \frac{1}{2}$  inch.
4. Provide a minimum footing width of 2 feet for all continuous wall footings. This minimum does not apply to grade beams or thickened slab sections that support non-load bearing walls.
5. Use a modulus of subgrade reaction,  $k_s$ , of 250 kcf for floor slab design. Reinforce all floor slabs to reduce cracking, warping and the risk of ground water infiltration. Rebar, instead of wire mesh, is recommended. The use of fiber as the sole method of reinforcement is not recommended. Provide a suitable vapor barrier under the slab that is compatible with the proposed floor covering and the method of slab curing.
6. Design the building assuming a Site Class D and the seismic parameters provided in Figure 3A (Appendix A). These values are based on OSSC 2010 (Section 1613). The corresponding response spectrum for the OSSC 2010 General Procedure is also shown in Figure 3A. The liquefaction potential of the foundation soils is negligible due to the plasticity of the surficial soils and the density of the underlying gravel.



### **Perimeter Foundation Drainage System for Buildings**

7. Install foundation drains along the perimeter of the building. The drains should consist of 3 or 4-inch diameter, perforated or slotted, PVC pipe wrapped in a Filter Fabric (specified below). The flowline of the pipe should be set as deep as possible (i.e., on top of the perimeter footings or near the base of the building pad fill). The pipe should be bedded in at least 6 inches of 2-inch minus, clean drain rock and backfilled to the full depth with drain rock. The entire mass of drain rock should be wrapped in a similar filter fabric that laps at least 12 inches at the top.
8. Provide clean-outs at appropriate locations for future maintenance of the drainage system.

### **Materials and General Earthwork Specifications**

9. Select Fill as defined herein should consist of 1 or  $\frac{3}{4}$ -inch minus, clean (i.e., less than 5% passing (by weight) the #200 U.S. Sieve), well-graded, durable, crushed rock that is free of plastic clay, organic matter and construction debris. We should be provided a sample of the intended fill for approval, prior to delivery to the site.
10. Granular Site Fill should consist of 3-inch minus, clean, well-graded, crushed (quarry) rock or approved bar-run gravel. The latter is appropriate only if placed during dry weather or when the gravel is adequately dry for compaction.
11. Compact all Select Fill, Granular Site Fill or native material in loose lifts not exceeding 12 inches, unless specified otherwise below. Thinner lifts will be required if light or hand-operated equipment is used. Compact the fill to a minimum of 95% relative compaction. The maximum dry density of ASTM D 698 should be used as the standard for estimating relative compaction. Field density tests should be run frequently to confirm adequate compaction.
12. The Separation Geotextile should have Mean Average Roll Value (MARV) strength properties meeting the requirements of an AASHTO M 288-06 Class 2 woven geotextile.  
  
The geotextile should have MARV hydraulic properties meeting the requirements of AASHTO M 288-2006 (geotextile for separation) with a permittivity greater than 0.05 sec.<sup>-1</sup> and an AOS less than 0.6 mm. We should be provided a specification sheet on the selected geotextile for approval prior to delivery to the site. This geotextile is not suitable for construction during wet weather.
13. Filter Fabric should consist of a non-woven geotextile with a grab tensile strength greater than 200 lb., an apparent opening size (AOS)

of between #70 and 100 (US Sieve) and a permitivity greater than  $0.1 \text{ sec}^{-1}$ .

14. Inform contractors that utility construction will require dewatering for any deep excavations completed during the winter. Shoring will be needed in all trenches to protect workers from sloughing or caving soils. Assume an OR-OSHA Type C soils for planning utility trenching and/or shoring.

#### **Site Preparation for the Building Pad and Staging Areas**

Prepare the pads for the new classroom and gym/cafeteria buildings, and any staging areas in dry weather as follows:

15. Strip the existing ground  $\pm 4$  inches, or as required to remove roots, sod or unsuitable soil. The actual depth of stripping should be confirmed by FEI during construction. Dispose of all strippings outside of construction areas. The strippings should be hauled from the site or reused only in landscape areas. No strippings should be placed beneath foundations, slabs, sidewalks or pavements.
16. Compact the subgrade as specified in Item 11.
17. Proof roll the completed subgrade with an approved vehicle. Where soft soil is present, moisture condition the soil (i.e., dry it) and re-compact as specified in Item 11. This option requires dry weather and sufficient time for aeration. If the zone of soft soil is more than 12 inches thick, excavation, stockpiling, aeration and recompaction in lifts may be required.

Alternatively, over-excavate the soft soil and replace with Select Fill or a combination of Granular Site Fill and Select Fill. The actual depth of overexcavation should be confirmed by FEI during construction. The final excavation for areas requiring removal of soft soil should be done with a hoe equipped with a smooth bucket. The surface of the subgrade should be left clean, free of loose or disturbed soils or large clods.

We recommend the bid documents include a unit cost for the option of on-site aeration and recompaction of soft, wet soil in lifts and for the option of over-excavation and replacement with compacted, granular fill.

18. Overexcavate any test pits that extend beneath the footprint of the building and replace with compacted Select Fill or Granular Site Fill.
19. Place a Separation Geotextile on the prepared subgrade that meets the requirements specified above. The geotextile should be laid smooth, without wrinkles or folds in the direction of construction traffic. Overlap adjacent rolls a minimum of 2 feet. Pin fabric overlaps or

place the building pad fill in a manner that will not separate the overlap during construction. Seams that have separated will require removal of the building pad fill to establish the required overlap. The geotextile may be eliminated if the building pad fill will not be subjected to wet weather and heavy construction traffic.

20. Place at least 12 inches of Select Fill to create the individual building pads, provided the subgrade is stiff and stable. If more than 12 inches of granular fill is required for grading purposes or to stabilize the subgrade under building pads, Granular Site Fill capped with a minimum of 12 inches of Select Fill can be used. Compact the building pad fill as specified in Item 11.
21. Provide at least 12 inches of Select Fill beneath all footings. Depending on the grading plan, trenching through the building pad may be required to place the structural fill beneath the footings. At most locations, we expect the footing excavations will terminate in silt. The bottom of the excavations should be left free of clods and disturbed soil. The subgrade at the bottom of the footing excavations should have a minimum undrained shear strength of 1,000 psf (to be confirmed by FEI during construction). Any soft soil present at the bottom of the excavation should be removed and replaced with additional Select Fill. In the event any footings extend to native gravel, the Select Fill may be reduced to a leveling course over the undisturbed gravels.
22. Prepare the subgrade for staging areas as described above for the building pad. We recommend that any staging areas subject to heavy truck or construction equipment or to wet weather should consist of at least 24 inches of granular fill (Select Fill or a combination of Granular Site Fill and Select Fill) over a Separation Geotextile. Do not allow continuous construction traffic on the rock section until a minimum of 24 inches of rock is placed.

### **Subgrade Preparation and Pavement Construction**

The required site grading for the proposed paved parking lots is not currently known. Subgrade preparation should be done in dry weather to avoid the need for subgrade stabilization and/or overexcavation of any remaining surficial fill.

23. Strip the existing ground  $\pm 2$  to 4 inches, or as required to remove roots and sod, or any existing demolition debris. Haul all strippings and demolition debris from the site.
24. Grade the subgrade as required. Do not reuse soils generated by site grading under any sidewalks, parking lots or foundation areas.
25. Strip any remaining unsuitable fill or other deleterious material. The extent or depth of additional site stripping should be established by an FEI representative during construction. We recommend that a unit

cost for overexcavation and replacement of unsuitable soil or fill be included in the construction bid documents.

26. Compact the subgrade under pavements to a depth of at least 12 inches. Compaction may not be practical if the soils are too wet of optimum. Therefore, the site work should not be attempted during wet weather and should be delayed until the subgrade soils are sufficiently dry or until weather permits efficient aeration.

If wet weather construction cannot be avoided, do not compact the subgrade. Instead, overexcavate the subgrade to provide a minimum 24-inch thick building pad constructed with compacted Select Fill or Granular Site Fill. The depth of the overexcavation should be established during construction based on actual subgrade conditions.

27. Place a Separation Geotextile under any areas to be used as a staging area, haul roads or subject to heavy traffic (e.g., at entrances). A Separation Geotextile is also recommended if overexcavation and additional subbase is planned in lieu of subgrade compaction.
28. Backfill the prepared subgrade with Select Fill immediately to reduce exposure to weather and compact to 95% relative compaction.
29. Proof-roll the prepared base rock. Overexcavate and replace any areas of base rock and/or subgrade pumping with additional compacted Select Fill.
30. Provide a minimum flexible pavement section of 2.5 inches of AC over 13 inches of base rock for all parking lots, parking stalls, and driveways not subject to buses or truck traffic. Use Select Fill as base rock under all pavements and compact as specified. Do not allow loaded trucks or heavy construction equipment on the finished base rock prior to paving.

Increase the pavement section to 4 inches of AC over 14 inches of base rock for bus lanes and driveways or any paved areas that will be subject to truck traffic.

We recommend a Separation Geotextile be placed at least under all bus lanes and driveways, but preferably under parking lots as well. Where dense gravels are shallow, the base rock thickness may be reduced. We recommend such an adjustment be made during construction based on actual conditions exposed during site grading.



### **Subgrade Preparation Under Playfield and Synthetic Turf Field**

We have assumed all site grading for the new play fields and the new synthetic turf field will be completed during dry weather (i.e., late summer or early fall). Otherwise, moisture conditioning and subgrade compaction will not be practical.

At the time this report was prepared, a site grading plan was not available for the new fields. Therefore, we do not know to what extent the subgrade for the new fields will include the existing topsoil within the track/soccer field or the underlying native silt.

The subgrade beneath the fields should be prepared as specified above for the building pads (or as specified by the turf manufacturer, if different). If soft subgrade conditions are present or develop this winter, additional mitigation measures will be required. Mitigation of a relatively thin (i.e., 12 inches or less) layer of soft, wet soil can be accomplished by aeration and re-compaction. If the soft layer is relatively deep, over-excavation and replacement with granular fill will be required. Other mitigation options include lime or cement stabilization. Development of measures for subgrade stabilization is beyond the present scope of work. We recommend the subgrade be examined prior to bidding (and after a site grading plan is known) to confirm the moisture levels in the soil. Options for mitigation, if needed, should be established at that time.

### **DESIGN REVIEW/CONSTRUCTION OBSERVATION/TESTING**

We should be provided the opportunity to review all drawings and specifications that pertain to site preparation, foundation construction and pavements. Preparation of the building pads and subgrade preparation for new fields will require field confirmation of the soil condition. Mitigation of any unsuitable fill or soil, ground water infiltration, or subgrade pumping will also require engineering review and judgment. That judgment should be provided by one of our representatives. Frequent field density tests should be run on all engineered fill, subgrade and base rock. We recommend that we be retained to provide the necessary construction observation.

### **VARIATION OF SUBSURFACE CONDITIONS, USE OF THIS REPORT AND WARRANTY**

The analysis, conclusions and recommendations contained herein are based on the assumption that the soil profiles and ground water levels encountered in the borings and test pits are representative of overall site conditions. No changes in the enclosed recommendations should be made without our approval. We will assume no responsibility or liability for any engineering judgment, inspection or testing performed by others.

This report was prepared for the exclusive use of Lane County School District 4J and their design consultants for the Howard Elementary School in Eugene, Oregon. Information contained herein should not be used for other building sites or for unanticipated construction without our written consent. This report is intended for planning and design purposes. Contractors using this information to estimate construction quantities or costs do so at their own risk. Our services do not

include any survey or assessment of potential surface contamination or contamination of the soil or ground water by hazardous or toxic materials. We assume that those services, if needed, have been completed by others.

Climate conditions in western Oregon typically consist of wet weather for almost half of the year (typically between mid-October and late May). The recommendations for foundation design and drainage are not intended to represent any warranty (expressed or implied) against the growth of mold, mildew or other organism that grows in a humid or moist environment.

Our work was done in accordance with generally accepted soil and foundation engineering practices. No other warranty, expressed or implied, is made.

DRAFT



# Appendix A

---

## *Figures*

DRAFT





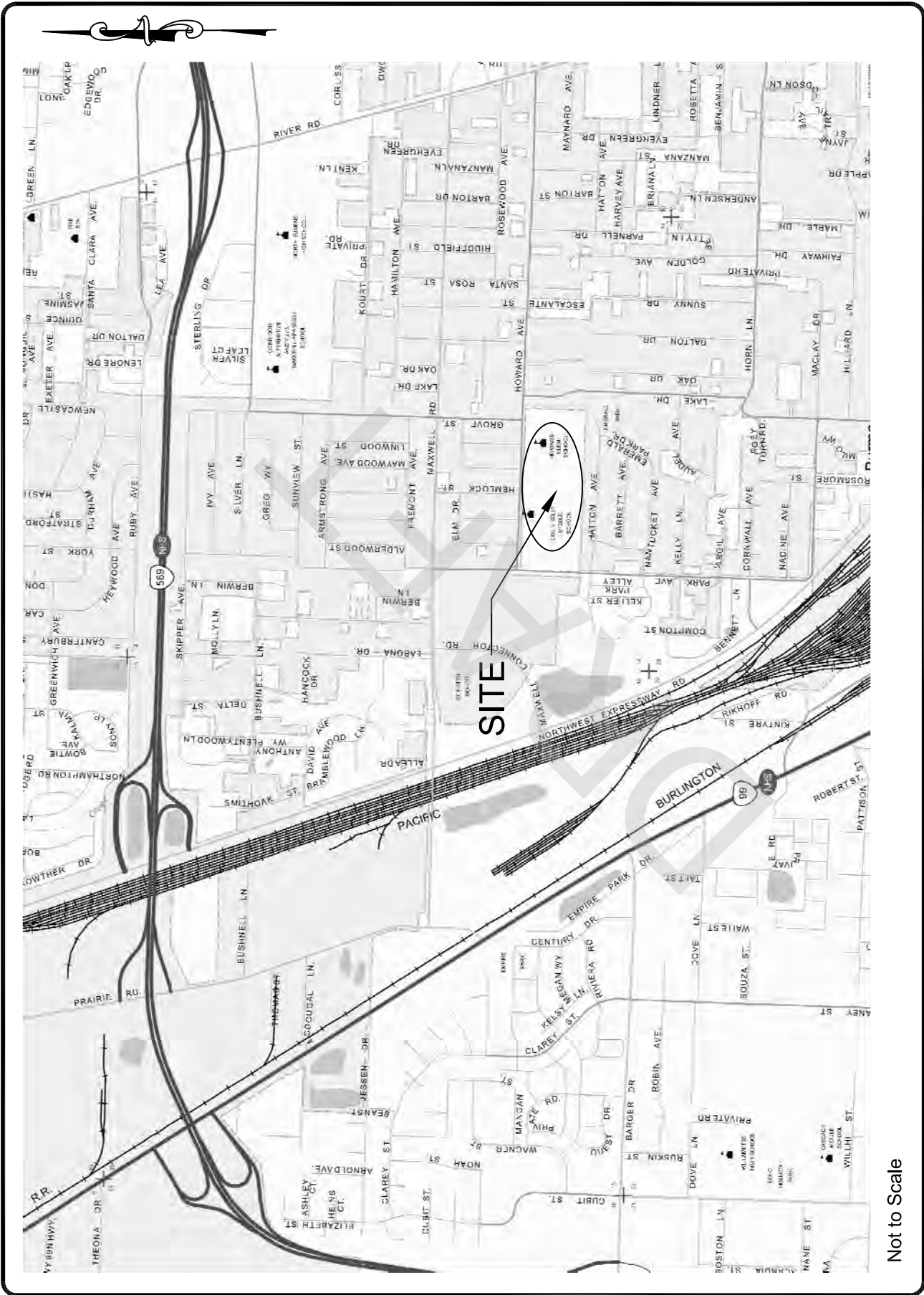


FIGURE NO.  
**1A**

**VICINITY MAP**  
HOWARD ELEMENTARY SCHOOL  
EUGENE, OREGON

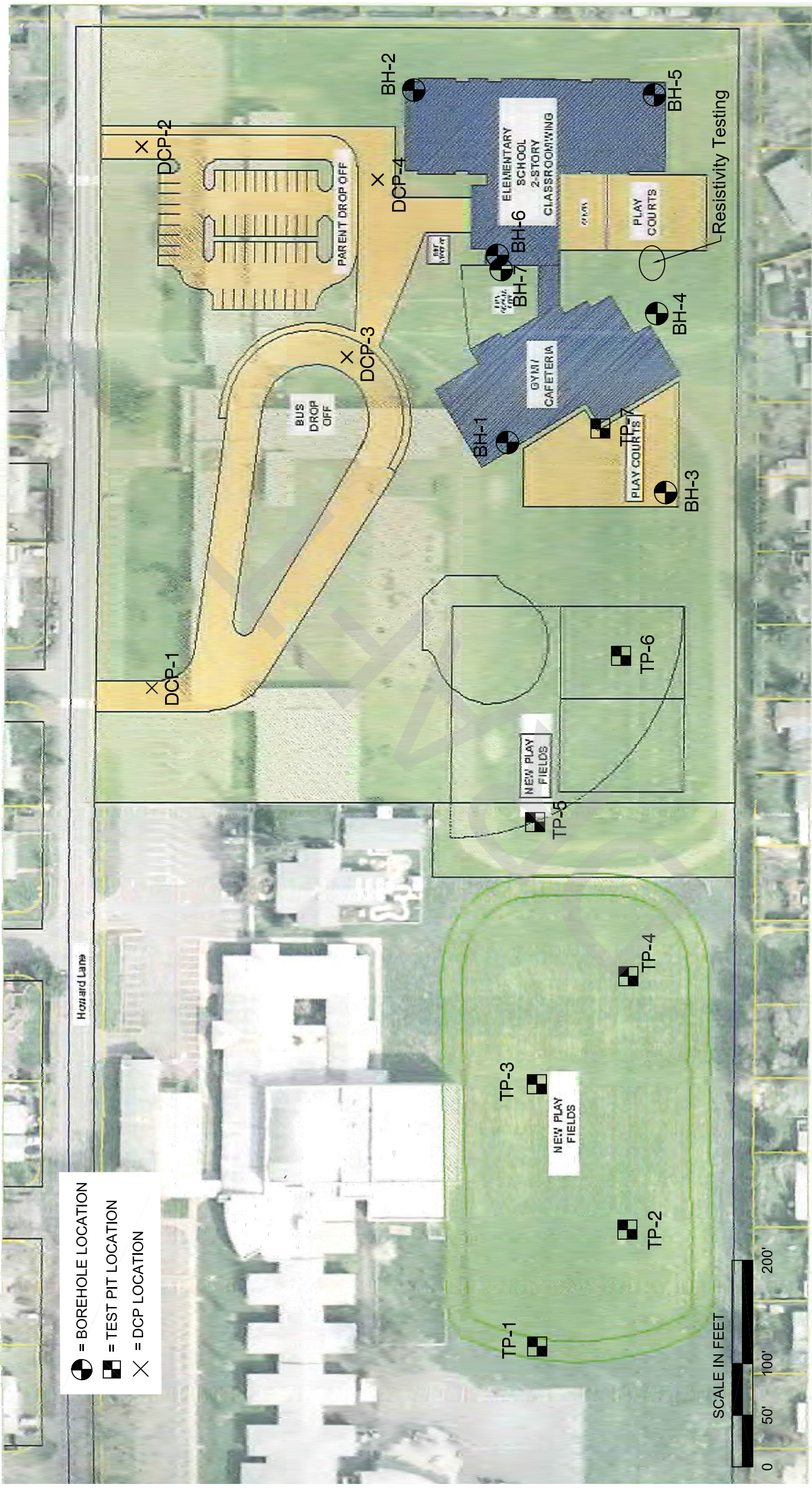
DATE NOV. 2013  
DWN. mdm  
APPR. \_\_\_\_\_  
REVIS. \_\_\_\_\_  
PROJECT NO. 2131078

**FOUNDATION ENGINEERING INC.**  
PROFESSIONAL GEOTECHNICAL SERVICES  
820 NW CORNELL AVENUE  
CORVALLIS, OR 97330-4517  
BUS. (541) 767-7645 FAX (541) 767-7650

Not to Scale

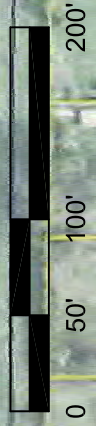






= BOREHOLE LOCATION  
 = TEST PIT LOCATION  
 = DCP LOCATION

SCALE IN FEET



NOTES:  
 1. EXPLORATION LOCATIONS ARE APPROXIMATE ONLY.  
 2. SEE REPORT FOR A DISCUSSION OF SUBSURFACE CONDITIONS.  
 3. BASE MAP PROVIDED BY PIVOT ARCHITECTURE.

**FOUNDATION ENGINEERING INC.**  
 PROFESSIONAL GEOTECHNICAL SERVICES  
 820 NW CORNELL AVENUE  
 CORVALLIS, OR 97330-4517  
 BUS. (541) 757-7645 FAX (541) 757-7650

DATE NOV. 2013  
 DWN. m.d.m  
 APPR. \_\_\_\_\_  
 REVIS. \_\_\_\_\_  
 PROJECT NO. 2131078

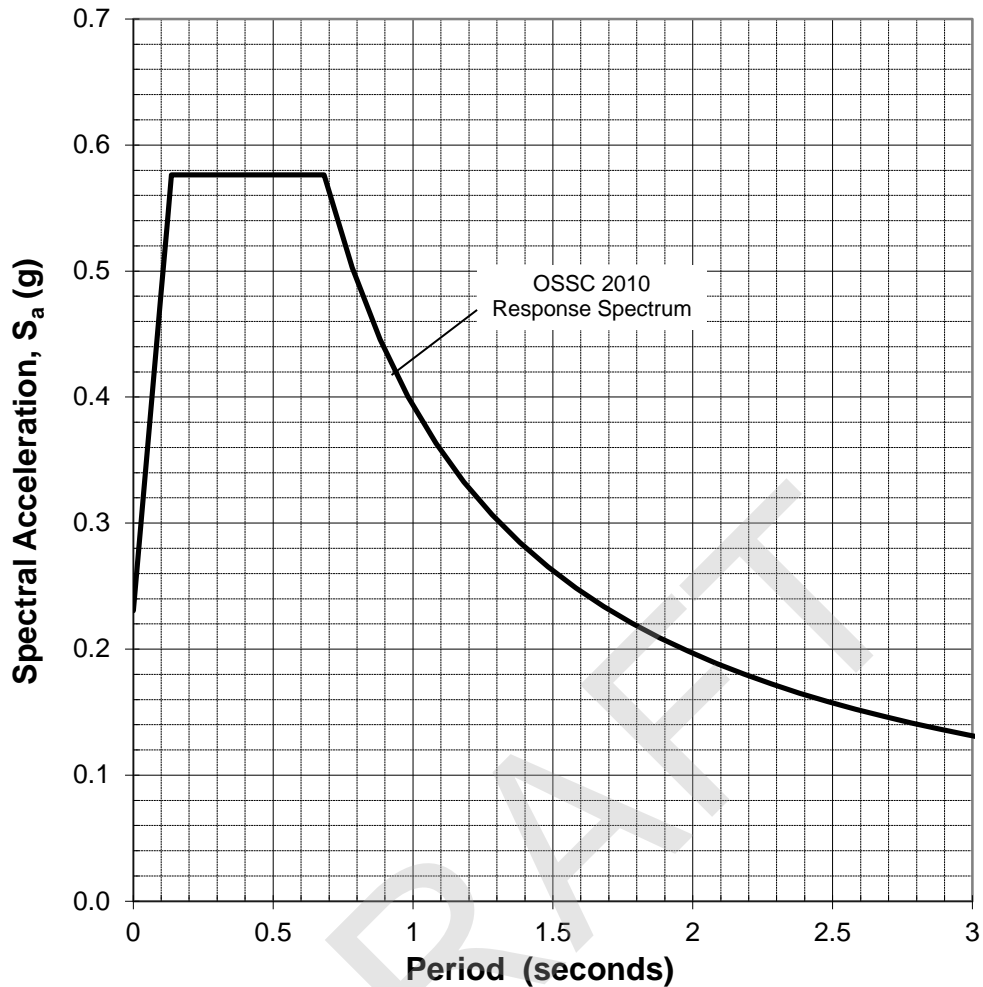
**SITE LAYOUT AND EXPLORATIONS**  
 HOWARD ELEMENTARY SCHOOL  
 EUGENE, OREGON

FIGURE NO.  
**2A**









**Notes:**

- The Design Response Spectrum is based on OSSC 2010 Section 1613 using the following parameters:
 

Site Class= D	Damping = 5%		
$S_S = 0.70$	$F_a = 1.24$	$S_{MS} = 0.86$	$S_{DS} = 0.58$
$S_1 = 0.35$	$F_v = 1.71$	$S_{M1} = 0.59$	$S_{D1} = 0.39$
- $S_S$  and  $S_1$  values for 5% damping are based on the USGS 2002 mapped maximum considered earthquake spectral accelerations for 2% probability of exceedence in 50 years. The corresponding peak ground acceleration on rock is 0.29g.
- $F_a$  and  $F_v$  were established based on OSSC 2010, Tables 1613.5.3(1) and 1613.5.3(2) using the selected  $S_S$  and  $S_1$  values.  $S_{DS}$  and  $S_{D1}$  values include a 2/3 reduction on  $S_{MS}$  and  $S_{M1}$  as discussed in OSSC 2010 Section 1613.5.4.
- Site location is: Latitude 44.0876, Longitude -123.1392.

**FIGURE 3A**  
**OSSC 2010 SITE RESPONSE SPECTRUM**  
**Howard Elementary School**  
**Corvallis, Oregon**  
**FEI Project 2131078**





# Appendix B

---

## *Boring and Test Pit Logs*

DRAFT





## DISTINCTION BETWEEN FIELD LOGS AND FINAL LOGS

A field log is prepared for each boring or test pit by our field representative. The log contains information concerning sampling depths and the presence of various materials such as gravel, cobbles, and fill, and observations of ground water. It also contains our interpretation of the soil conditions between samples. The final logs presented in this report represent our interpretation of the contents of the field logs and the results of the laboratory examinations and tests. Our recommendations are based on the contents of the final logs and the information contained therein and not on the field logs.

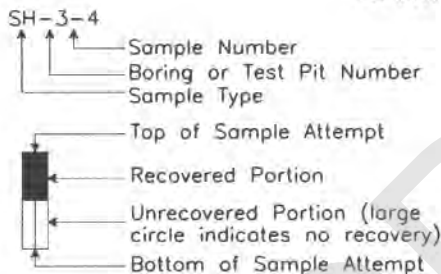
## VARIATION IN SOILS BETWEEN TEST PITS AND BORINGS

The final log and related information depict subsurface conditions only at the specific location and on the date indicated. Those using the information contained herein should be aware that soil conditions at other locations or on other dates may differ. Actual foundation or subgrade conditions should be confirmed by us during construction.

## TRANSITION BETWEEN SOIL OR ROCK TYPES

The lines designating the interface between soil, fill or rock on the final logs and on subsurface profiles presented in the report are determined by interpolation and are therefore approximate. The transition between the materials may be abrupt or gradual. Only at boring or test pit locations should profiles be considered as reasonably accurate and then only to the degree implied by the notes thereon.

## SAMPLE OR TEST SYMBOLS



- S - Grab Samples
- SS - Standard Penetration Test Sample (split-spoon)
- SH - Thin-walled Shelby Tube Sample
- C - Core Sample
- CS - Continuous Sample

- ▲ Standard Penetration Test Resistance equals the number of blows a 140 lb. weight falling 30 in. is required to drive a standard split-spoon sampler 1 ft. Practical refusal is equal to 50 or more blows per 6 in. of sampler penetration.
- Water Content (%).

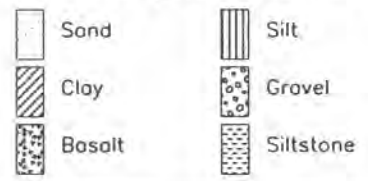
### UNIFIED SOIL CLASSIFICATION SYMBOLS

- |            |                     |
|------------|---------------------|
| G - Gravel | W - Well Graded     |
| S - Sand   | P - Poorly Graded   |
| M - Silt   | L - Low Plasticity  |
| C - Clay   | H - High Plasticity |
| Pt - Peat  | O - Organic         |

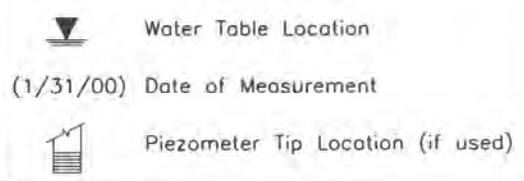
### FIELD SHEAR STRENGTH TEST

Shear strength measurements on test pit side walls, blocks of soil or Shelby tube samples are typically made with Torvane or pocket penetrometer devices.

### TYPICAL SOIL/ROCK SYMBOLS



### WATER TABLE



**FOUNDATION ENGINEERING INC.**  
**PROFESSIONAL GEOTECHNICAL SERVICES**

820 NW CORNELL AVE  
 CORVALLIS, OR 97330-4517  
 BUS. (541) 757-7645 FAX (541) 757-7650

## SYMBOL KEY BORING AND TEST PIT LOGS

## Explanation of Common Terms Used in Soil Descriptions

Field Identification	Cohesive Soils			Granular Soils	
	SPT	$S_u^*$ (tsf)	Term	SPT	Term
Easily penetrated several inches by fist.	0 - 1	< 0.125	Very Soft	0 - 4	Very Loose
Easily penetrated several inches by thumb.	2 - 4	0.125-0.25	Soft	5 - 10	Loose
Can be penetrated several inches by thumb with moderate effort.	5 - 8	0.25 - 0.50	Medium Stiff (Firm)	11 - 30	Medium Dense
Readily indented by thumb but penetrated only with great effort.	9 - 15	0.50 - 1.0	Stiff	31 - 50	Dense
Readily indented by thumbnail.	16 - 30	1.0 - 2.0	Very Stiff	> 50	Very Dense
Indented with difficulty by thumbnail.	31 - 60	> 2.0	Hard		

\* Undrained shear strength

Term	Soil Moisture Field Description
Dry	Absence of moisture. Dusty. Dry to the touch.
Damp	Soil has moisture. Cohesive soils are below plastic limit and usually moldable.
Moist	Grains appear darkened, but no visible water. Silt/clay will clump. Sand will bulk. Soils are often at or near plastic limit.
Wet	Visible water on larger grain surfaces. Sand and cohesionless silt exhibit dilatancy. Cohesive silt/clay can be readily remolded. Soil leaves wetness on the hand when squeezed. "Wet" indicates that the soil is wetter than the optimum moisture content and above the plastic limit.

Term	PI	Plasticity Field Test
Nonplastic	0 - 3	Cannot be rolled into a thread.
Low Plasticity	3 - 15	Can be rolled into a thread with some difficulty.
Medium Plasticity	15 - 30	Easily rolled into thread.
High Plasticity	> 30	Easily rolled and rerolled into thread.

Term	Soil Structure Criteria
Stratified	Alternating layers at least 1 inch thick - describe variation.
Laminated	Alternating layers at less than 1 inch thick - describe variation.
Fissured	Contains shears and partings along planes of weakness.
Slickensides	Partings appear glossy or striated.
Blocky	Breaks into lumps - crumbly.
Lensed	Contains pockets of different soils - describe variation.

Term	Soil Cementation Criteria
Weak	Breaks under light finger pressure.
Moderate	Breaks under hard finger pressure.
Strong	Will not break with finger pressure.

Depth Feet	Soil and Rock Description and Comments	Log	Elev. Depth 397.7	Samples	▲ SPT, N-Value	● Moisture, %	Installations/ Water Table
					☐ Recovery	▣ RQD., %	
1	Stiff clayey SILT; brown, moist, medium plasticity, (alluvium). Fine roots to ±4 inches.		0.0	S-1-1		●	Capped with native soil
2							
3				SS-1-2	▲ 7	●	Backfilled with bentonite chips
4							
5	Grades to low plasticity silt below ±5 feet. Field vane on SH-1-3: $S_u > 1$ tsf at ±5 feet. Iron-stained below ±5 feet.			SH-1-3		●	
6							
7	Field vane on SH-1-3: $S_u = 0.6$ tsf at ±7 feet.			SS-1-4	▲ 6	●	
8							
9							
10	Dense sandy GRAVEL, trace to some silt; brown, moist, low plasticity silt, fine to coarse sand, fine to coarse, subrounded to rounded gravel, (alluvium).		387.7 10.0	SS-1-5		▲ 29	
11							
12							
13							
14							
15				SS-1-6		▲ 35	
16	Silty sand lens (±6 inches) at ±16 feet.		381.2 16.5				
	BOTTOM OF BORING						

Project No.: 2131078

Surface Elevation: 397.7 feet (Approx.)

Date of Boring: November 13, 2013

Boring Log: BH-1

Howard Elementary School

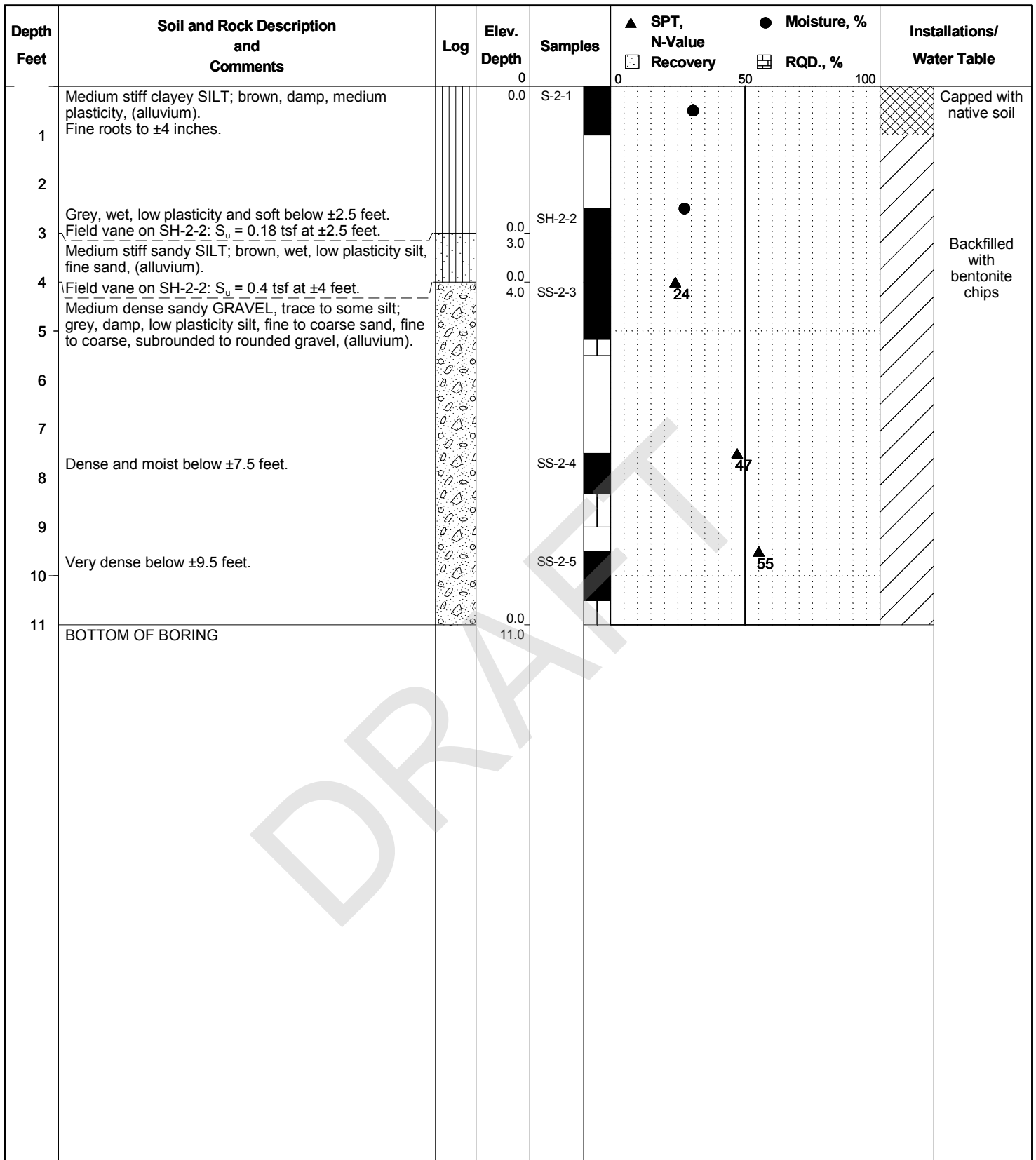
Eugene, Oregon



Foundation Engineering, Inc.







Project No.: 2131078

Surface Elevation: N/A (Approx.)

Date of Boring: November 11, 2013

Boring Log: BH-2

Howard Elementary School

Eugene, Oregon



Foundation Engineering, Inc.



Depth Feet	Soil and Rock Description and Comments	Log	Elev. Depth 398.39	Samples	▲ SPT, N-Value	● Moisture, %	Installations/ Water Table
					☐ Recovery	☐ RQD., %	
1	Stiff clayey SILT; brown, damp, medium plasticity, (alluvium). Fine roots to ±4 inches.		0.0	S-3-1		●	Capped with native soil
2							
3				SS-3-2	▲ 8	●	Backfilled with bentonite chips
4	Grades to low plasticity silt with depth below ±5 feet.						
5	Moist below ±6.5 feet.			SH-3-3		●	
6							
7	Field vane on SH-3-3: $S_u = 0.8$ tsf at ±6.5 feet.			SS-3-4	▲ 8	●	
8							
9							
10				SS-3-5	▲ 6		
11							
12							
13							
14							
15	Sandy below ±15 feet.						
16	Medium dense gravelly SAND, some silt; grey-brown, moist, low plasticity silt, fine to coarse sand, fine to coarse, subrounded to rounded gravel, (alluvium). BOTTOM OF BORING	○	382.9 15.5 381.9 16.5	SS-3-6	▲ 26		

Project No.: 2131078

Surface Elevation: 398.4 feet (Approx.)

Date of Boring: November 13, 2013

Boring Log: BH-3

Howard Elementary School

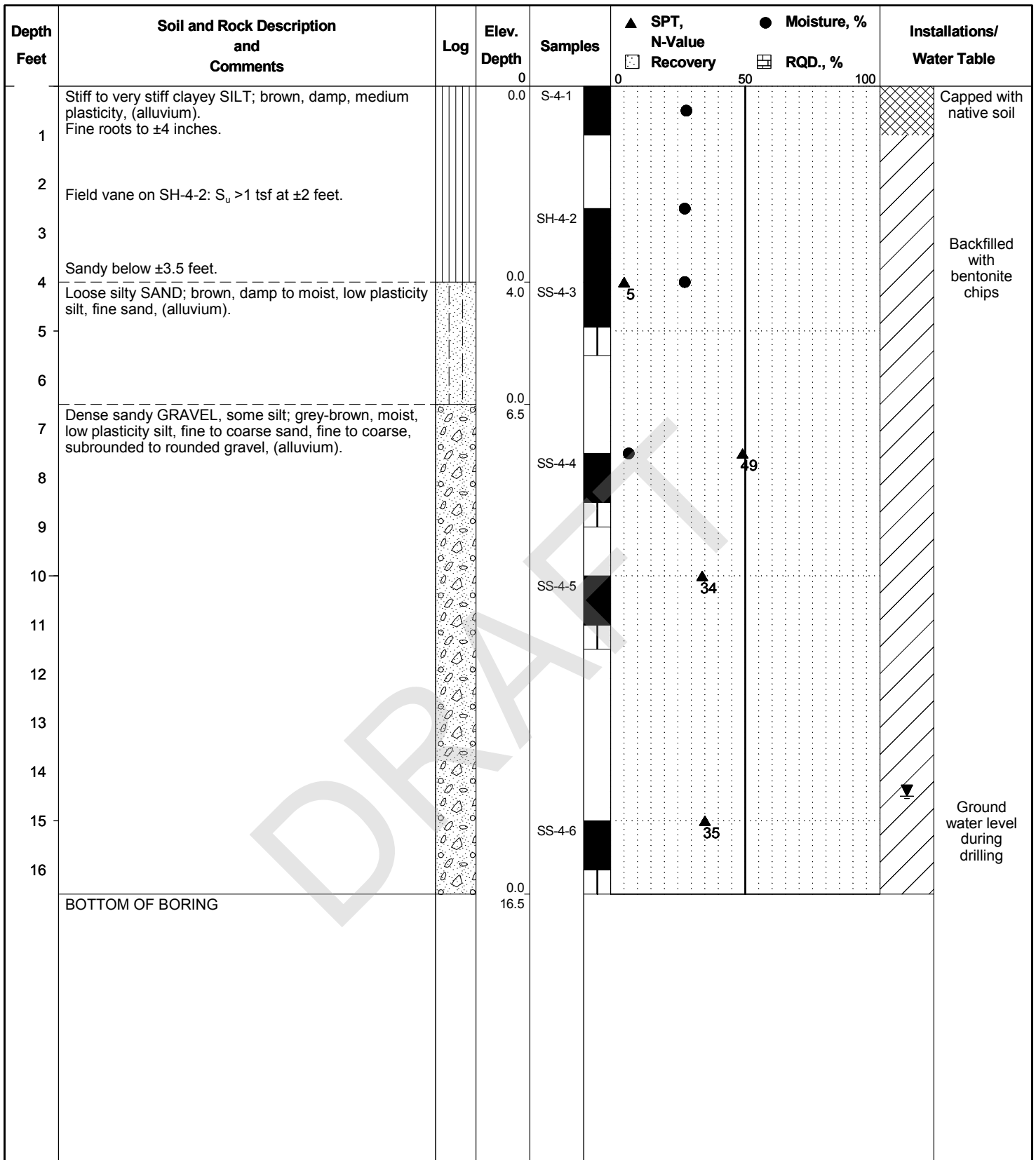
Eugene, Oregon



Foundation Engineering, Inc.



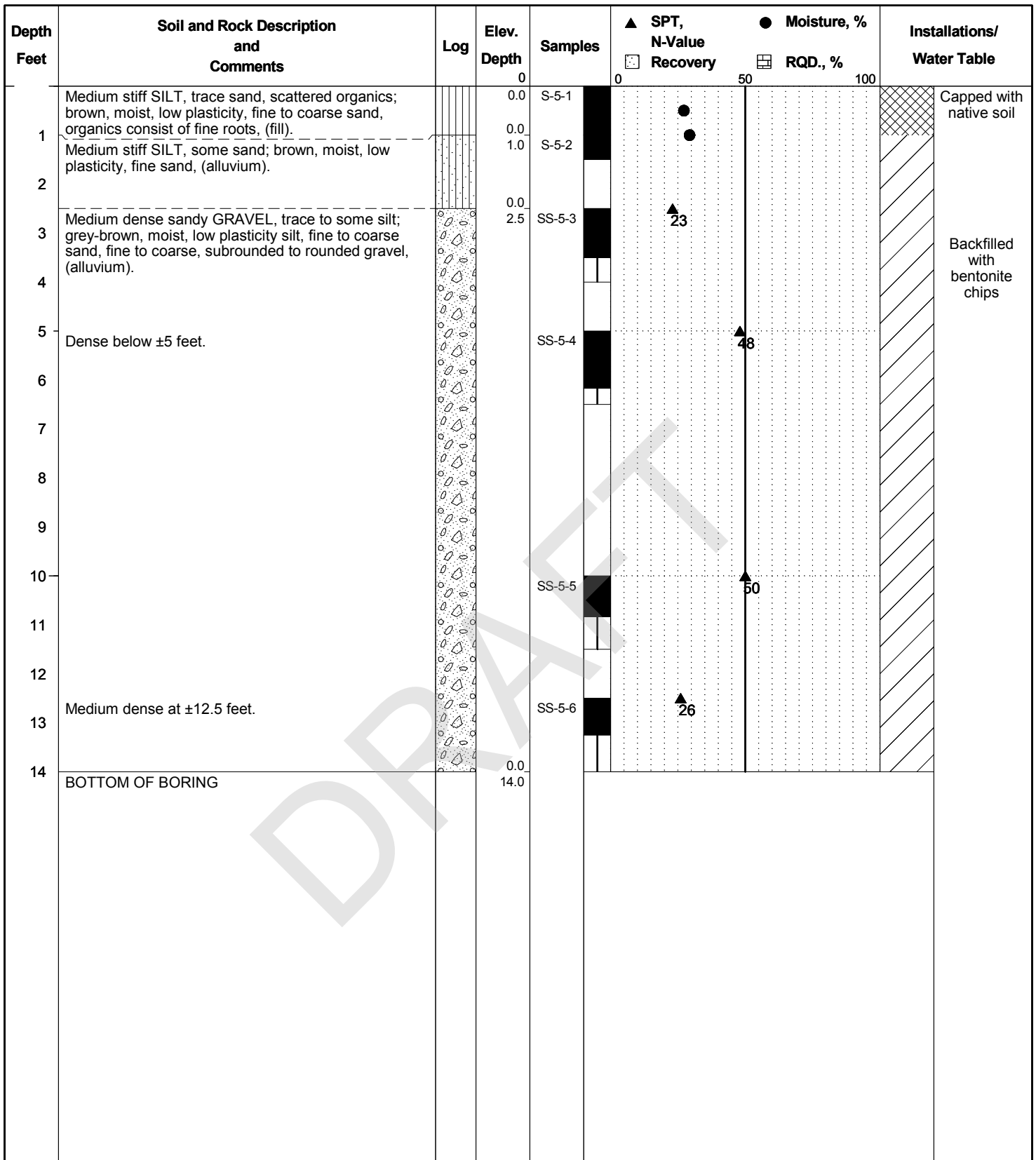




Project No.: 2131078  
 Surface Elevation: N/A (Approx.)  
 Date of Boring: November 13, 2013

**Boring Log: BH-4**  
**Howard Elementary School**  
**Eugene, Oregon**





Project No.: 2131078

Surface Elevation: N/A (Approx.)

Date of Boring: November 11, 2013

Boring Log: BH-5

Howard Elementary School

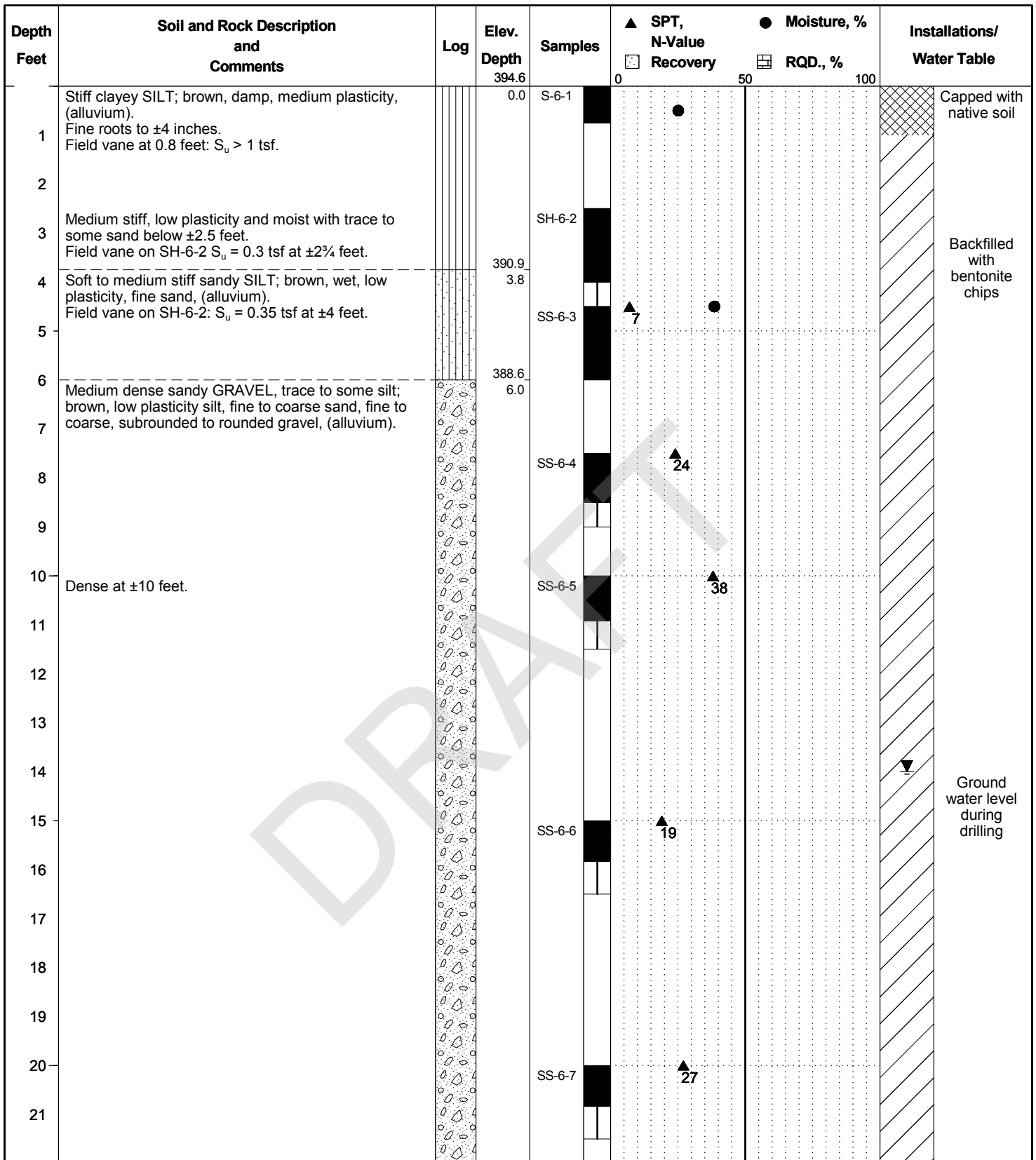
Eugene, Oregon



Foundation Engineering, Inc.







Project No.: 2131078

Surface Elevation: 394.6 feet (Approx.)

Date of Boring: November 13, 2013

Boring Log: BH-6

Howard Elementary School

Eugene, Oregon



Foundation Engineering, Inc.

Depth Feet	Soil and Rock Description and Comments	Log	Elev. Depth	Samples	▲ SPT, N-Value	● Moisture, %	Installations/ Water Table
					☐ Recovery	☐ RQD., %	
			372.6		0	50	100
23							
24							
25	Dense sandy GRAVEL, trace to some silt; brown, wet, low plasticity silt, fine to coarse sand, fine to coarse, subrounded to rounded gravel, (alluvium).		369.6	SS-6-8	▲ 40		
26			25.0				
27	Scattered cobbles below ±27 feet.						
28							
29							
30				SS-6-9	▲ 38		
31							
32							
33							
34							
35	Very dense and grey-brown below ±35 feet.			SS-6-10	▲ 67		
36							
	BOTTOM OF BORING		358.1 36.5				

Project No.: 2131078

Surface Elevation: 394.6 feet (Approx.)

Date of Boring: November 13, 2013

Boring Log: BH-6

Howard Elementary School

Eugene, Oregon



Foundation Engineering, Inc.

Depth Feet	Soil and Rock Description and Comments	Log	Elev. Depth	Samples	▲ SPT, N-Value	● Moisture, %	Installations/ Water Table
					☐ Recovery	☐ RQD., %	
0			0		0	50	100
1	Stiff clayey SILT; brown, damp, medium plasticity, (alluvium). Fine roots to ±4 inches.		0.0				Capped with native soil
2							
3	Grades to low plasticity silt with trace to some sand below ±3.5 feet.						
4	Field vane on SH-7-1: $S_u$ 0.5 tsf at ±3.5 feet.			SH-7-1			Backfilled with bentonite chips
5	Soft sandy SILT; brown, wet, low plasticity, fine sand, (alluvium). Field vane on SH-7-1: $S_u$ = 0.25 tsf at ±5 feet.		0.0 4.8				
6				SS-7-2	▲ 5		
7	Medium dense sandy GRAVEL, trace to some silt; brown, wet, low plasticity, fine to coarse sand, fine to coarse, subrounded to rounded gravel, (alluvium). BOTTOM OF BORING		0.0 6.5 0.0 7.0				

Project No.: 2131078

Surface Elevation: N/A (Approx.)

Date of Boring: November 13, 2013

Boring Log: BH-7

Howard Elementary School

Eugene, Oregon



Foundation Engineering, Inc.





Comments	Depth, Feet	Sample #	Location	Class Symbol	Water Table	C, TSF	Symbol	Soil and Rock Description
Surface: grass. Fine roots to ±2 inches.  No seepage or groundwater encountered to the limit of excavation.	1-	S-1-1	█			0.8 tsf		Stiff SILT, trace sand; brown, damp, low plasticity, fine to coarse sand, (topsoil/fill).
	2-							
	3-	S-1-2	█			0.5 tsf		Medium stiff clayey SILT; brown, moist, medium plasticity, (alluvium).
	4-	S-1-3	█			0.5 tsf		Medium dense silty GRAVEL, some sand, scattered cobbles; brown, moist, low plasticity silt, fine to coarse sand, fine to coarse, subrounded to rounded gravel, cobbles up to ±4 inches in diameter, (alluvium).
	5-							BOTTOM OF TEST PIT
	6-							
	7-							
	8-							
	9-							
	10-							
	11-							

Project No.: 2131078

Surface Elevation: 397.4 feet (Approx.)

Date of Test Pit: November 14, 2013

**Test Pit Log: TP-1**

**Howard Elementary School**

**Eugene, Oregon**

Comments	Depth, Feet	Sample #	Location	Class Symbol	Water Table	C, TSF	Symbol	Soil and Rock Description
Surface: grass. Fine roots to ±4 inches.  No seepage or groundwater encountered to the limit of excavation.	1-	S-2-1	█			0.7 tsf		Stiff SILT, trace sand and gravel; brown, damp, low plasticity, fine to coarse sand, fine, subrounded gravel, (topsoil/fill).
	2-	S-2-2	█			1 tsf		Stiff clayey SILT; brown, moist, medium plasticity, (alluvium).
	3-							
	4-							Medium dense silty GRAVEL, some sand; brown, moist, low plasticity silt, fine to coarse sand, fine to coarse, subrounded to rounded gravel, (alluvium).
	5-							BOTTOM OF TEST PIT
	6-							
	7-							
	8-							
	9-							
	10-							
	11-							

Project No.: 2131078

Surface Elevation: 397.1 feet (Approx.)

Date of Test Pit: November 14, 2013

**Test Pit Log: TP-2**

**Howard Elementary School**

**Eugene, Oregon**

Comments	Depth, Feet	Sample #	Location	Class Symbol	Water Table	C, TSF	Symbol	Soil and Rock Description
Surface: grass. Fine roots to ±7 inches.  No seepage or groundwater encountered to the limit of excavation.	1-	S-3-1	█			0.5 tsf		Stiff SILT, trace sand; brown, moist, low plasticity, fine to coarse sand, (topsoil/fill).
	2-	S-3-2	█			0.9 tsf		Stiff clayey SILT; brown, moist, medium plasticity, (alluvium).
	3-							BOTTOM OF TEST PIT
	4-							
	5-							
	6-							
	7-							
	8-							
	9-							
	10-							
	11-							

Project No.: 2131078

Surface Elevation: 397.5 feet (Approx.)

Date of Test Pit: November 14, 2013

**Test Pit Log: TP-3**

**Howard Elementary School**

**Eugene, Oregon**

Comments	Depth, Feet	Sample #	Location	Class Symbol	Water Table	C, TSF	Symbol	Soil and Rock Description
Surface: grass. Fine roots to ±4 inches.  No seepage or groundwater encountered to the limit of excavation.	1-	S-4-1	█			0.9 tsf		Stiff SILT, trace sand and gravel; brown, damp, low plasticity, fine to coarse sand, fine, subrounded gravel, (topsoil/fill).
	2-	S-4-2	█			0.6 tsf		Stiff clayey SILT; brown, moist, medium plasticity, (alluvium).
	3-	S-4-3	█			0.7 tsf		Grades to low plasticity silt below ±5 feet.  Iron-stained below ±8 feet.  BOTTOM OF TEST PIT
	4-							
	5-							
	6-							
	7-	S-4-4	█					
	8-							
	9-							
	10-							
	11-							

Project No.: 2131078

Surface Elevation: 397.5 feet (Approx.)

Date of Test Pit: November 14, 2013

**Test Pit Log: TP-4**

**Howard Elementary School**

**Eugene, Oregon**

Comments	Depth, Feet	Sample #	Location	Class Symbol	Water Table	C, TSF	Symbol	Soil and Rock Description
Surface: grass. Fine roots to ±4 inches.  No seepage or groundwater encountered to the limit of excavation.	1-	S-5-1	█			0.35 tsf		Medium stiff SILT, trace sand and gravel; brown, moist, low plasticity, fine to coarse sand, fine, subrounded gravel, (topsoil/fill).
	2-	S-5-2	█					0.75 tsf
	3-	S-5-3	█					
	4-							
	5-							
	6-							
	7-							
	8-							
	9-							
	10-							
	11-							

Project No.: 2131078

**Test Pit Log: TP-5**

Surface Elevation: 398.0 feet (Approx.)

**Howard Elementary School**

Date of Test Pit: November 14, 2013

**Eugene, Oregon**

Comments	Depth, Feet	Sample #	Location	Class Symbol	Water Table	C, TSF	Symbol	Soil and Rock Description
Surface: grass. Fine roots to ±4 inches.  No seepage or groundwater encountered to the limit of excavation.	1-	S-6-1	█			0.6 tsf		Stiff SILT, trace sand; brown, damp, low plasticity, fine to coarse sand, (topsoil/fill).
	2-	S-6-2	█					0.75 tsf
	3-							
	4-							
	5-							
	6-							
	7-							
	8-							
	9-							
	10-							
	11-							

Project No.: 2131078

**Test Pit Log: TP-6**

Surface Elevation: 398.6 feet (Approx.)

**Howard Elementary School**

Date of Test Pit: November 14, 2013

**Eugene, Oregon**

Comments	Depth, Feet	Sample #	Location	Class Symbol	Water Table	C, TSF	Symbol	Soil and Rock Description
Surface: grass. Fine roots to ±4 inches.  No seepage or groundwater encountered to the limit of excavation.	1-	S-7-1	█					Stiff clayey SILT; brown, damp, medium plasticity, (alluvium).
	2-							
	3-	S-7-2	█					
	4-		█					BOTTOM OF TEST PIT
	5-							
	6-							
	7-							
	8-							
	9-							
	10-							
	11-							

Project No.: 2131078

Surface Elevation: 398.4 feet (Approx.)

Date of Test Pit: November 14, 2013

**Test Pit Log: TP-7**

**Howard Elementary School**

**Eugene, Oregon**

DRAFT





# Appendix C

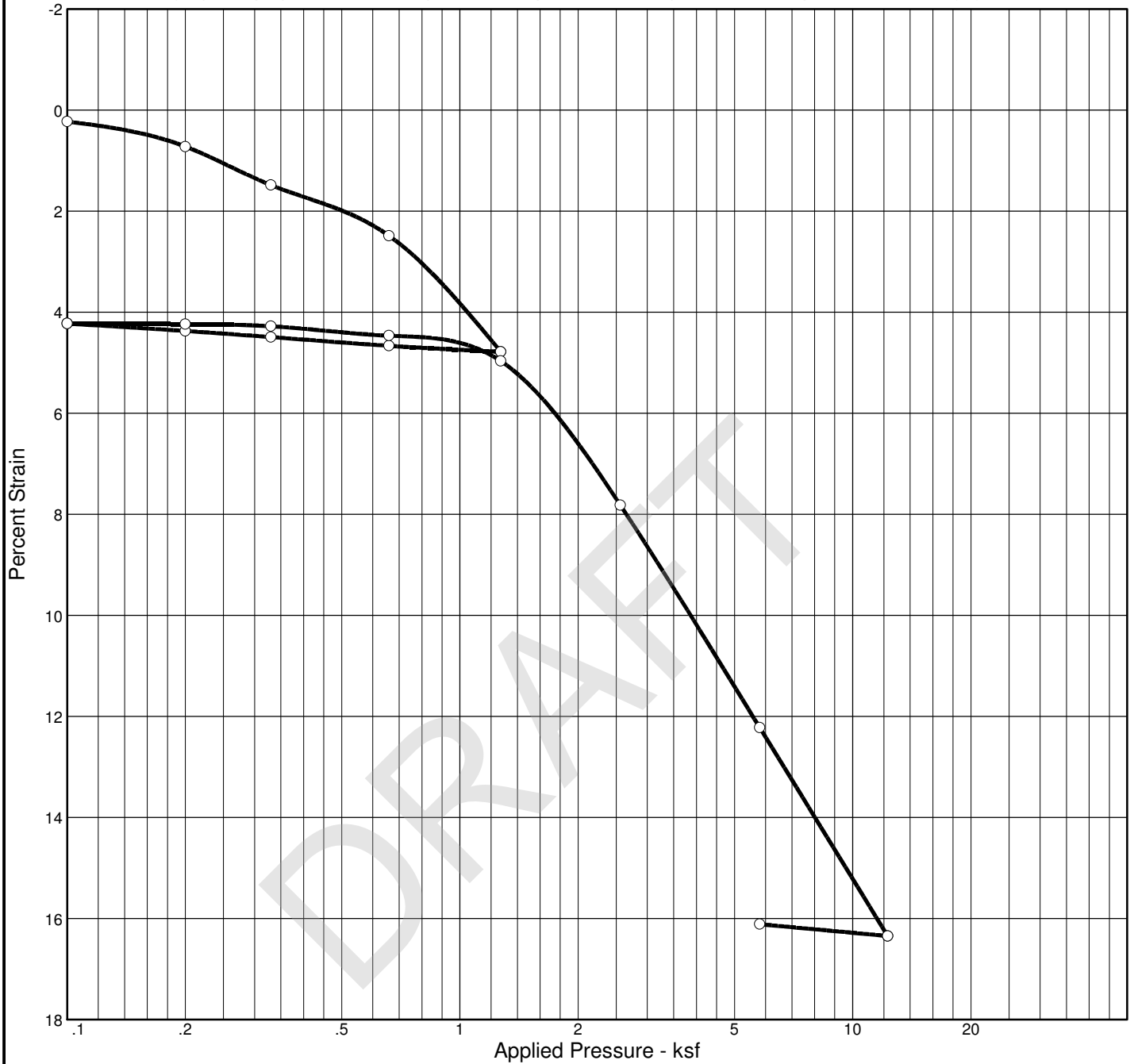
---

## *Field and Laboratory Test Results*

DRAFT



# CONSOLIDATION TEST REPORT - ASTM D2435



Natural Sat.	Moist.	Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (ksf)	P <sub>c</sub> (ksf)	C <sub>c</sub>	C <sub>r</sub>	Swell Press. (ksf)	Swell %	e <sub>0</sub>
							1.10					

MATERIAL DESCRIPTION	USCS	AASHTO
Brown, stiff, medium plasticity, clayey SILT		

<p><b>Project No.</b> 2136001-527    <b>Client:</b> Foundation Engineering, Inc.; Project #2131078</p> <p><b>Project:</b> Howard Elementary School</p> <p><b>Source:</b> 5329                      <b>Sample No.:</b> SH-7-1                      <b>Elev./Depth:</b> 3.5-5.5'</p> <p style="text-align: center;">CONSOLIDATION TEST REPORT - ASTM D2435</p> <p style="text-align: center;"><b>FEI Testing &amp; Inspection, Inc.</b> Corvallis, OR</p>	<p><b>Remarks:</b></p>
---	------------------------

Figure 1C

**Table 1C. Atterberg Limits, Natural Water Contents, and Percent Fines  
 (Borehole Samples)**

Sample Number	Sample Depth (feet)	Moisture Content (percent)	LL	PL	PI	USCS Classification	Percent Fines
S-1-1	0-1.0	30.6					
SS-1-2	2.5-4.0	32.8	56	33	23	MH	
SH-1-3	5.0-7.0	40.0					
SS-1-4	7.0-8.5	35.0	43	31	12	ML	
S-2-1	0-1.0	30.6					
SH-2-2	2.5-4.0	27.4					
S-3-1	0-1.0	30.5					
SS-3-2	2.5-4.0	28.4					
SH-3-3	5.0-7.0	36.1					
SS-3-4	7.0-8.5	30.0					
S-4-1	0-1.0	28.1					
SH-4-2	2.5-4.0	27.5					
SS-4-3	4.0-5.5	27.5					47.8
SS-4-4	7.5-9.0	6.7					7.2
S-5-1	0-1.0	27.2					
SS-5-2	1.0-1.5	29.3					
S-6-1	0-0.8	25.1					
SH-6-2	2.5-4.5	35.6					
SS-6-3	4.5-6.0	38.5					
SH-7-1	3.5-5.5	32.8					64.8
SS-7-2	5.5-7.0	36.8					



**Table 1C. Atterberg Limits, Natural Water Contents, and Percent Fines  
 (Test Pit Samples)**

Sample Number	Sample Depth (feet)	Moisture Content (percent)	LL	PL	PI	USCS Classification	Percent Fines
S-1-1	0.5-1.5	27.2					
S-1-2	2.5-3.5	32.7					
S-2-1	0-1.0	25.3	42	29	13	ML	
S-3-1	0-0.8	28.8					
S-3-2	1.0-2.	36.4					
S-4-2	1.0-2.0	40.3	59	39	20	MH	
S-5-1	0-0.5	25.5					
S-5-2	1.0-2.0	25.0					
S-6-1	0.5-1.5	21.7					
S-6-2	2.0-3.0	37.2					

**Table 2C. pH Test Results (ASTM G51)**

Sample Number	Sample Depth (ft)	Sample Description	pH
SS-4-3	4.0 – 5.5	Silty SAND	6.2
SS-5-1	0.0 – 1.0	SILT, trace sand, scattered organics	6.3

**Table 3C. Summary of Resistivity Testing**

Location	Pin Spacing (ft.)	Resistivity ( $\Omega$ -cm)
Near BH-4 (See Figure 2A)	2	3,064
	4	3,983
	6	5,171
	8	6,128

**Table 4C. Summary of DCP Test Results**

Test Hole	Initial Test Depth (inches)	Soil Description	<sup>1</sup> Average DCP (mm/blow)	<sup>2</sup> Average Mr (psi)	<sup>3</sup> Corrected Mr (psi)
DCP-1	1	Medium stiff, clayey SILT (alluvium)	67.7	9,474	3,126
DCP-2	1	Medium stiff, clayey SILT (alluvium)	69.7	9,368	3,091
DCP-3	1	Stiff, clayey SILT (alluvium)	34.4	12,331	4,069
DCP-4	1	Stiff, clayey SILT (alluvium)	25.2	13,931	4,597

- Notes:**
1. DCP (mm/blow) based on the average of several readings from the initial test depth.
  2. Mr value based on average DCP value at the test depth and the ODOT recommended correlation:  $M_r = 49023(DCP)^{-0.39}$ . Values may vary slightly due to rounding.
  3. Corrected Mr values are based on the ODOT recommended correction factors of 0.33 for fine-grained soil.





# Appendix D

---

## *Seismic Hazard Study*

DRAFT





**HOWARD ELEMENTARY SCHOOL  
SEISMIC HAZARD STUDY  
EUGENE, OREGON**

**INTRODUCTION**

A seismic hazard study was completed to identify potential geologic and seismic hazards and evaluate the effect those hazards may have on the proposed project. The study fulfills the requirements presented in the 2010 Oregon Structural Specialty Code, Section 1803.7, for site-specific seismic hazard reports for essential and hazardous facilities, and major and special-occupancy structures (OSSC, 2010).

**LITERATURE REVIEW**

Available geologic and seismic publications and maps were reviewed to characterize the local and regional geology and evaluate relative seismic hazards at the site. The literature review included geologic and seismic hazard studies completed in western Lane County and the Eugene/Springfield metropolitan area. Information from several geotechnical and seismic hazard investigations completed by Foundation Engineering, Inc. (FEI) and local water well logs, available from the Oregon Department of Water Resources (ODWR) website were also reviewed to help establish the subsurface conditions.

**SEISMIC CONSIDERATIONS**

**Regional Geologic and Tectonic Setting**

The site is located at the southern end of the Willamette Valley, which is a broad north-south-trending basin separating the Coast Range to the west from the Cascade Range to the east. In the early Eocene ( $\pm 50$  to 58 million years ago), the Willamette Valley was part of a broad continental shelf extending west from the Western Cascades beyond the present coastline (Orr and Orr, 1999). Basement rock underlying most of the Valley includes Siletz River Volcanics, which erupted as part of a submarine oceanic island-arc. The thickness of the volcanic basement rock is unknown, but is estimated to be  $\pm 3$  to 4 miles (Yeats et al., 1996). The island-arc collided with and was accreted to the western margin of the converging North American plate near the end of the early Eocene. Volcanism subsided and a fore arc basin was created. The basin was then infilled (primarily to the south) with marine sediments of the Flournoy, Yamhill, Spencer and Eugene Formations throughout the late Eocene and Oligocene, and terrestrial sedimentary and volcanic deposits of the late Eocene Fisher Formation, Miocene-Oligocene Little Butte Volcanics and other basaltic flow and volcanoclastic sedimentary rocks (Orr and Orr, 1999; Madin and Murray, 2006; McClaughry et al., 2010).

After emerging from a gradually shallowing ocean, the marine and volcanic formations were covered by terrestrial Columbia River Basalt (middle Miocene;  $\pm 17$  to 10 million years ago). The basalt poured through the Columbia Gorge from northeastern Oregon and southwestern Washington, spreading as far south as Salem with some flows reaching west to the Pacific Ocean. Uplift and tilting of the

Coast Range and the Western Cascades during the late Miocene formed the trough-like configuration of the Willamette Valley. Thick layers of Pleistocene and Holocene fluvial and floodplain deposits blanket the Columbia River Basalt (northern Willamette Valley) and older Tertiary deposits (Orr and Orr, 1999).

The Southern Willamette Valley is located  $\pm 130$  miles inland from the surface expression of the Cascadia Subduction Zone (CSZ) (Peterson et al., 1986; Goldfinger et al., 1992; Geomatrix Consultants, 1995). The CSZ is a converging, oblique plate boundary where the Juan de Fuca plate is being subducted beneath the western edge of the North American continent (Geomatrix Consultants, 1995). The CSZ extends from central Vancouver Island in British Columbia, Canada, through Washington and Oregon to Northern California. The CSZ is capable of generating earthquakes within the descending Juan de Fuca plate (intraplate), along the inclined interface between the two plates (interface), or within the overriding North American Plate (crustal) (Weaver and Shedlock, 1996). Western Oregon is located in an area of potentially high seismic activity due to its proximity to the CSZ.

### **Local Faulting**

A review of nearby faults was completed to establish the seismic setting and the seismic sources. Numerous concealed and inferred crustal faults are located within  $\pm 20$  miles of Eugene (Yeats et al., 1996; Madin and Murray, 2006). However, none of these faults show any evidence of movement in the last  $\pm 1.6$  million years (Geomatrix Consultants, 1995; USGS, 2006). Four potentially active Quaternary ( $< 1.6$  million years or less) crustal fault zones have been mapped within  $\pm 40$  miles of the site (Geomatrix Consultants, 1995; Personius et al., 2003; USGS, 2006; USGS, 2013) and are listed in Table 1D. The approximate locations of these faults in the central Willamette Valley are shown on Figure 1D (attached) (Personius et al., 2003).

**Table 1D. Potentially Active Quaternary Crustal Faults within  $\pm 40$  miles of Howard Elementary School, Eugene**

<b>Fault Name</b>	<b>Length (miles)</b>	<b>Last Known Activity</b>	<b>Distance from Site (miles)</b>	<b>Slip Rate (mm/yr)</b>
Upper Willamette River (#863)	$\pm 27$	$< 1.6$ million years	$\pm 25$ SE	$< 0.20$
Owl Creek (#870)	$\pm 9$	$< 750,000$ years	$\pm 30$ N	$< 0.20$
Unnamed faults near Sutherlin (#862)	$\pm 17$	$< 750,000$ years	$\pm 33$ SW	$< 0.20$
Corvallis (#869)	$\pm 25$	$< 1.6$ million years	$\pm 35$ NW	$< 0.20$

**Note:** Fault data based on USGS, 2006 and USGS, 2013.

The Owl Creek fault is the only fault considered a USGS Class A fault (geologic evidence supporting tectonic movement in the Quaternary with movement known or presumed to be associated with large-magnitude earthquakes). The remaining three are Class B faults.

The source of the coseismic displacement on faults located within the Cascadia forearc (along the coast) is not fully known. The displacement might be caused by subduction zone megathrust earthquakes or other smaller earthquakes within the North American plate (USGS, 2006). The USGS (2002) interactive deaggregation indicates that the primary seismic sources affecting the site are the CSZ faults. Additional fault information can be found in the literature (Personius et al., 2003; USGS, 2006).

### **Historic Earthquakes**

No significant interface (subduction zone) earthquakes have occurred on the CSZ in historic times; however, several large-magnitude ( $>M \sim 8.0$ ,  $M =$  unspecified magnitude scale) subduction zone earthquakes are thought to have occurred in the past few thousand years. This is evidenced by the discovery of tsunami inundation deposits, combined with geologic evidence for episodic subsidence along the Oregon and Washington coasts (Peterson et al., 1993; Atwater et al., 1995). The Oregon Department of Geology and Mineral Industries (DOGAMI) and USGS estimates the maximum magnitude of an interface subduction zone earthquake ranges from moment magnitude ( $M_w$ ) 8.5 to  $M_w$  9.0 (Wang and Leonard, 1996; Wang et al., 1998; Wang et al., 2001; Petersen et al., 2008), and the rupture may potentially occur along the entire length of the CSZ (Weaver and Shedlock, 1996). Interface earthquakes are believed to have an average return period of 400 to 700 years (Nelson and Personius, 1996), with the last event occurring  $\pm 313$  years ago (January 26, 1700) (Nelson et al., 1995; Satake et al., 1996). Turbidite deposits in the Cascadia Basin has been investigated recently as a paleoseismic record for the CSZ (Goldfinger et al., 2012). Turbidite findings (based on the last 10,000 years) suggest an average recurrence interval of  $\pm 240$  years for a large interface earthquake on the southern portion of the CSZ. The estimated recurrence interval for a large interface earthquake on the northern portion of the CSZ is  $\pm 500$  to 530 years (Goldfinger et al., 2012).

Intraplate (Benioff Zone) earthquakes occur within the Juan de Fuca Plate at depths of  $\pm 28$  to 37 miles (Weaver and Shedlock, 1996). The maximum estimated magnitude of an intraplate earthquake is about  $M_w$  7.5 (Wang et al., 2001). No intraplate earthquakes have been recorded in Oregon in historic times; however, the Puget Sound region of Washington State has experienced three intraplate events in the last  $\pm 64$  years including a surface wave magnitude ( $M_s$ ) 7.1 event in 1949 (Olympia), a  $M_s$  6.5 event in 1965 (Seattle/Tacoma) (Wong and Silva, 1998), and a  $M_w$  6.8 event in 2001 (Nisqually) (USGS, 2001).

Crustal earthquakes dominate Oregon's seismic history. Crustal earthquakes occur within the North American Plate, typically at depths of  $\pm 6$  to 12 miles. The estimated maximum magnitude of the relatively shallow crustal earthquake in the Willamette Valley and adjacent physiographic regions is about  $M_w$  6.5 (Wang and

Leonard, 1996; Wang et al., 1998; Wang et al., 2001). Only two major crustal events in Oregon have reached Richter local magnitude ( $M_L$ ) 6 (the 1936 Milton-Freewater  $M_L$  6.1 earthquake and the 1993 Klamath Falls  $M_L$  6.0 earthquake) (Wong and Bott, 1995). The majority of Oregon's larger crustal earthquakes are in the  $M_L$  4 to 5 range (Wong and Bott, 1995).

Table 2D summarizes earthquakes with a  $M$  of 3.5 or greater that have occurred within a  $\pm 40$ -mile radius of Eugene in the last 180 years (Johnson et al., 1994; ANSS, 2013). Although not listed, several sources make reference to a  $M_L = 4 +$  earthquake ( $MM = V$ ) with an epicenter near Corvallis. The coordinates of this earthquake (44.6 N, 123.2 W) suggest the 1946 or 1947 event was most likely located on the Corvallis fault (Bela, 1979; Yeats et al., 1996). Yeats et al. (1996) and Geomatrix Consultants (1995) also indicate that two other earthquakes have been felt near the Corvallis fault. One occurred in 1957 ( $MM = III$ ) and the other in 1961 ( $MM = III-IV$ ).

**Table 2D. Historic Earthquakes within  $\pm 40$ -mile Radius of Eugene**

Year	Month	Day	Hour	Minute	Latitude	Longitude	Depth (miles)	Magnitude
1961	08	19	04	56	44.7	122.5	unknown	$M = 4.5$
1962	09	05	05	37	44.5	122.9	unknown	$M = 3.5$

Note:  $M$  = unspecified magnitude,  $M_b$  = compressional body wave magnitude,  $M_c$  = primary coda magnitude, and  $M_L$  = local Richter magnitude

It should be noted that earthquakes in Oregon were not comprehensively documented until the 1840's (Wong and Bott, 1995). According to Wong and Bott (1995), seismograph stations sensitive to smaller earthquakes ( $M_L \leq 4$  to 5) were not implemented in Northwestern Oregon until 1979 when the University of Washington expanded their seismograph network to Oregon. Prior to 1979, few seismograph stations were installed in Oregon. Oregon State University (Corvallis) likely had the first station installed in 1946 (Wong and Bott, 1995). The local Richter magnitude ( $M_L$ ) of events occurring prior to the establishment of seismograph stations have been estimated based on correlations between magnitude and Modified Mercalli ( $MM$ ) intensities. Some discrepancy exists in the correlations.

Distant strong earthquakes felt in the Eugene area are summarized in Table 3D (Noson et al., 1988; Bott and Wong, 1993; Stover and Coffman, 1993; Wiley et al., 1993; Wong and Bott, 1995; Black, 1996; USGS, 2001). None of these events caused significant reportable damage in the Eugene metropolitan area.



**Table 3D. Distant Earthquakes Felt in the Eugene Area**

Earthquake	Modified Mercalli Intensities (MM)
2001 Nisqually, Washington	II-III
1993 Klamath Falls, Oregon	IV
1993 Scotts Mills, Oregon	IV
1965 Seattle-Tacoma, Washington	I-IV
1962 Portland, Oregon	I-IV
1961 Lebanon/Albany, Oregon	IV
1949 Olympia, Washington	IV
1873 Crescent City, California	V

### SEISMIC HAZARDS

The OSSC (2010) Section 1803.7 requires the evaluation of risks from a range of seismic hazards. A seismic hazard study by DOGAMI has been completed for the Eugene-Springfield area and part of this study included obtaining shear-wave velocity data (Wang et al., 1998; Black et al., 2000). More recent investigations have been completed by DOGAMI to identify geologic and seismic hazards (Burns et al., 2008). We have also developed conclusions regarding seismic hazards based on previous geotechnical and seismic studies performed within the project vicinity, our knowledge of the site geology, and the soil profile encountered in the explorations.

The relative earthquake hazard is based on the combined effects of ground shaking amplification and earthquake-induced landslides with a range in hazard from Zone A (highest hazard) to Zone D (lowest hazard). Based on the DOGAMI mapping, the site is within Zone D (lowest hazard) for the overall, relative earthquake hazard (Black et al., 2000).

*Ground Motion Amplification.* The influence of a soil deposit on the earthquake motion is routinely evaluated in terms of Site Effects, in which an estimate of the amplification or de-amplification of the underlying bedrock/firm soil seismic motions is made. As seismic energy propagates up through the soil strata, the energy is typically increased (i.e., amplified) or decreased (i.e., attenuated) to some extent. The site is underlain by fan-delta alluvial deposits consisting of a thin mantle of stiff clayey silt followed by medium dense to dense sandy gravel. Therefore, it is our opinion that the amplification hazard at the site is low. This conclusion is consistent with DOGAMI's amplification hazard map, Hazard Zone 1 (low hazard, amplification  $\leq 1$ ) (Black et al., 2000). The relative ground-shaking amplification

susceptibility map for Lane County also indicates that there is a low susceptibility to amplification (NEHRP Site Class B) (Burns et al., 2008).

Ground Rupture. We anticipate the risk of ground rupture is low due to lack of known faulting beneath the site. However, hidden and/or deep-seated active faults could remain undetected. Additionally, recent crustal seismic activity cannot always be tied to observable faults. In the event of a catastrophic earthquake with a large seismic moment, inactive faults could potentially be reactivated.

Landslides and Earthquake-Induced Landslides. The site is located on a relatively flat ground. DOGAMI's hazard map indicates there is no hazard for instability in the immediate vicinity of the school site (Black et al., 2000). Burns et al. (2008) mapped the site as being within an area of primarily low landslide susceptibility, with no identified landslides.

Based on our site and subsurface observations, we believe the risk of slope instability (earthquake-induced or otherwise) that could affect the school structures is low. Such conditions typically have little or no landslide risk.

Liquefaction and Lateral Spread. Liquefiable soils typically consist of loose, fine-grained sand and non-plastic or low plasticity silt below the ground water table. The explorations indicate the school site is underlain by predominantly stiff, medium plasticity clayey silt, followed by medium dense to dense sandy gravel. Therefore, it is our opinion that the risk of cyclically-induced liquefaction, ground subsidence or a bearing capacity failure beneath the tank foundations due to liquefaction is very low to negligible. The risk of seismically-induced lateral spread is also considered low because of the low liquefaction risk and the low risk of slope instability (discussed above).

The relative liquefaction hazard susceptibility map indicates the site is within a low to moderate liquefaction susceptibility zone (Burns et al., 2008). According to Black et al., (2000), gravel will only liquefy under exceptional circumstances and the best indicator of gravel liquefaction is determining the shear-wave velocity. Typically, very strong shaking in addition to shear-wave velocities less than 705 feet/second can liquefy clean sand and gravel deposits. Shear-wave velocities of Pleistocene gravels are consistently greater than 984 ft/sec; therefore, not liquefying (Black et al., 2000).

Tsunami/Seiche. Tsunami inundation is not applicable to this site since Eugene is not on the Oregon Coast. Seiche (the back and forth oscillations of a water body during a seismic event) is also not a concern due to the absence of large bodies of water near the site.

## **SITE CLASS, DESIGN EARTHQUAKES AND SITE RESPONSE SPECTRUM**

The site is underlain by a thin mantle of fine-grained soil followed by a deep deposit of medium dense to dense gravels and gravels interbedded with clay or silt. Based on the available information, we recommend an OSSC/IBC Site Class D for analysis and design.

The OSSC (2010), Section 1803.3.2.1, requires the design of structures classified as essential or hazardous facilities, and major and special-occupancy structures address, at a minimum, the following earthquakes:

- Crustal: A shallow crustal earthquake on a real or assumed fault near the site with a minimum moment magnitude ( $M_w$ ) of 6.0 or the design earthquake ground motion acceleration determined in accordance with the 2010 OSSC Section 1613.
- Intraplate: A deep subduction earthquake (Benioff Zone earthquake) with a moment magnitude ( $M_w$ ) of 7.0 or greater on the seismogenic part of the subducting plate (Juan de Fuca) of the CSZ.
- Interface: A subduction earthquake with a minimum moment magnitude ( $M_w$ ) of 8.5 on the seismogenic part of the interface between the Juan de Fuca and the North American Plates on the CSZ.

The design maximum considered earthquake ground motion maps provided in OSSC 2010 are based on the 2002 maps prepared by USGS for an earthquake with a 2% probability of exceedence in 50 years (i.e., a  $\pm 2,475$ -year return period). USGS released updated maps in 2008. These maps are used in the 2012 IBC and will presumably be adopted into the next edition of the OSSC.

The 2002 and 2008 USGS maps were established based on probabilistic studies and include aggregate hazards from a variety of seismic sources. Information obtained from the USGS National Earthquake Hazard Mapping website indicates the following earthquake magnitudes and source-to-site distances were included in the 2002 USGS maps (USGS, 2002):

- Crustal:  $M_w$  6.4 to 6.95 earthquake located  $\pm 4$  to 16 miles from the site.
- Subduction:  $M_w$  8.3 earthquake located  $\pm 35$  to 70 miles from the site.
- Subduction:  $M_w$  9.0 earthquake located  $\pm 35$  to 69 miles from the site.

The following earthquake magnitudes and source-to-site distances were included in the 2008 USGS maps (USGS, 2008):

- Crustal:  $M_w$  6.2 to 6.8 earthquake located  $\pm 4$  to 61 miles from the site.
- Subduction:  $M_w$  8.0 to 8.7 earthquake located  $\pm 35$  to 82 miles from the site.
- Subduction:  $M_w$  9.0 to 9.2 earthquake located  $\pm 35$  to 81 miles from the site.

The earthquake magnitudes and source-to-site distances used to generate the 2002 and 2008 USGS maps satisfy the requirements of OSSC 2010. Refer to the Seismic Design section of the main report for a discussion of the peak bedrock acceleration and parameters for constructing the site response spectrum (Figure 3A, Appendix A).

## CONCLUSION

Based on the findings presented herein, it is our opinion there are no geologic or seismic hazards that require mitigation as part of the seismic upgrades to the school. The site response spectrum (Figure 3A, Appendix A) should be used to establish potential seismic acceleration forces on the structures.

This site-specific seismic hazard investigation for the Howard Elementary School in Eugene, Oregon, was prepared by Brooke Running, R.G., C.E.G.



expires: 5/31/2014

## REFERENCES

- ANSS, 2013; Advanced National Seismic System (ANSS) catalog search: Northern California Earthquake Data Center, accessed November 2013, <http://www.ncedc.org/anss/catalog-search.html>.
- Atwater, B. F., Nelson, A. R., Clague, J. J., Carver, G. A., Yamaguchi, D. K., Bobrowsky, P. T., Bourgeois, J., Darienzo, M. E., Grant, W. C., Hemphill-Haley, E., Kelsey, H. M., Jacoby, G. C., Nishenko, S. P., Palmer, S. P., Peterson, C. D., and Reinhart, M. A., 1995; Summary of Coastal Geologic Evidence for Past Great Earthquakes at the Cascadia Subduction Zone: Earthquake Spectra, v. 11, no. 1, p. 1-18.
- Bela, J. L., 1979; Geologic hazards of eastern Benton County, Oregon: Oregon Department of Geology and Mineral Industries, Bulletin 98, 122 p.
- Black, G. L., 1996; Earthquake Intensity maps for the March 25, 1993, Scotts Mills, Oregon, earthquake: Oregon Geology, v. 58, no. 2, p. 35-41.
- Black, G. L., Wang, Z., Wiley, T. J., Wang, Y., and Keefer, D. K., 2000; Relative earthquake hazard map of the Eugene-Springfield Metropolitan Area, Lane County, Oregon: Oregon Department of Geology and Mineral Industries, Interpretive Map Series IMS-14, 16 p.
- Bott, J. D. J., and Wong, I. G., 1993; Historical earthquakes in and around Portland, Oregon: Oregon Geology, v. 55, no. 5, p. 116-122.
- Burns, W. J., Hofmeister, R. J., and Wang, Y., 2008; Geologic Hazards, Earthquake and Landslide Hazard Maps, and Future Earthquake Damage Estimates for Six Counties in the Mid/Southern Willamette Valley; Including Yamhill, Marion, Polk, Benton, Linn, and Lane Counties, and the City of Albany, Oregon: Oregon Department of Geology and Mineral Industries, Interpretive Map Series IMS-24, 50 p.
- Geomatrix Consultants, 1995; Final report: Seismic design mapping, State of Oregon: Prepared for Oregon Department of Transportation, Salem, Oregon, Personal Services Contract 11688, January 1995, Project No. 2442.
- Goldfinger, C., Kulm, L. D., Yeats, R. S., Mitchell, C., Weldon, R., II, Peterson, C., Darienzo, M., Grant, W., and Priest, G. R., 1992; Neotectonic map of the Oregon continental margin and adjacent abyssal plain: Open File Report O-92-4, p. 17.
- Goldfinger, C., Nelson, C. H., Morey, A. E., Johnson, J. R., Patton, J., Karabanov, E., Gutierrez-Pastor, J., Eriksson, A. T., Gracia, E., Dunhill, G., Enkin, R. J., Dallimore, A., Vallier, T., and 2012; Turbidite Event History - Methods and Implications for Holocene Paleoseismicity of the Cascade Subduction Zone: U.S. Geologic Survey, Professional Paper 1661-F, p. 170, 64 figures, <http://pubs.usgs.gov/pp/pp1661/f>.



- Johnson, A. G., Scofield, D. H., and Madin, I. P., 1994; Earthquake database for Oregon, 1833 through October 25, 1993: Open-File Report O-94-04.
- Madin, I. P., and Murray, R. B., 2006; Preliminary Geologic Map of the Eugene East and Eugene West 7.5' Quadrangles, Lane County, Oregon: Oregon Department of Geology and Mineral Industries, OFR O-03-11, 20 p.
- McClaughry, J. D., Wiley, T. J., Ferns, M. L., and Madin, I. P., 2010; Digital Geologic Map of the Southern Willamette Valley, Benton, Lane, Linn, Marion, and Polk Counties, Oregon: Oregon Department of Geology and Mineral Industries, Open-File Report O-10-03, Scale: 1: 63,360, 116 p.
- Nelson, A., R., and Personius, S. F., 1996; Great-earthquake potential in Oregon and Washington--An overview of recent coastal geologic studies and their bearing on segmentation of Holocene ruptures, central Cascadia subduction zone: *in* Roger, A. M., Walsh, T. J., Kockelman, W. J., and Priest, G. R., eds., Assessing earthquake hazards and reducing risk in the Pacific Northwest: U.S. Geological Survey, Professional Paper 1560, p.91-114.
- Nelson, A. R., Atwater, B. F., Bobrowsky, P. T., Bradley, L.-A., Claque, J. J., Carver, G. A., Darienzo, M. E., Grant, W. C., Drueger, H. W., Sparks, R., Stafford, T. W., Jr., and Stulver, M., 1995; Radiocarbon evidence for extensive plate-boundary rupture about 300 years ago at the Cascadia subduction zone: *Letters to Nature*, v. 378, no. 23, p. 372-374.
- Noson, L. L., Qamar, A., and Thorsen, G. W., 1988; Washington Earthquake Hazards: Olympia, Washington, Washington Department of Natural Resources, Division of Geology and Earth Resources, 77 p.
- Orr, E. L., and Orr, W. N., 1999; Geology of Oregon, Kendall/Hunt Publishing Company, Fifth Edition, 254 p.
- OSSC, 2010; Oregon Structural Speciality Code (OSSC): Based on the International Code Council, Inc., 2009 IBC, ISBN: 978-1-58001-955-2.
- Personius, S. F., Dart, R. L., Bradley, L.-A., and Haller, K. M., 2003; Map and Data for Quaternary Faults and Folds in Oregon: U.S. Geological Survey, Open-File Report 03-095, v.1.1, Scale: 1:750,000, 507 p.
- Petersen, M. D., Frankel, A. D., Harmsen, S. C., Mueller, C. S., Haller, K. M., Wheeler, R. L., Wesson, R. L., Zeng, Y., Boyd, O. S., Perkins, D. M., Luco, N., Field, E. H., Willis, C. J., and Rukstales, K. S., 2008; Documentation for the 2008 Update of the United States National Seismic Hazard Maps: U.S. Geologic Survey (USGS), Open-File Report 2008-1128, 61 p.
- Peterson, C. D., Darienzo, M. E., Burns, S. F., and Burris, W. K., 1993; Field trip guide to Cascadia paleoseismic evidence along the northern Oregon coast: Evidence of subduction zone seismicity in the central Cascadia margin: *Oregon Geology*, v. 55, no. 5, p. 99-114.

- Peterson, C. P., Klum, L. D., and Gray, J. J., 1986; Geologic Map of the Ocean Floor Off Oregon and the Adjacent Continental Margin: Oregon Department of Geology and Mineral Industries, GMS-42, Scale = 1:500,000.
- Satake, K., Shimazaki, K., Tsuji, Y., and Ueda, K., 1996; Time and Size of a Giant Earthquake in Cascadia Inferred from Japanese Tsunami Records of January 1700: *Nature*, v. 379, no. 6562, p. 246 - 249.
- Stover, C. W., and Coffman, J. L., 1993; Seismicity of the United States, 1568-1989: US Geological Survey, Abridged from USGS Professional Paper 1527, April 2006, [http://earthquake.usgs.gov/regional/states/events/1949\\_04\\_13\\_iso.php](http://earthquake.usgs.gov/regional/states/events/1949_04_13_iso.php).
- USGS, 2001; Mw 6.8 Nisqually Earthquake in Washington, 28 February 2001: U.S. Geological Survey (USGS), accessed March 2001, web site: [http://earthquake.usgs.gov/activity/latest/eq\\_01\\_02\\_28](http://earthquake.usgs.gov/activity/latest/eq_01_02_28).
- USGS, 2002; Geologic Hazards Science Center, 2002 Interactive Deaggregations: U.S. Geological Survey (USGS), 2% in 50 years return period, PGA spectral acceleration, latitude/longitude search, accessed November 2013, website: <https://geohazards.usgs.gov/deaggint/2002/>.
- USGS, 2006; Quaternary fault and fold database for the United States: U.S. Geological Survey (USGS), accessed November 2013, <http://earthquake.usgs.gov/regional/qfaults/or/index.php>.
- USGS, 2008; Geologic Hazards Science Center, 2008 Interactive Deaggregations: U.S. Geological Survey (USGS), 2% in 50 years return period, PGA spectral acceleration, latitude/longitude search, accessed November 2013, <https://geohazards.usgs.gov/deaggint/2008>.
- USGS, 2013; Oregon Quaternary Faults - Interactive Map: U.S. Geological Survey (USGS), accessed November 2013, [geohazards.usgs.gov/qfaults/or/Oregon.php](http://geohazards.usgs.gov/qfaults/or/Oregon.php).
- Wang, Y., Keefer, D. K., and Wang, Z., 1998; Seismic hazard mapping in Eugene-Springfield, Oregon: *Oregon Geology*, v. 60, no. 2, p. 31-41.
- Wang, Y., and Leonard, W. J., 1996; Relative earthquake hazard maps of the Salem East and Salem West quadrangles, Marion and Polk Counties, Oregon: Oregon Department of Geology and Mineral Industries, Geological Map Series GMS-105, 10 p.
- Wang, Z., Graham, G. B., and Madin, I. P., 2001; Preliminary Earthquake Hazard and Risk Assessment and Water-Induced Landslide Hazard in Benton County, Oregon: Oregon Department of Geology and Mineral Industries, Open-File Report O-01-05, 89 p.
- Weaver, C. S., and Shedlock, K. M., 1996; Estimates of seismic source regions from the earthquake distribution and regional tectonics in the Pacific

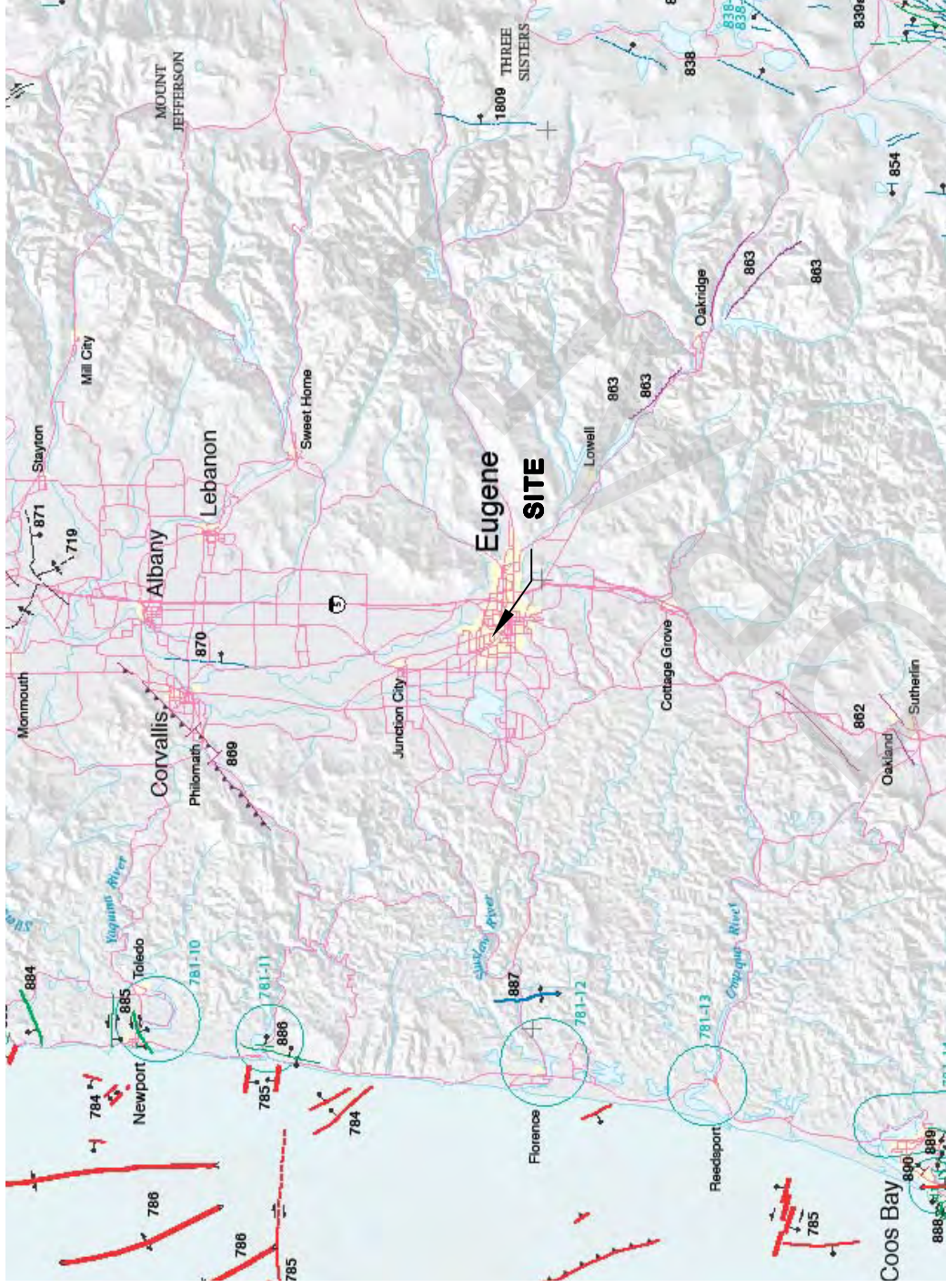
- Northwest: in Roger, A. M., Walsh, T. J., Kockelman, W. J., and Priest, G. R., eds., Assessing earthquake hazards and reducing risk in the Pacific Northwest: U.S. Geological Survey, Professional Paper 1560, p.285-306.
- Wiley, T. J., Sherrod, D. R., Keefer, D. K., Qamar, A., Schuster, R. L., Dewey, J. W., Mabey, M. A., Black, G. L., and Wells, R. E., 1993; Klamath Falls earthquakes, September 20, 1993--including the strongest quake ever measured in Oregon: Oregon Geology, v. 55, no. 6, p. 127-135.
- Wong, I. G., and Bott, J. D. J., 1995; A look back at Oregon's earthquake history, 1841-1994: Oregon Geology, v. 57, no. 6, p. 125-139.
- Wong, I. G., and Silva, W. J., 1998; Earthquake ground shaking hazards in the Portland and Seattle metropolitan areas: in Dakoulas, P., Yegian, M., and Holtz, R. D., eds., Geotechnical earthquake engineering and soil dynamics III: American Society of Civil Engineers, p.66-78.
- Yeats, R. S., Graven, E. P., Werner, K. S., Goldfinger, C., and Popowski, T. A., 1996; Tectonics of the Willamette Valley, Oregon: in Roger, A. M., Walsh, T. J., Kockelman, W. J., and Priest, G. R., eds., Assessing earthquake hazards and reducing risk in the Pacific Northwest: U.S. Geological Survey, Professional Paper 1560, p.183-222.



NOT TO SCALE

### LEGEND

- TIME OF MOST RECENT SURFACE RUPTURE**
- no historic rupture in Oregon to date
  - Holocene (<10,000 years) or post last glaciation (<15,000 years; 15 ka)
  - Late Quaternary (<130,000; post penultimate glaciation)
  - Late and middle Quaternary (<750,000 years; 750 ka)
  - Quaternary, undifferentiated (<1,500,000 years; <1.5 Ma)
  - Class B structure (age or origin uncertain)
- SUP RATE**
- >5 mm/year
  - 1.0-5.0 mm/year
  - 0.2-1.0 mm/year
  - <0.2 mm/year
- TRACE**
- Mostly continuous at map scale
  - Mostly discontinuous at map scale
  - Inferred or concealed
- STRUCTURE TYPE AND RELATED FEATURES**
- Normal or high-angle reverse fault
  - Shore-rip fault
  - Thrust fault
  - Anticline fold
  - Synclinal fold
  - Monoclinial fold
  - Plunge direction of fold
  - Fault section marker
- DETAILED STUDY SITES**
- Trench site
  - Stratigraphic study site
- CULTURAL AND GEOGRAPHIC FEATURES**
- Divided highway
  - Primary or secondary road
  - Permanent river or stream
  - Intermittent river or stream
  - Permanent or intermittent lake



- NOTES:
1. PORTION OF MAP BASED ON MAP OF QUATERNARY FAULTS AND FOLDS IN OREGON (PERSONIUS ET AL., 2003).
  2. SEE SITE SPECIFIC HAZARD STUDY FOR A DISCUSSION OF LOCAL FAULTING.
  3. FAULTS: #862= UNNAMED FAULTS NEAR SUTHERLIN; #863= UPPER WILLAMETTE RIVER; #869= CORVALLIS; AND #870= OWL CREEK.

FIGURE NO. **1D**

**QUATERNARY CRUSTAL FAULT MAP**  
**SOUTHERN WILLAMETTE VALLEY**  
 HOWARD ELEMENTARY SCHOOL  
 EUGENE, OREGON

DATE NOV. 2013  
 DWN. BKR  
 APPR. \_\_\_\_\_  
 REVIS. \_\_\_\_\_  
 PROJECT NO. \_\_\_\_\_  
 2131078

**FOUNDATION ENGINEERING INC.**  
 PROFESSIONAL GEOTECHNICAL SERVICES  
 820 NW CORNELL AVENUE  
 CORVALLIS, OR 97330-4517  
 BUS. (541) 757-7645 FAX (541) 757-7650





**SECTION 01 1100**  
**SUMMARY OF WORK**

**PART 1 GENERAL**

**1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

**1.02 WORK COVERED BY CONTRACT DOCUMENTS**

- A. Project Identification: Project consists of construction of the substrate and infrastructure to support the installation of a synthetic turf field under separate contract, surrounded by a 6-lane 400 Meter track and site amenities. In addition, the work includes excavation and fills, miscellaneous concrete site work, paving, fencing, field lighting, miscellaneous electrical, and a CMU site structure.
  - 1. Project Location: Kelly Middle School, 850 Howard Ave, Eugene, OR 97404
  - 2. Owner: Eugene School District 4J, 715 West Fourth Avenue, Eugene, OR 97402.
- B. Architect Identification: The Contract Documents, dated May 22, 2014, were prepared for Project by PIVOT Architecture, 44 W. Broadway, Eugene, OR 97401.
- C. Project Manager: Don Philpot has been appointed by Owner to serve as Project Coordinator.

**1.03 CONTRACT**

- A. Project will be constructed under a general construction contract.
  - 1. AIA Document A101 - Standard Form of Agreement Between Owner and Contractor.

**1.04 WORK SEQUENCE**

- A. Do not commence Work until after execution of Agreement and receipt of Notice-to-Proceed from Owner.
- B. Perform work in order to achieve Substantial Completion by 9/23/2014.
- C. Achieve Final Completion within seven (7) days following the date of Substantial Completion.

**1.05 USE OF PREMISES**

- A. Work Area Access: Site will not be occupied during work. Access to the work area will be available on a week-day basis from approximately 7:00 am to 4:00 pm. Coordinate all other work hour schedules with Owner so as not to interfere with Owner's use of the building.
- B. Limit use of the premises to construction activities in areas indicated; allow for Owner occupancy and use by the public, subject to approval by a District Safety Specialist.
- C. Site Access: Maintain drives and building entrances and exits clear and protected at all times to Owner's, employees, and public access and for use by emergency personnel. Do not use these areas for parking or storage. Schedule deliveries to minimize space and time requirements for storage of materials at site.
- D. Parking: Contractor may use existing parking areas adjacent to the Works.
- E. Contractor Staging Areas: Limit staging to areas indicated on Drawings.
- F. Construction Operations: Limited to areas indicated on Drawings.

**1.06 WORK UNDER SEPERATE CONTRACTS**

- A. Separate Contract: Owner will award separate contracts for performance of certain construction operations at Project site. Those operations will be conducted simultaneously with work under this Contract. The work includes:
  - 1. Kelly Middle School
    - a. Wood floor refinishing at all (3) gyms.
    - b. Reroofing at Breezeways at front of school.
    - c. Synthetic Turf Field installed within the Track of this project.
  - 2. Howard Elementary School
    - a. Earthwork and Partial Demolition in advance of new replacement school.

- B. Cooperate fully with separate contractors so work on those contracts may be carried out smoothly, without interfering with or delaying work under this Contract.

**1.07 FUTURE WORK**

- A. Future Work: None.

**1.08 PRODUCTS ORDERED IN ADVANCE**

- A. Products Ordered in Advance: None

**1.09 OWNER-FURNISHED PRODUCTS**

- A. Owner-Furnished Products: None

**1.10 MISCELLANEOUS PROVISIONS**

A. DRUG AND ALCOHOL POLICY

- 1. The possession, use, or distribution of illicit drugs and alcohol on school premises is prohibited. Prescription medications brought to the project site shall be in the original container bearing the name of the drug, the name of the physician and the prescribed dosage.

B. USE OF TOBACCO PRODUCTS

- 1. Smoking and the other use of tobacco products is prohibited on all school district property pursuant to OAR 581-021-0110.

C. SAFETY REQUIREMENTS

- 1. Safety must not be sacrificed for the sake of productivity or expedience. Safety of students, staff, and the public is critical. Take all reasonable precautions to prevent endangerment or injury. Advise and coordinate operations with the school office.
- 2. All contractors who perform work on District property, and their employees, are expected to know the District's expectations for safe work and to adhere to those expectations.
- 3. Contractor's are to adhere to the regulations of Oregon OSHA for all projects within the School District.

D. GENERAL SAFE WORK PRACTICES

- 1. Students, public and school staff shall not be put at risk by the activities of contractors or their employees.
- 2. Safe vehicle operation rules are to be followed at all times. These include positioning vehicles to minimize the necessity of backing and providing a "spotter", someone who will make sure that people do not run into the path of a vehicle when driving on a playground or field that is occupied by students.
- 3. Tools shall never be left out when an unsecured work area is vacated.
- 4. Ladders and scaffolding will be taken down when an unsecured work area is vacated.
- 5. Open holes and other tripping hazards shall be fenced or barricaded when an unsecured work area is vacated.
- 6. Operations resulting in vapors, emissions or flying objects shall be conducted in such a way as to prevent exposure to any unprotected parties or property.
- 7. "Secured Work Area" is defined as an area having a perimeter cyclone fence at least 6 feet in height, with gates which close and lock so that no casual entrance is possible by unauthorized adults or children.
- 8. Contractor to follow all OR-OSHA rules for Confined Spaces, where applicable.

E. COMMUNICATIONS REGARDING UNSAFE PRACTICES

- 1. Upon perceiving a problem, the District will immediately communicate the concern to the Contractor or Contractor's representative on the work site.
- 2. If agreement on correction of unsafe conditions cannot be reached, the concerns of the District shall prevail and safety concerns shall be addressed in accordance with the District requirements.

F. ELECTRICAL PANELS - LOCKOUT/TAGOUT

- 1. Contractor shall implement a Lockout/Tag-out program for his employees who take equipment out of service or place equipment back into service. Contractor shall review the

District's Energy Control Program prior to commencing work. Rules applying to this procedure are Oregon Occupational Safety and Health Code OAR 437, Division 2, Subdivision J, General Environmental Controls Lockout/Tag-out (1919.147), or latest edition.

G. ARC FLASH – ELECTRICAL SAFETY

1. Contractor shall comply with NFPA 70E (Electrical Safety in the Workplace), current edition. Contractor shall comply with Oregon OSHA 1910.137 (Personal Protective Equipment). The Contractor shall review with the School District Project Manager the 'Eugene School District Electrical Safety Program' before any work commences. The Contractor shall comply with all 'Arc Flash' and 'Electrical Safety' protocols referenced in any and all NFPA, OSHA, OROSHA, NEC, NESC, UL, IBC, IFC and ANSI documents (current editions).

H. POTENTIALLY HAZARDOUS PRODUCTS

1. The District attempts to maintain a safe and healthy environment for students and staff. The Contractor is therefore required to follow District guidelines controlling the use of potentially hazardous products and to use these products in a safe manner. Guidelines include the use of materials (adhesives, coatings, carpeting, etc.) which are known to emit little or no airborne pollutants.
2. MSDS information is required for all potentially hazardous products. The Project Manager and a District Safety Specialist will review these and determine what, if any, mitigation procedures will be required.
3. Contractor is to maintain and post copies of all MSDS information at the project site and adhere to the required controls.
4. Contractor is to ensure that work area by students and teachers is restricted. The District will provide signage appropriate for this purpose. The Contractor is to construct and maintain appropriate barriers. This shall include provision of physical separation barriers between "construction" and "occupied" spaces.
5. Contractor to adopt means of maintaining the construction space in negative air pressure in relation to occupied spaces.
6. Where there is a new or existing ventilation system in an affected space, the system shall be adjusted to provide the maximum amount of outside air possible with the system.
7. Efforts shall be made to install and operate new ventilation systems as soon in the construction process as practical.

I. ASBESTOS CONTAINING MATERIALS WARNING

1. Asbestos containing materials are known to exist in areas of the Work. The Contractor shall not, in any way, disturb materials which are known to contain asbestos, assumed to contain asbestos, or otherwise have not been tested and confirmed to be asbestos free.
2. Where access to concealed spaces is required, or it is necessary to disturb building materials such as for drilling of holes, cutting, etc., notify the Owner so that proper investigation and/or removal procedures are followed.
3. Prior to commencing Work, the Contractor shall meet with the District Safety Specialist and review the Owner's Asbestos Management Plan for the locations of asbestos-containing materials and/or materials assumed to contain asbestos. After reviewing the Owner's Asbestos Management Plan, the Contractor is required to sign Form 01 11 00A, Asbestos-containing Materials Notification Statement, provided at the end of this Section.
4. Contractor must not install any asbestos-containing materials when performing the Work of this project. At the completion of the Work, Contractor will be required to furnish a statement stating that no asbestos-containing materials were installed during the course of the Work. Refer to Sample Form 01 11 00B at the end of this Section.

J. FULL TIME SUPERINTENDENT DISCLOSURE STATEMENT

1. Prior to or in conjunction with the Preconstruction Conference, the Contractor shall submit the disclosure statement which identifies the Full Time Superintendent for this Project. The form for this statement, Form 01 11 00C, is provided at the end of this Section.

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION (NOT USED)**

**PART 4 SCHEDULE OF PRODUCTS ORDERED IN ADVANCE**

**PART 5 ASBESTOS FORMS**





**FORM 01 11 00B**

**THE ENVIRONMENTAL PROTECTION AGENCY (AHERA) RULES REQUIRE THE SCHOOL DISTRICT OBTAIN A SIGNED STATEMENT FROM THE SITE SUPERINTENDENT THAT, TO THE BEST OF HIS/HER KNOWLEDGE, NO ASBESTOS-CONTAINING BUILDING MATERIALS WERE INSTALLED DURING THE WORK. THEREFORE, THE FOLLOWING STATEMENT MUST BE SUBMITTED ON THE CONTRACTORS LETTERHEAD PRIOR TO PROJECT CLOSEOUT.**

**SAMPLE FORM  
(TO BE SUBMITTED ON THE CONTRACTOR'S LETTERHEAD)**

**ASBESTOS-CONTAINING MATERIALS STATEMENT  
EUGENE SCHOOL DISTRICT 4J**

---

**(NAME OF PROJECT AND CIP NUMBER)**

**WE THE UNDERSIGNED, (NAME OF COMPANY), HEREBY WARRANT THAT TO THE BEST OF OUR KNOWLEDGE ALL MATERIALS FURNISHED FOR THE ABOVE REFERENCED PROJECT CONTAIN 0% ASBESTOS.**

---

**(NAME OF CONSTRUCTION COMPANY)**

---

**(SIGNATURE AND DATE)**

---

**PRINTED NAME**

---

**JOB TITLE**

**END OF SECTION**

**SECTION 01 2300  
ALTERNATES**

**PART 1 GENERAL**

**1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

**1.02 SUMMARY**

- A. This Section includes administrative and procedural requirements for alternates.

**1.03 DEFINITIONS**

- A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the Bidding Requirements that may be added to or deducted from the Base Bid amount if Owner decides to accept a corresponding change either in the amount of construction to be completed, the time to complete, or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.
  - 1. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternate into the Work. No other adjustments are made to the Contract Sum.

**1.04 PROCEDURES**

- A. Coordination: Modify or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.
  - 1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.
- B. Notification: Immediately following award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate if alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated modifications to alternates.
- C. Execute accepted alternates under the same conditions as other work of the Contract.
- D. Schedule: A Schedule of Alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION**

**3.01 SCHEDULE OF ALTERNATES**

- A. No alternates.

**END OF SECTION**



**SECTION 01 2500**  
**CONTRACT MODIFICATION PROCEDURES**

**PART 1 GENERAL**

**1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

**1.02 SUMMARY**

- A. This Section specifies administrative and procedural requirements for handling and processing Contract modifications.
- B. Related Sections include the following:
  - 1. Division 0 Document 00 52 13 "Form of Agreement" for monetary values of established Unit Prices and Alternates.
  - 2. Division 0 Document 00 72 13 "General Conditions" for additional requirements for Changes in the Work, Contract Sum, and Contract Time.
  - 3. Division 1 Section 00 11 13 "Supplementary Conditions" for allowable percentages for Contractors' Overhead and Profit.
  - 4. Division 1 Section 01 22 00 "Unit Prices" for administrative requirements for using unit prices.
  - 5. Division 1 Section 01 2501 CR/PO Form
  - 6. Division 1 Section 01 33 00 "Submittal Procedures" for Schedule of Values requirements.
  - 7. Division 1 Section 01 60 00 "Product Requirements" for administrative procedures for handling requests for substitutions made after Contract award.
  - 8. Division 1 Section 01 78 39 "Project Record Documents" documentation requirements.

**1.03 MINOR CHANGES IN THE WORK**

- A. Architect, with the concurrence of the Owner, will issue supplemental instructions authorizing Minor Changes in the Work, not involving adjustment to the Contract Sum or the Contract Time.

**1.04 CHANGE REQUEST/PROCEED ORDER (CONSTRUCTION CHANGE DIRECTIVE)**

- A. Architect or Owner may issue a Change Request/Proceed Order on form included in Section 01 2501 - CR/PO Form.
  - 1. Change Request contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.
  - 2. Proceed Order, when signed by the Owner, instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
- B. Documentation: Maintain detailed records on a time and material basis of work required by the Proceed Order.
  - 1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.
- C. Authorization Required: When a Change Request is approved and signed by the Owner, it becomes a Proceed Order authorizing the change requested. Do not proceed with any change without the Owner's signature on the Change Request/Proceed Order.
- D. Owner-Initiated Change Requests: Architect will issue a Change Request, which will include a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
  - 1. Change Requests issued by Architect are for information only. Do not consider them instructions either to stop work in progress or to execute the proposed change.
  - 2. Within time specified in Change Request after receipt of Change Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.

- a. Include a complete cost breakdown including a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
  - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
  - c. Include costs of labor, supervision, overhead, and profit directly attributable to the change.
  - d. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
- E. Contractor-Initiated Requests: If latent or unforeseen conditions require modifications to the Contract, Contractor may propose changes by submitting a request for a change to the Architect.
1. Changes requested by the Contractor will be authorized only by signature of the Owner on the prescribed. Do not proceed with any changes without this authorization.
  2. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
  3. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
  4. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
  5. Include costs of labor, supervision, overhead, and profit directly attributable to the change.
  6. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
  7. Comply with requirements in Division 1 Section 01 60 00 "Product Requirements" if the proposed change requires substitution of one product or system for product or system specified.
- F. Change Request Form: Use forms provided by Owner. Sample copies are included at end of this Section.

#### **1.05 CHANGE ORDER PROCEDURES**

- A. On Owner's approval of a Change Request, and at intervals to be determined, Architect will collect Change Requests and issue a Change Order for signatures of Owner and Contractor on AIA Document G701.

#### **PART 2 - PRODUCTS (NOT USED)**

#### **PART 3 - EXECUTION (NOT USED)**



**SECTION 01 2501**  
**CHANGE REQUEST/PROCEED ORDER**  
**1992-2010 Capital Improvement Program**  
**Eugene School District 4J**

.....  
**CHANGE REQUEST NOTICE**

Change Request No.: \_\_\_\_\_  
 Project No.: \_\_\_\_\_ Contract No.: \_\_\_\_\_ Date: \_\_\_\_\_  
 Project Title: \_\_\_\_\_  
 Contractor: \_\_\_\_\_

**1. REQUEST INFORMATION**

Estimated \$ \_\_\_\_\_ Time \_\_\_\_\_ Days \_\_\_\_\_ Initiated by \_\_\_\_\_  
 Reason for change: \_\_\_\_\_  
 \_\_\_\_\_

**2. DESCRIPTION**

Describe changes: \_\_\_\_\_  
 \_\_\_\_\_  
 Describe affected work: \_\_\_\_\_  
 List plan and spec sections: \_\_\_\_\_  
 Describe impacted activities: \_\_\_\_\_  
 Comment: \_\_\_\_\_

**3. DATES**

Need for change first known \_\_\_\_\_ By whom \_\_\_\_\_  
 Contractor first notified \_\_\_\_\_ How \_\_\_\_\_  
 Owner first notified \_\_\_\_\_  
 Date approved or rejected \_\_\_\_\_ By whom \_\_\_\_\_

**4. RECOMMENDATION (cost and time)** \_\_\_\_\_

.....  
**PROCEED ORDER**

PROCEED ORDER NO.: \_\_\_\_\_ Date: \_\_\_\_\_

**1. PAYMENT/COST**

Actual amount of change \$ \_\_\_\_\_ The contract time will be:  
 Contractor amount \$ \_\_\_\_\_ ( ) increased ( ) decreased by \_\_\_\_\_ days  
 Subcontractor amount \$ \_\_\_\_\_ ( ) will remain unchanged  
 Type of payment (LS/T&M) \_\_\_\_\_

**2. MISCELLANEOUS**

Subcontractors involved: \_\_\_\_\_  
 Major materials: \_\_\_\_\_  
 The cost is not to exceed \$ \_\_\_\_\_ Date: \_\_\_\_\_

**3 CHANGE REQUEST ACCEPTED BY:**

Contractor: \_\_\_\_\_ Date: \_\_\_\_\_  
 Architect: \_\_\_\_\_ Date: \_\_\_\_\_  
 4J CIP Project Manager: \_\_\_\_\_ Date: \_\_\_\_\_  
 4J CIP Program Manager: \_\_\_\_\_ Date: \_\_\_\_\_  
 4J Facilities Director: \_\_\_\_\_ Date: \_\_\_\_\_

Without the signature of Facilities Director, or the acting Director, this Proceed Order is neither accepted or authorized, except by written authorization of other specific delegation.



**SECTION 01 2900  
PAYMENT PROCEDURES**

**PART 1 GENERAL**

**1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

**1.02 SUMMARY**

- A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.
- B. Related Sections include the following:
  - 1. Division 1 Section 01 25 00 "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.
  - 2. Division 1 Section 01 27 00 "Unit Prices" for administrative requirements governing use of unit prices.
  - 3. Division 1 Section 01 32 00 "Construction Progress Documentation" for administrative requirements governing preparation and submittal of Contractor's Construction Schedule and Submittals Schedule.
  - 4. Division 1 Section 01 77 00 "Closeout Procedures" for final Application for Payment.

**1.03 DEFINITIONS**

- A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

**1.04 SCHEDULE OF VALUES**

- A. Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor's Construction Schedule.
  - 1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including the following:
    - a. Application for Payment forms with Continuation Sheets.
    - b. Submittals Schedule.
    - c. Contractor's Construction Schedule.
  - 2. Submit the Schedule of Values to Architect and Owner at earliest possible date but no later than seven days before the date scheduled for submittal of initial Application for Payment.
- B. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the Schedule of Values. Provide at least one line item for each Specification Section.
  - 1. Identification: Include the following Project identification on the Schedule of Values:
    - a. Project name and location.
    - b. Name of Architect.
    - c. Architect's project number.
    - d. Contractor's name and address.
    - e. Date of submittal.
  - 2. Submit draft of AIA Document G703 Continuation Sheets.
  - 3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Provide several line items for principal subcontract amounts, where appropriate.
  - 4. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
  - 5. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
    - a. Differentiate between items stored on-site and items stored off-site. If specified, include evidence of insurance or bonded warehousing.

6. Provide separate line items in the Schedule of Values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
7. Allowances: Provide a separate line item in the Schedule of Values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
8. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
  - a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the Schedule of Values or distributed as general overhead expense, at Contractor's option.
9. Schedule Updating: Update and resubmit the Schedule of Values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

#### **1.05 APPLICATIONS FOR PAYMENT**

- A. Each Application for Payment shall be consistent with previous applications and payments as certified by Architect and paid for by Owner.
  1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.
- B. Payment Application Forms: Use AIA Document G702 and AIA Document G703 Continuation Sheets as form for Applications for Payment.
- C. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.
  1. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions were made.
  2. Include amounts of Change Orders issued before last day of construction period covered by application.
  3. Transmittal: Submit 3 signed and notarized original copies of each Application for Payment to Architect by a method ensuring receipt within 24 hours.
- D. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
  1. List of subcontractors.
  2. Schedule of Values (draft submitted previously).
  3. Contractor's Construction Schedule (preliminary if not final).
  4. Products list.
  5. Schedule of unit prices.
  6. Submittals Schedule (based Architect's list or required submittals).
  7. List of Contractor's staff assignments.
  8. Initial progress report.
  9. Report of preconstruction conference.
- E. Application for Payment at Substantial Completion: After Architect issues the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
  1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
  2. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
- F. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
  1. Evidence of completion of Project closeout procedures (See itemized list in Section 01 77 00 "Closeout Procedures").

2. Updated final statement, accounting for final changes to the Contract Sum.
3. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
4. AIA Document G706A, "Contractor's Affidavit of Release of Liens."
5. AIA Document G707, "Consent of Surety to Final Payment."
6. Evidence that claims have been settled.
7. Final, liquidated damages settlement statement.

**1.06 PART 2 PRODUCTS (NOT USED)**

**1.07 PART 3 EXECUTION (NOT USED)**

**END OF SECTION**





**SECTION 01 3100**  
**PROJECT MANAGEMENT AND COORDINATION**

**PART 1 GENERAL**

**1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

**1.02 SUMMARY**

- A. This Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
  - 1. Administrative and supervisory personnel.
  - 2. Project meetings.
- B. Related Sections include the following:
  - 1. Division 1 Section 01 32 00 "Construction Progress Documentation" for preparing and submitting Contractor's Construction Schedule.
  - 2. Division 1 Section 01 73 00 "Execution Requirements" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
  - 3. Division 1 Section 01 77 00 "Closeout Procedures" for coordinating Contract closeout.

**1.03 COORDINATION**

- A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections, that depend on each other for proper installation, connection, and operation.
  - 1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
  - 2. Coordinate installation of different components with other contractors to ensure maximum accessibility for required maintenance, service, and repair.
  - 3. Make adequate provisions to accommodate items scheduled for later installation.
  - 4. Where availability of space is limited, coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair of all components, including mechanical and electrical.
- B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
  - 1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.
- C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
  - 1. Preparation of Contractor's Construction Schedule.
  - 2. Preparation of the Schedule of Values.
  - 3. Installation and removal of temporary facilities and controls.
  - 4. Delivery and processing of submittals.
  - 5. Progress meetings.
  - 6. Preinstallation conferences.
  - 7. Project closeout activities.
  - 8. Startup and adjustment of systems.
  - 9. Project closeout activities.

- D. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.
  - 1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work. Refer to other Sections for disposition of salvaged materials that are designated as Owner's property.

#### 1.04 SUBMITTALS

- A. Key Personnel Names: Within 15 days of Notice-to-Proceed, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including pager, cell, and office telephone numbers. Provide names, addresses, and telephone numbers of individuals assigned as standbys in the absence of individuals assigned to Project.

#### 1.05 PROJECT MEETINGS

- A. General: Schedule and conduct meetings and conferences at Project site, unless otherwise indicated.
  - 1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Schedule meeting dates and times with Owner and Architect.
  - 2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
  - 3. Minutes: Architect will record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, within three days of receiving them from the Architect.
- B. Preconstruction Conference: Owner's Project Manager will schedule a preconstruction conference before starting construction, no later than 15 days after execution of the Agreement. Hold the conference at Project site or another convenient location. Conduct the meeting to review responsibilities and personnel assignments.
  - 1. Attendees: Owner's Project Manager, Architect, and their consultants, as required; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
  - 2. Agenda: Discuss items of significance that could affect progress, including the following (see sample agenda at the end of Part 3):
    - a. Introduction of persons present.
    - b. Tentative construction schedule.
    - c. Phasing.
    - d. Critical work sequencing and long-lead items.
    - e. Designation of key personnel and their duties.
    - f. Procedures for processing field decisions and Change Orders.
    - g. Procedures for requests for interpretations (RFIs).
    - h. Procedures for testing and inspecting.
    - i. Procedures for processing Applications for Payment.
    - j. Distribution of the Contract Documents.
    - k. Communications.
    - l. Role of District's Project Manager.
    - m. Submittal procedures, including MSDS information.
    - n. Energy design requirements.
    - o. Preparation of Record Documents.
    - p. Use of the premises and existing building.
    - q. Work hours and restrictions.
    - r. Owner's occupancy requirements.
    - s. Responsibility for temporary facilities and controls.
    - t. Construction waste management and recycling.
    - u. Parking availability.
    - v. Office, work, and storage areas.

- w. Equipment deliveries and priorities.
  - x. Safety and first aid.
  - y. Security.
  - a. Progress cleaning.
  - 3. Minutes: Architect will record and distribute meeting minutes.
  - 4. Statements made by the Contracting Agency's representative at the pre-construction conference are not binding upon the Contracting Agency unless confirmed by Written Addendum.
- C. Preinstallation Conferences: When required by individual specification sections, conduct a preinstallation conference at Project site before each construction activity that requires coordination with other construction.
- 1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect and Owner's Project Manager a minimum of four days prior to scheduled meeting dates.
  - 2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:
    - a. Contract documents.
    - b. Related requests for interpretations (RFIs).
    - c. Related Change Orders.
    - d. Purchases.
    - e. Deliveries.
    - f. Submittals.
    - g. Possible conflicts.
    - h. Compatibility problems.
    - i. Time schedules.
    - j. Weather limitations.
    - k. Manufacturer's written recommendations.
    - l. Warranty requirements.
    - m. Compatibility of materials.
    - n. Acceptability of substrates.
    - o. Space and access limitations.
    - p. Regulations of authorities having jurisdiction.
    - q. Testing and inspecting requirements.
    - r. Installation procedures.
    - s. Coordination with other work.
    - t. Required performance results.
    - u. Protection of adjacent work.
  - 3. Contractor to record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
  - 4. Distribute minutes of the meeting to each party present and to parties who should have been present, within three working days.
  - 5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.
- D. Progress Meetings: Conduct progress meetings at weekly intervals. Coordinate dates of meetings with preparation of payment requests.
- 1. Attendees: In addition to the Owner's Project Manager and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.

2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
  - a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
  - b. Review present and future needs of each entity present, including the following:
    - 1) Interface requirements.
    - 2) Sequence of operations.
    - 3) Status of submittals.
    - 4) Deliveries.
    - 5) Off-site fabrication.
    - 6) Access.
    - 7) Site utilization.
    - 8) Temporary facilities and controls.
    - 9) Work hours.
    - 10) Hazards and risks.
    - 11) Progress cleaning.
    - 12) Quality and work standards.
    - 13) Status of correction of deficient items.
    - 14) Field observations.
    - 15) Requests for interpretations (RFIs).
    - 16) Status of proposal requests.
    - 17) Pending changes.
    - 18) Status of Change Orders.
    - 19) Pending claims and disputes.
    - 20) Documentation of information for payment requests.
3. Minutes: Architect will record and distribute to Contractor the meeting minutes.
4. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present.

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION (NOT USED)**



**PRECONSTRUCTION CONFERENCE AGENDA (SAMPLE)**

**EUGENE SCHOOL DISTRICT 4J**

**[ENTER PROJECT NAME]**

**[DATE]**

**AGENDA**

- A. ( ) Introduction of Persons Present
  - 1. District 4J
  - 2. Consultants
  - 3. Contractor (including job foreman)
  - 4. Subcontractors
- B. ( ) Availability of Contract Documents
- C. ( ) Building Permit Status
  - 1. Plan check and Building Permit paid by District
  - 2. Pick up Permit at City of Eugene by Contractor
  - 3. Location of site stored approved contract documents
  - 4. Utility permits
  - 5. LRAPA Permit
- D. ( ) Prevailing Wage Requirements
  - 1. Submittal schedule
  - 2. Conformance with requirements
- E. ( ) Communications
  - 1. Notification of problems
- F. ( ) Role of District's representative
  - 1. Limits of authority
  - 2. Visitation schedules
- G. ( ) Work Description and Schedule
  - 1. General work description
  - 2. Proposed start date: \_\_\_\_\_
  - 3. Proposed completion date: \_\_\_\_\_
  - 4. Proposed project schedule and phasing
  - 5. Progress schedule updates
  - 6. Methods to be employed to maintain schedule
  - 7. Work requiring Shop Drawings or submittals shall not commence until review is complete.
- H. ( ) Submittals Required per Contract Documents
  - 1. MSDS Information
  - 2. Written proof of Asbestos Worker Certification
  - 3. Name, Experience and Qualifications of Asbestos Supervisor
  - 4. Copy of Contractor's Asbestos Abatement License
  - 5. Other information as required by Section 01 31 00.
  - 6. Schedule of values
  - 7. List of subcontractors including name of contact person, telephone number, and address
- I. ( ) Construction
  - 1. Working hours
  - 2. Use of premises/set up locations
  - 3. Protection of existing facilities
  - 4. Traffic and protection
  - 5. Excavation and clean-up
  - 6. Weather restrictions
  - 7. Deviation from details and/or specifications

- J.  Correction of Defects
  - 1. Daily and/or as observed
- K.  Weekly On-Site Progress Meetings
  - 1. Establish day and time: Day \_\_\_\_\_ Time \_\_\_\_\_
  - 2. Provide updated project schedules
  - 3. Discuss project progress, problems, etc.
  - 4. Review applications for payment
  - 5. Required attendance
  - 6. Observation report distribution
- L.  Change Order Requests and Change Order Procedures
  - 1. Written Change Order requests required
  - 2. Supporting back-up will be required for all Change Orders
  - 3. Mark-up limitations on Change Orders
    - a. Contractor - 15 percent
    - b. Subcontractors - 10 percent
    - c. Progressive requests and Change Orders
    - d. Processing time required
- M.  Applications for Payment
  - 1. Use AIA documents G702 and G703 latest edition
  - 2. Provide 5 signed and notarized copies
  - 3. Wage certifications to be attached
- N.  Safety and Emergency Procedures
- O.  Clean-up Daily
  - 1. Project completion
- P.  Project Closeout
  - 1. Inspections for
    - a. Air Clearance
    - b. AHERA Close Out Requirements
    - c. Substantial completion
      - 1) Contractor provided list of items to be completed
      - 2) Inspection with job foreman
      - 3) Final Acceptance
        - (a) Written notice from Contractor that all work is done and ready for inspection
        - (b) Inspection with job foreman
      - 4) Responsibility for cost of additional inspections
      - 5) Submittals for Closeout
        - (a) Final application for payment
        - (b) Final set of wage certifications
        - (c) Release of liens from all Subcontractors and general Contractor
- Q.  Tour of Project Sites to Examine and Document Existing Conditions
- R.  Additional Comments

**THE UNDERSIGNED ACKNOWLEDGES THAT THE ITEMS LISTED ABOVE WERE DISCUSSED DURING THIS PRECONSTRUCTION CONFERENCE AND ARE FULLY UNDERSTOOD.**

**DATE:**

**A/E FIRM:**

**CONTRACTOR:**

**SUBCONTRACTORS:**

**END OF SECTION**

**SECTION 01 3200**  
**CONSTRUCTION PROGRESS DOCUMENTATION**

**PART 1 GENERAL**

**1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

**1.02 SUMMARY**

- A. This Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
1. Preliminary Construction Schedule.
  2. Contractor's Construction Schedule.
  3. Submittals Schedule.
- B. Related Sections include the following:
1. Division 1 Section 01 29 00 "Payment Procedures" for submitting the Schedule of Values.
  2. Division 1 Section 01 31 00 "Project Management and Coordination" for submitting and distributing meeting and conference minutes.
  3. Division 1 Section 01 33 00 "Submittal Procedures" for submitting schedules and reports.
  4. Division 1 Section 01 40 00 "Quality Requirements" for submitting a schedule of tests and inspections.

**1.03 SUBMITTALS**

- A. Submittals Schedule: Submit three copies of schedule. Arrange the following information in a tabular format.
1. Scheduled date for first submittal.
  2. Specification Section number and title.
  3. Submittal category (action or informational).
  4. Name of subcontractor.
  5. Description of the Work covered.
  6. Scheduled date for Architect's final release or approval.
- B. Contractor's Construction Schedule: Submit two opaque copies of initial schedule, large enough to show entire schedule for entire construction period.

**1.04 COORDINATION**

- A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.
- B. Coordinate Contractor's Construction Schedule with the Schedule of Values, list of subcontracts, Submittals Schedule, progress reports, payment requests, and other required schedules and reports.
1. Secure time commitments for performing critical elements of the Work from parties involved.
  2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

**PART 2 PRODUCTS**

**2.01 SUBMITTALS SCHEDULE**

- A. Preparation: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, resubmittal, ordering, manufacturing, fabrication, and delivery when establishing dates.
1. Coordinate Submittals Schedule with list of subcontracts, the Schedule of Values, and Contractor's Construction Schedule.
  2. Initial Submittal: List those required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.

3. Final Submittal: Submit concurrently with the first complete submittal of Contractor's Construction Schedule.

## **2.02 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL**

- A. Time Frame: Extend schedule from date established for the Notice to Proceed to date of Final Completion.
- B. Activities: Treat each floor or separate area as a separately numbered activity for each principal element of the Work
- C. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.
- D. Products Ordered in Advance: Include a separate activity for each product. Include delivery date indicated in Division 1 Section 01 11 00 "Summary of Work." Delivery dates indicated stipulate the earliest possible delivery date.
- E. Owner-Furnished Products: Include a separate activity for each product. Include delivery date indicated in Division 1 Section 01 11 00 "Summary of Work." Delivery dates indicated stipulate the earliest possible delivery date.
- F. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and Final Completion.
- G. Cost Correlation: At the head of schedule, provide a cost correlation line, indicating planned and actual costs. On the line, show dollar volume of the Work performed as of dates used for preparation of payment requests.

## **2.03 CONTRACTOR'S CONSTRUCTION SCHEDULE (GANTT CHART)**

- A. Gantt-Chart Schedule: Submit a comprehensive, fully developed, horizontal Gantt-chart-type, Contractor's Construction Schedule within 10 days of date established for the Notice to Proceed. Base schedule on the Preliminary Construction Schedule and whatever updating and feedback was received since the start of Project.
- B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.
  1. For construction activities that require 3 months or longer to complete, indicate an estimated completion percentage in 5 percent increments within time bar.

## **PART 3 EXECUTION**

### **3.01 CONTRACTOR'S CONSTRUCTION SCHEDULE**

- A. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.
  1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
  2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
  3. As the Work progresses, indicate Actual Completion percentage for each activity.
- B. Distribution: Distribute copies of approved schedule to Architect Owner's Project Manager, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.
  1. Post copies in Project meeting rooms and temporary field offices.
  2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

**END OF SECTION**

**SECTION 01 3300**  
**SUBMITTAL PROCEDURES**

**PART 1 GENERAL**

**1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

**1.02 SUMMARY**

- A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, Information Submittals, Delegated Design and other submittals.
- B. Related Sections include the following:
  - 1. Division 1 Section 01 29 00 "Payment Procedures" for submitting Applications for Payment and the Schedule of Values.
  - 2. Division 1 Section 01 31 00 "Project Management and Coordination" for submitting and distributing meeting and conference minutes and for submitting Coordination Drawings.
  - 3. Division 1 Section 01 32 00 "Construction Progress Documentation" for submitting schedules and reports, including Contractor's Construction Schedule and the Submittals Schedule.
  - 4. Division 1 Section 01 40 00 "Quality Requirements" for submitting test and inspection reports and for mockup requirements, if any.
  - 5. Division 1 Section 01 77 00 "Closeout Procedures" for submitting warranties.
  - 6. Division 1 Section 01 78 23 "Operation and Maintenance Data" for submitting operation and maintenance manuals.
  - 7. Division 1 Section 01 78 39 "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.
  - 8. Divisions 2 through 49 Sections for specific requirements for submittals in those Sections.

**1.03 DEFINITIONS**

- A. Action Submittals: Written and graphic information that requires Architect's responsive action.
- B. Informational Submittals: Written information that does not require Architect's responsive action. Submittals may be rejected for not complying with requirements.

**1.04 SUBMITTAL PROCEDURES**

- A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
  - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
  - 2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
- B. Submittals Schedule: Comply with requirements in Division 1 Section 01 32 00 "Construction Progress Documentation" for list of submittals and time requirements for scheduled performance of related construction activities.
- C. Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
  - 1. Initial Review: Allow 14 calendar days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
  - 2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.



- D. Identification: Place a permanent label or title block on each submittal for identification.
  - 1. Indicate name of firm or entity that prepared each submittal on label or title block.
  - 2. Provide a space approximately 6 by 8 inches on label or beside title block to record Contractor's review and approval markings and action taken by Architect.
- E. Deviations: Highlight, encircle, or otherwise specifically identify deviations from the Contract Documents on submittals.
- F. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Architect will return submittals, without review, if received from sources other than Contractor without prior consent.
  - 1. Transmittal Form: Provide locations on form for the following information:
    - a. Project name.
    - b. Date.
    - c. Destination (To:).
    - d. Source (From:).
    - e. Names of subcontractor, manufacturer, and supplier.
    - f. Category and type of submittal.
    - g. Submittal purpose and description.
    - h. Specification Section number and title.
    - i. Drawing number and detail references, as appropriate.
    - j. Submittal and transmittal distribution record.
    - k. Remarks.
    - l. Signature of transmitter.
- G. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
  - 1. Note date and content of previous submittal.
  - 2. Note date and content of revision in label or title block and clearly indicate extent of revision.
  - 3. Resubmit submittals until they are marked "<Insert approval notation from Architect's action stamp>."
- H. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- I. Use for Construction: Use only final submittals with mark indicating "<Insert approval notation from Architect's action stamp>" taken by Architect.

## **PART 2 PRODUCTS**

### **2.01 ACTION SUBMITTALS**

- A. General: Prepare and submit Action Submittals required by individual Specification Sections.
- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
  - 1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
  - 2. Mark each copy of each submittal to show which products and options are applicable.
  - 3. Include the following information, as applicable:
    - a. Manufacturer's written recommendations.
    - b. Manufacturer's product specifications.
    - c. Manufacturer's installation instructions.
    - d. Standard color charts.
    - e. Manufacturer's catalog cuts.
    - f. Wiring diagrams showing factory-installed wiring.
    - g. Printed performance curves.
    - h. Operational range diagrams.
    - i. Compliance with specified referenced standards.

- j. Testing by recognized testing agency.
  - k. Application of testing agency labels and seals.
  - l. Notation of coordination requirements.
  - m. MSDS information, where applicable.
  4. Submit Product Data before or concurrent with Samples.
  5. Number of Copies: Submit the number required by the Contractor plus four (4) copies of Product Data, unless otherwise indicated. Architect will return two copies to Contractor and one to Owner. Mark up and retain one returned copy as a Project Record Document.
- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
    - a. Dimensions.
    - b. Identification of products.
    - c. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
    - d. Schedules.
    - e. Design calculations.
    - f. Compliance with specified standards.
    - g. Notation of coordination requirements.
    - h. Notation of dimensions established by field measurement.
    - i. Relationship to adjoining construction clearly indicated.
    - j. Seal and signature of professional engineer if specified.
  2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches (215 by 280 mm) but no larger than 30 by 40 inches (750 by 1000 mm).
  3. Number of Copies: Submit four opaque copies of each submittal, unless copies are required for operation and maintenance manuals. Submit five copies where copies are required for operation and maintenance manuals. Architect will retain two copies, including one for the Owner's Project Manager; remainder will be returned. Mark up and retain one returned copy as a Project Record Drawing.
- D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
  2. Identification: Attach label on unexposed side of Samples that includes the following:
    - a. Generic description of Sample.
    - b. Product name and name of manufacturer.
    - c. Sample source.
    - d. Number and title of appropriate Specification Section.
  3. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
    - a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
    - b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor..
    - c. Number of Samples: Submit three sets of Samples. Architect will retain two Sample sets; remainder will be returned.

## 2.02 INFORMATIONAL SUBMITTALS

- A. General: Prepare and submit Informational Submittals required by other Specification Sections.

1. Number of Copies: Submit two copies of each submittal, unless otherwise indicated. Architect will not return copies.
  2. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
  3. Test and Inspection Reports: Comply with requirements specified in Division 1 Section 01 40 00 "Quality Requirements."
- B. Coordination Drawings: Comply with requirements specified in Division 1 Section 01 31 00 "Project Management and Coordination."
- C. Contractor's Construction Schedule: Comply with requirements specified in Division 1 Section 01 32 00 "Construction Progress Documentation."
- D. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
- E. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) on AWS forms. Include names of firms and personnel certified.
- F. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
- G. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
- H. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
- I. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
- J. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
- K. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- L. Schedule of Tests and Inspections: Comply with requirements specified in Division 1 Section 01 40 00 "Quality Requirements."
- M. Preconstruction Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
- N. Compatibility Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
- O. Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
- P. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements specified in Division 1 Section 01 78 23 "Operation and Maintenance Data."

- Q. Design Data: Prepare written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.
- R. Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer.
- S. Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.
- T. Material Safety Data Sheets (MSDSs): Submit information directly to Owner; do not submit to Architect.

### **2.03 DELEGATED DESIGN**

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
- B. Delegated-Design Submittal: In addition to Shop Drawings, Product Data, and other required submittals, submit three copies of a statement, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.
  - 1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

## **PART 3 EXECUTION**

### **3.01 CONTRACTOR'S REVIEW**

- A. Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.
- B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

### **3.02 ARCHITECT'S ACTION**

- A. General: Architect will not review submittals that do not bear Contractor's approval stamp and will return them without action.
- B. Action Submittals: Architect will review each submittal, make marks to indicate corrections or modifications required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken, as follows:
  - No exception taken
  - Make corrections noted
  - Revise & resubmit
  - Not required for review
  - Additional submittals required
  - See attached consultant review
- C. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.

- D. Partial submittals are not acceptable, will be considered nonresponsive, and will be returned without review.
- E. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

**END OF SECTION**



**SECTION 01 4000**  
**QUALITY REQUIREMENTS**

**PART 1 GENERAL**

**1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

**1.02 SUMMARY**

- A. This Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
  - 1. Specific quality-assurance and -control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
  - 2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
  - 3. Requirements for Contractor to provide quality-assurance and -control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.
- C. Related Sections include the following:
  - 1. Division 1 Section 01 32 00 "Construction Progress Documentation" for developing a schedule of required tests and inspections.
  - 2. Divisions 2 through 49 Sections for specific test and inspection requirements.

**1.03 CONFLICTING REQUIREMENTS**

- A. General: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to Architect for a decision before proceeding.
- B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

**1.04 SUBMITTALS**

- A. Qualification Data: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.
- B. Reports: Prepare and submit certified written reports that include the following:
  - 1. Date of issue.
  - 2. Project title and number.
  - 3. Name, address, and telephone number of testing agency.
  - 4. Dates and locations of samples and tests or inspections.
  - 5. Names of individuals making tests and inspections.
  - 6. Description of the Work and test and inspection method.
  - 7. Identification of product and Specification Section.
  - 8. Complete test or inspection data.
  - 9. Test and inspection results and an interpretation of test results.

10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
  11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
  12. Name and signature of laboratory inspector.
  13. Recommendations on retesting and reinspecting.
- C. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

#### **1.05 QUALITY CONTROL**

- A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.
1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
  2. Payment for these services will be made by Owner.
  3. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum will be adjusted by Change Order.
- B. Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
1. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.
  2. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
  3. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
  4. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
  5. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
- C. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Division 1 Section 01 33 00 "Submittal Procedures."
- D. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.
- E. Testing Agency Responsibilities: Cooperate with Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
1. Notify Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
  2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
  3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
  4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
  5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.

6. Do not perform any duties of Contractor.
- F. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
  1. Access to the Work.
  2. Incidental labor and facilities necessary to facilitate tests and inspections.
  3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
  4. Facilities for storage and field curing of test samples.
  5. Delivery of samples to testing agencies.
  6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
  7. Security and protection for samples and for testing and inspecting equipment at Project site.
- G. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
  1. Schedule times for tests, inspections, obtaining samples, and similar activities.

#### **1.06 SPECIAL TESTS AND INSPECTIONS**

- A. Special Tests and Inspections: Owner will engage a qualified testing agency to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of the Owner, described as follows:
  1. None identified

#### **PART 2 PRODUCTS (NOT USED)**

#### **PART 3 EXECUTION**

##### **3.01 TEST AND INSPECTION LOG**

- A. Prepare a record of tests and inspections. Include the following:
  1. Date test or inspection was conducted.
  2. Description of the Work tested or inspected.
  3. Date test or inspection results were transmitted to Architect.
  4. Identification of testing agency or special inspector conducting test or inspection.
- B. Maintain log at Project site. Post changes and modifications as they occur. Provide access to test and inspection log for Architect's reference during normal working hours.

##### **3.02 REPAIR AND PROTECTION**

- A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
  1. Provide materials and comply with installation requirements specified in other Specification Sections. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible.
- B. Protect construction exposed by or for quality-control service activities.
- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

**END OF SECTION**



**SECTION 01 5000**  
**TEMPORARY FACILITIES AND CONTROL**

**PART 1 GENERAL**

**1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

**1.02 SUMMARY**

- A. This Section includes requirements for temporary utilities, support facilities, and security and protection facilities.
- B. Related Sections include the following:
  - 1. Division 1 Section 01 11 00 "Summary of Work" for limitations on utility interruptions and other work restrictions.
  - 2. Division 1 Section 01 33 00 "Submittal Procedures" for procedures for submitting copies of implementation and termination schedule and utility reports.
  - 3. Division 1 Section 01 77 00 "Execution Requirements" for progress cleaning requirements.
  - 4. Divisions 2 through 49 Sections for temporary heat, ventilation, and humidity requirements for products in those Sections.

**1.03 DEFINITIONS**

- A. Permanent Enclosure: As determined by Architect, permanent or temporary roofing is complete, insulated, and weathertight; exterior walls are insulated and weathertight; and all openings are closed with permanent construction or substantial temporary closures.

**1.04 USE CHARGES**

- A. General: Cost or use charges for temporary facilities shall be included in the Contract Sum. Allow other entities to use temporary services and facilities without cost, including, but not limited to, Owner's construction forces, Architect, testing agencies, and authorities having jurisdiction.

**1.05 SUBMITTALS**

- A. Site Plan: Show temporary facilities, utility hookups, staging areas, and parking areas for construction personnel.

**1.06 QUALITY ASSURANCE**

- A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

**1.07 PROJECT CONDITIONS**

- A. Temporary Use of Permanent Facilities: Installer of each permanent service shall assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.

**PART 2 PRODUCTS**

**2.01 MATERIALS**

- A. Chain-Link Fencing: Minimum 2-inch (50-mm), 0.148-inch- (3.76-mm-) thick, galvanized steel, chain-link fabric fencing; minimum 6 feet (1.8 m) high with galvanized steel pipe posts; minimum 2-3/8-inch- (60-mm-) OD line posts and 2-7/8-inch- (73-mm-) OD corner and pull posts, with 1-5/8-inch- (42-mm-) OD top rails.
- B. Portable Chain-Link Fencing: Minimum 2-inch (50-mm), 9-gage, galvanized steel, chain-link fabric fencing; minimum 6 feet (1.8 m) high with galvanized steel pipe posts; minimum

2-3/8-inch- (60-mm-) OD line posts and 2-7/8-inch- (73-mm-) OD corner and pull posts, with 1-5/8-inch- (42-mm-) OD top and bottom rails. Provide concrete bases for supporting posts.

- C. Lumber and Plywood: Comply with requirements in Division 6
- D. Gypsum Board: Minimum 1/2 inch (12.7 mm) thick by 48 inches (1219 mm) wide by maximum available lengths; regular-type panels with tapered edges. Comply with ASTM C 36/C 36M.

## **2.02 TEMPORARY FACILITIES**

- A. Field Offices, General: Prefabricated or mobile units with serviceable finishes, temperature controls, and foundations adequate for normal loading.
- B. Common-Use Field Office: Of sufficient size to accommodate needs of construction personnel. Keep office clean and orderly. Furnish and equip offices as follows:
  - 1. Furniture required for Project-site documents including file cabinets, plan tables, plan racks, and bookcases.
  - 2. Conference room of sufficient size to accommodate meetings of 10 individuals. Provide electrical power service and 120-V ac duplex receptacles, with not less than 1 receptacle on each wall. Furnish room with conference table, chairs, and 4-foot- (1.2-m-) square tack board.
  - 3. Drinking water and private toilet.
  - 4. Coffee machine and supplies.
  - 5. Heating and cooling equipment necessary to maintain a uniform indoor temperature of 68 to 72 deg F (20 to 22 deg C).
  - 6. Lighting fixtures capable of maintaining average illumination of 20 fc (215 lx) at desk height.
- C. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations.
  - 1. Store combustible materials apart from building.

## **2.03 EQUIPMENT**

- A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.
- B. Heating Equipment: Unless Owner authorizes use of permanent heating system, provide vented, self-contained, liquid-propane-gas or fuel-oil heaters with individual space thermostatic control.
  - 1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
  - 2. Heating Units: Listed and labeled for type of fuel being consumed, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

## **PART 3 EXECUTION**

### **3.01 INSTALLATION, GENERAL**

- A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.
- B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

### **3.02 TEMPORARY UTILITY INSTALLATION**

- A. General: Install temporary service or connect to existing service.
  - 1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
- B. Sewers and Drainage: Provide temporary utilities to remove effluent lawfully.
  - 1. Connect temporary sewers to municipal system as directed by authorities having jurisdiction.



- C. Water Service: Install water service and distribution piping in sizes and pressures adequate for construction.
- D. OR
- E. Water Service: Use of Owner's existing water service facilities will be permitted, as long as facilities are cleaned and maintained in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.
- F. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.
- G. Heating: Provide temporary heating required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed.
- H. Ventilation and Humidity Control: Provide temporary ventilation required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce ambient condition required and minimize energy consumption.
- I. Electric Power Service: Use of Owner's existing electric power service will be permitted, as long as equipment is maintained in a condition acceptable to Owner.
- J. Electric Power Service: Provide electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations.
- K. OR
- L. Electric Power Service: Provide electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations.
  - 1. Connect temporary service to Owner's existing power source, as directed by Owner.
- M. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.
  - 1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.
  - 2. Install lighting for Project identification sign.
- N. Telephone Service: Provide temporary telephone service in common-use facilities for use by all construction personnel. Install two telephone line(s) for each field office.
  - 1. At each telephone, post a list of important telephone numbers.
    - a. Police and fire departments.
    - b. Ambulance service.
    - c. Contractor's home office.
    - d. Architect's office.
    - e. Engineers' offices.
    - f. Owner's office.
    - g. Principal subcontractors' field and home offices.
  - 2. Provide superintendent with cellular telephone or portable two-way radio for use when away from field office.

### **3.03 SUPPORT FACILITIES INSTALLATION**

- A. General: Comply with the following:
  - 1. Provide incombustible construction for offices, shops, and sheds located within construction area or within 30 feet (9 m) of building lines. Comply with NFPA 241.
  - 2. Maintain support facilities until near Substantial Completion. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.

- B. Temporary Roads and Paved Areas: Construct and maintain temporary roads and paved areas adequate for construction operations. Locate temporary roads and paved areas as indicated on Drawings.
  - 1. Provide dust-control treatment that is nonpolluting and nontracking. Reapply treatment as required to minimize dust.
- C. Traffic Controls: Comply with requirements of authorities having jurisdiction.
  - 1. Protect existing site improvements to remain including curbs, pavement, and utilities.
  - 2. Maintain access for fire-fighting equipment and access to fire hydrants.
- D. Parking: Arrange for temporary parking areas for construction personnel.
- E. Dewatering Facilities and Drains: Comply with requirements of authorities having jurisdiction. Maintain Project site, excavations, and construction free of water.
  - 1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining properties nor endanger permanent Work or temporary facilities.
  - 2. Remove snow and ice as required to minimize accumulations.
- F. Project Identification and Temporary Signs: Provide Project identification and other signs as indicated on Drawings. Install signs where indicated to inform public and individuals seeking entrance to Project. Unauthorized signs are not permitted.
  - 1. Provide temporary, directional signs for construction personnel and visitors.
  - 2. Maintain and touchup signs so they are legible at all times.
- G. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with Division 1 Section 01 77 00 "Execution Requirements" for progress cleaning requirements.

#### **3.04 SECURITY AND PROTECTION FACILITIES INSTALLATION**

- A. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
  - 1. Comply with work restrictions specified in Division 1 Section 01 11 00 "Summary of Work."
- B. Temporary Erosion and Sedimentation Control: Comply with requirements specified in Division 2 Section "Site Clearing", and requirements of authority having jurisdiction.
- C. Stormwater Control: Comply with authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.
- D. Tree and Plant Protection: Comply with requirements specified in Division 2 Section "Tree Protection and Trimming."
- E. Tree and Plant Protection: Install temporary fencing located as indicated or outside the drip line of trees to protect vegetation from damage from construction operations. Protect tree root systems from damage, flooding, and erosion.
- F. Site Enclosure Fence: Before construction operations begin, furnish and install site enclosure fence in a manner that will prevent people and animals from easily entering site except by entrance gates.
  - 1. Extent of Fence: As required to enclose entire Project site or portion determined sufficient to accommodate construction operations.
  - 2. Maintain security by limiting number of keys and restricting distribution to authorized personnel. Provide Owner with one set of keys.
- G. Security Enclosure and Lockup: Install substantial temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security.
- H. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.

- I. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.
  - 1. Where heating or cooling is needed and permanent enclosure is not complete, insulate temporary enclosures.
- J. Temporary Partitions: Provide floor-to-ceiling dustproof partitions to limit dust and dirt migration and to separate areas occupied by Owner from fumes and noise.
  - 1. Construct dustproof partitions with gypsum wallboard with joints taped on occupied side, and fire-retardant plywood on construction operations side.
  - 2. Insulate partitions to provide noise protection to occupied areas.
  - 3. Seal joints and perimeter. Equip partitions with dustproof doors and security locks.
  - 4. Protect air-handling equipment.
  - 5. Weather strip openings.
  - 6. Provide walk-off mats at each entrance through temporary partition.
- K. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241.
  - 1. Prohibit smoking in construction areas.
  - 2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.
  - 3. Develop and supervise an overall fire-prevention and -protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.
  - 4. Provide temporary standpipes and hoses for fire protection. Hang hoses with a warning sign stating that hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.

### **3.05 OPERATION, TERMINATION, AND REMOVAL**

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- B. Maintenance: Maintain facilities in good operating condition until removal.
  - 1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
- C. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

**END OF SECTION**



**SECTION 01 6000**  
**PRODUCT REQUIREMENTS**

**PART 1 GENERAL**

**1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

**1.02 SUMMARY**

- A. This Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; product substitutions; and comparable products.
- B. Related Sections include the following:
  - 1. Division 1 Section 01 23 00 "Alternates" for products selected under an alternate.
  - 2. Division 1 Section 01 77 00 "Closeout Procedures" for submitting warranties for Contract closeout.
  - 3. Divisions 2 through 49 Sections for specific requirements for warranties on products and installations specified to be warranted.

**1.03 DEFINITIONS**

- A. Products: Items purchased for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
- B. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
- C. Basis-of-Design Product Specification: Where a specific manufacturer's product is named and accompanied by the words "basis of design," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of other named manufacturers.

**1.04 SUBMITTALS**

- A. Substitution Requests: Instructions to Bidders specify time restrictions for submitting requests for Substitutions during the bidding period, in compliance with this Section.
- B. After execution of Agreement, the Owner may, at the Owner's option, consider formal requests from the Contractor for substitution of products for those specified. One or more of the following conditions must be documented:
  - 1. Compliance with final interpretation of code requirements or insurance regulations which require that the use of a substituted Product.
  - 2. Unavailability of a specified Product through no fault of the Contractor.
  - 3. Inability of specified Product to perform properly of fit in designated place.
  - 4. Manufacturer's or Fabricator's refusal or inability to certify or guarantee performance of a specified Product in the application intended.
- C. A Substitution Request constitutes a representation that the Bidder/Contractor:
  - 1. Has investigated the proposed Product and determined that it meets or exceeds the quality level of the specified Product.
  - 2. Will provide the same warranty for the Substituted Product as for the specified Product.
  - 3. Will coordinate installation and make changes to the Work which may be required for the Work to be completed with no additional cost to the Owner.
  - 4. Waives claims for additional costs or time extension which may subsequently become apparent.
  - 5. Will reimburse the Owner for review or redesign services associated with re-approval by authorities.

- D. Substitutions will not be considered when they are indicated or implied on Shop Drawings or Product Data Submittals, without separate request on the form provided, or when acceptance will require revision to the Contract Documents.
- E. Submit three copies of each request for consideration. Limit each request to one proposed Substitution. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
- F. Substitution Request Form - See Section 01 6023.
- G. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
  - 1. Statement indicating why specified material or product cannot be provided.
  - 2. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors, that will be necessary to accommodate proposed substitution.
  - 3. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
  - 4. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
  - 5. Provide MSDS information to confirm that the product is no more harmful than the products specified.
  - 6. Samples, where applicable or requested.
  - 7. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
  - 8. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
  - 9. Research/evaluation reports evidencing compliance with building code in effect for Project, from a model code organization acceptable to authorities having jurisdiction.
  - 10. Detailed comparison of Contractor's Construction Schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating lack of availability or delays in delivery.
  - 11. Cost information, including a proposal of change, if any, in the Contract Sum.
  - 12. Contractor's certification that proposed substitution complies with requirements in the Contract Documents and is appropriate for applications indicated.
  - 13. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
  - 14. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within 7 days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within 15 days of receipt of request, or 7 days of receipt of additional information or documentation, whichever is later.
    - a. Form of Acceptance: Change Order.
    - b. Use product specified if Architect cannot make a decision on use of a proposed substitution within time allocated.

#### **1.05 QUALITY ASSURANCE**

- A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, product selected shall be compatible with products previously selected, even if previously selected products were also options.

#### **1.06 PRODUCT DELIVERY, STORAGE, AND HANDLING**

- A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.



- B. Delivery and Handling:
  - 1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
  - 2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
  - 3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
  - 4. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.
- C. Storage:
  - 1. Store products to allow for inspection and measurement of quantity or counting of units.
  - 2. Store materials in a manner that will not endanger Project structure.
  - 3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
  - 4. Store cementitious products and materials on elevated platforms.
  - 5. Store foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
  - 6. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
  - 7. Protect stored products from damage and liquids from freezing.
  - 8. Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.
  - 9. Provide bonded and insured off-site storage and protection when site does not permit on-site storage and protection.

#### **1.07 PRODUCT WARRANTIES**

- A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
  - 1. Manufacturer's Warranty: Preprinted written warranty published by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
  - 2. Special Warranty: Written warranty required by or incorporated into the Contract Documents, either to extend time limit provided by manufacturer's warranty or to provide more rights for Owner.
- B. Submittal Time: Comply with requirements in Division 1 Section 01 77 00 "Closeout Procedures."

#### **PART 2 - PRODUCTS (NOT USED)**

#### **PART 3 - EXECUTION (NOT USED)**



**SECTION 01 6023  
SUBSTITUTION REQUEST FORM**

**SUBSTITUTION REQUEST: DATE SUBMITTED** \_\_\_\_\_

**1.01 TO: PIVOT ARCHITECTURE, 44 WEST BROADWAY #300, EUGENE OR 97401-3038**

**1.02 PROJECT: KELLY MS TRACK AND FIELD CIP #410-524-019, EUGENE SCHOOL DISTRICT 4J**

**1.03 SPECIFIED ITEM:**

- A. SECTION NAME AND NUMBER: \_\_\_\_\_
- B. PARAGRAPH: \_\_\_\_\_
- C. PRODUCT DESCRIPTION: \_\_\_\_\_

**1.04 UNDERSIGNED REQUESTS CONSIDERATION OF THE FOLLOWING SUBSTITUTION:**

- A. MANUFACTURER AND MODEL NUMBER(S): \_\_\_\_\_
- B. PRODUCT DESCRIPTION: \_\_\_\_\_

**1.05 UNDERSIGNED STATES THAT THE FOLLOWING PARAGRAPHS ARE TRUE, EXCEPT WHERE NOTED OTHERWISE:**

- A. The function, appearance and quality of the proposed substitution are equivalent or superior to the specified item;
- B. Proposed substitution does not affect dimensions shown on the drawings;
- C. Undersigned will pay for changes to the building design, including engineering and design services, detailing, and construction costs caused by requested substitution.
- D. Proposed substitution will have no adverse effect on other trades, construction schedule, or specified warranty requirements.
- E. Maintenance and service parts will be available locally for the proposed substitution.
- F. The undersigned has attached data concerning the proposed substitution, including: product description, specifications, drawings, photographs, performance and test data adequate for evaluation of request with applicable portions of the data clearly identified. Attached data also includes description of changes to Contract Documents which the proposed substitution will require for proper installation.
- G. Undersigned further certifies function, appearance, and quality of proposed substitution are equivalent or superior to specified item.
- H. Undersigned further certifies that the manufacturer of the proposed substitution is aware of this substitution request and agrees to the statements noted above.

**1.06 SUBMITTED BY:**

- A. NAME: \_\_\_\_\_ SIGNATURE: \_\_\_\_\_
- B. FIRM NAME: \_\_\_\_\_
- C. FULL MAILING ADDRESS: \_\_\_\_\_
- D. PHONE: \_\_\_\_\_ E-MAIL: \_\_\_\_\_

**1.07 FOR USE BY ARCHITECT OR ENGINEER:**

- A. \_\_\_ APPROVED                      \_\_\_ APPROVED AS NOTED
- B. \_\_\_ NOT APPROVED              \_\_\_ RECEIVED TOO LATE
- C. BY: \_\_\_\_\_
- D. DATE: \_\_\_\_\_

**END OF SECTION**



**SECTION 01 7300**  
**EXECUTION REQUIREMENTS**

**PART 1 GENERAL**

**1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

**1.02 SUMMARY**

- A. This Section includes general procedural requirements governing execution of the Work including, but not limited to, the following:
  - 1. Construction layout.
  - 2. Field engineering and surveying.
  - 3. General installation of products.
  - 4. Coordination of Owner-installed products.
  - 5. Progress cleaning.
  - 6. Starting and adjusting.
  - 7. Protection of installed construction.
  - 8. Correction of the Work.
- B. Related Sections include the following:
  - 1. Division 1 Section 01 31 00 "Project Management and Coordination" for procedures for coordinating field engineering with other construction activities.
  - 2. Division 1 Section 01 33 00 "Submittal Procedures" for submitting surveys.
  - 3. Division 1 Section 01 77 00 "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, and final cleaning.

**1.03 SUBMITTALS**

- A. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.
- B. Final Property Survey: Submit 2 copies showing the Work performed and record survey data.

**1.04 QUALITY ASSURANCE**

- A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION**

**3.01 EXAMINATION**

- A. Existing Conditions: The existence and location of site improvements, utilities, and other construction indicated as existing are not guaranteed. Before beginning work, investigate and verify the existence and location of mechanical and electrical systems and other construction affecting the Work.
  - 1. Before construction, verify the location and points of connection of utility services.
- B. Existing Utilities: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities and other construction affecting the Work.
  - 1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; and underground electrical services.
  - 2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.

- C. Acceptance of Conditions: Examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
1. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:
    - a. Description of the Work.
    - b. List of detrimental conditions, including substrates.
    - c. List of unacceptable installation tolerances.
    - d. Recommended corrections.
  2. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
  3. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
  4. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
  5. Proceed with installation only after unsatisfactory conditions have been corrected.
- PROCEEDING WITH THE WORK INDICATES ACCEPTANCE OF SURFACES AND CONDITIONS.

### 3.02 PREPARATION

- A. Existing Utility Information: Furnish information to local utility that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.
- B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information to Architect. Include a detailed description of problem encountered, together with recommendations for changing the Contract Documents.

### 3.03 CONSTRUCTION LAYOUT

- A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Architect and Owner's Project Manager promptly.
  1. General: Engage a land surveyor to lay out the Work using accepted surveying practices.
- B. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and invert elevations.
- C. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.
- D. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Architect and Owner's Project Manager.

### 3.04 FIELD ENGINEERING

- A. Identification: Owner will identify existing benchmarks, control points, and property corners.



- B. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.
- C. Benchmarks: Establish and maintain a minimum of two permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.
  - 1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.
  - 2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.
  - 3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.

### 3.05 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
  - 1. Make vertical work plumb and make horizontal work level.
  - 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
  - 3. Conceal pipes, ducts, and wiring in finished areas, unless otherwise indicated.
  - 4. Maintain minimum headroom clearance of seven feet in spaces without a suspended ceiling.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated. Bring any conflicts to the Architect for review.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
- F. Anchors and Fasteners: Provide anchors and fasteners as required to anchor each component securely in place, accurately located and aligned with other portions of the Work.
  - 1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
  - 2. Allow for building movement, including thermal expansion and contraction.
  - 3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
- G. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints where possible. Obtain Architect and Owner's Project Manager approval for all questionable conditions.
- H. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

### 3.06 OWNER-INSTALLED PRODUCTS

- A. Site Access: Provide access to Project site for Owner's construction forces.
- B. Coordination: Coordinate construction and operations of the Work with work performed by Owner's construction forces.

1. Construction Schedule: Inform Owner of Contractor's preferred construction schedule for Owner's portion of the Work. Adjust construction schedule based on a mutually agreeable timetable. Notify Owner if changes to schedule are required due to differences in actual construction progress.
2. Preinstallation Conferences: Include Owner's construction forces at preinstallation conferences covering portions of the Work that are to receive Owner's work. Attend preinstallation conferences conducted by Owner's construction forces if portions of the Work depend on Owner's construction.

### **3.07 PROGRESS CLEANING**

- A. General: Clean Project site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials lawfully.
  1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
  2. Do not hold materials more than 7 days during normal weather or 3 days if the temperature is expected to rise above 80 deg F (27 deg C).
  3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to applicable regulations.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for safety and proper execution of the Work.
  1. Remove liquid spills promptly.
  2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- G. Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.
- H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

### **3.08 STARTING AND ADJUSTING**

- A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
- B. Adjust operating components for proper operation without binding. Adjust equipment for proper operation.
- C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

- D. Manufacturer's Field Service: If a factory-authorized service representative is required to inspect field-assembled components and equipment installation, comply with qualification requirements in Division 1 Section 01 40 00 "Quality Requirements."

**3.09 PROTECTION OF INSTALLED CONSTRUCTION**

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
- B. Comply with manufacturer's written instructions for temperature and relative humidity.

**3.10 CORRECTION OF THE WORK**

- A. Repair or remove and replace defective construction. Restore damaged substrates and finishes.
  - 1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.
- B. Restore permanent facilities used during construction to their specified condition.
- C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.
- D. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.
- E. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

**END OF SECTION**



**SECTION 01 7329**  
**CUTTING AND PATCHING**

**PART 1 GENERAL**

**1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

**1.02 SUMMARY**

- A. This Section includes procedural requirements for cutting and patching.
- B. Related Sections include the following:
  - 1. Division 1 Section 10 31 00 – “Project Management and Coordination” for pre- construction and pre-installation conferences.
  - 2. Division 2 Section "Selective Demolition" for demolition of selected portions of the building.
  - 3. Divisions 2 through 49 Sections for specific requirements and limitations applicable to cutting and patching individual parts of the Work.

**1.03 DEFINITIONS**

- A. Cutting: Removal of in-place construction necessary to permit installation or performance of other Work.
- B. Patching: Fitting and repair work required to restore surfaces to original conditions after installation of other Work.

**1.04 SUBMITTALS**

- A. Cutting and Patching Proposal: Submit a written request describing procedures prior to the time cutting and patching will be performed, requesting approval to proceed, for cutting or alteration which affects:
  - 1. Structural integrity of any element of Project.
  - 2. Integrity of weather-exposed or moisture-resistant element.
  - 3. Efficiency, maintenance, or safety of any operational element.
  - 4. Visual qualities of site-exposed elements.
  - 5. Work of Owner or separate contractor.
- B. Include the following information:
  - 1. Identification of Project and CIP number
  - 2. Location and description of the affected Work.
  - 3. Necessity for cutting or alteration.
  - 4. Description of proposed Work and Products to be used.
  - 5. Alternatives to cutting and patching.
  - 6. Effect on work of Owner or separate contractor.
  - 7. Written permission of affected separate contractor, if any.
  - 8. date and time work will be executed.

**1.05 QUALITY ASSURANCE**

- A. Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio.
  - 1. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety.
  - 2. Miscellaneous Elements: Do not cut and patch miscellaneous elements or related components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety.
- B. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in Architect's opinion, reduce the building's

aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

#### **1.06 WARRANTY**

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during cutting and patching operations, by methods and with materials so as not to void existing warranties.

### **PART 2 PRODUCTS**

#### **2.01 MATERIALS**

- A. General: Comply with requirements specified in other Sections.
- B. In-Place Materials: Use materials identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
  - 1. If identical materials are unavailable or cannot be used, use materials that, when installed, will match the visual and functional performance of in-place materials.

### **PART 3 EXECUTION**

#### **3.01 EXAMINATION**

- A. Examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed.
  - 1. Compatibility: Before patching, verify compatibility with and suitability of substrates, including compatibility with in-place finishes or primers.
  - 2. Proceed with installation only after unsafe or unsatisfactory conditions have been corrected.

#### **3.02 PREPARATION**

- A. Temporary Support: Provide temporary support of Work to be cut.
- B. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- C. Adjoining Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
- D. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to minimize interruption to occupied areas.

#### **3.03 PERFORMANCE**

- A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
  - 1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- B. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
  - 1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
  - 2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
  - 3. Concrete or Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
  - 4. Excavating and Backfilling: Comply with requirements in applicable Division 2 Sections where required by cutting and patching operations.



5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
  6. Proceed with patching after construction operations requiring cutting are complete.
- C. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections.
1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.
  2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
    - a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
    - b. Restore damaged pipe covering to its original condition.
  3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
    - a. Where patching occurs in a painted surface, apply primer and intermediate paint coats over the patch and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.
  4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
  5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition.
- D. Cleaning: Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar materials.

**END OF SECTION**



**SECTION 01 7700  
CLOSEOUT PROCEDURES**

**PART 1 GENERAL**

**1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

**1.02 SUMMARY**

- A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
  - 1. Inspection procedures.
  - 2. Warranties.
  - 3. Final cleaning.
- B. Related Sections include the following:
  - 1. Division 1 Section 01 29 00 "Payment Procedures" for requirements for Applications for Payment for Substantial and Final Completion.
  - 2. Division 1 Section 01 73 00 "Execution Requirements" for progress cleaning of Project site.
  - 3. Division 1 Section 01 78 23 "Operation and Maintenance Data" for operation and maintenance manual requirements.
  - 4. Division 1 Section 01 78 39 "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.
  - 5. Divisions 2 through 49 Sections for specific closeout and special cleaning requirements for the Work in those Sections.

**1.03 SUBSTANTIAL COMPLETION**

- A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.
  - 1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
  - 2. Advise Owner of pending insurance changeover requirements.
  - 3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
  - 4. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
  - 5. Prepare and submit Project Record Documents, operation and maintenance manuals, damage or settlement surveys, property surveys, and similar final record information.
  - 6. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
  - 7. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
  - 8. Complete startup testing of systems.
  - 9. Submit test/adjust/balance records.
  - 10. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
  - 11. Advise Owner of changeover in heat and other utilities.
  - 12. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
  - 13. Complete final cleaning requirements, including touchup painting.
  - 14. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
- B. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Architect and Owner's Project Manager will either proceed with inspection or notify

Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form the basis of requirements for Final Completion.

#### **1.04 FINAL COMPLETION**

- A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:
1. Submit a final Application for Payment according to Division 1 Section "Payment Procedures."
  2. Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
  3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
  4. Submit the following completed forms, items and documents:
    - a. AIA Document G706 Contractor's Affidavit of Payment of Debts and Claims.
    - b. AIA Document G706A Contractor's Affidavit of Release of Liens.
    - c. AIA Document G707 Consent of Surety Company to Final Payment.
    - d. Operation and Maintenance Manuals
    - e. Warranties and Bonds. Submit original documents, including Contractor's General Warranty,
    - f. Record Documents.
    - g. Keys.
    - h. Testing and Start-Up records.
    - i. Affidavit of Prevailing Wages paid.
    - j. Complete list of Contractor and all Subcontractors with address, phone numbers, and work
    - k. Asbestos-Containing Materials Statement (Form 01100B).
    - l. Proof of final acceptance and compliance from governing authorities having jurisdiction.
    - m. Certificate of insurance evidencing continuation of liability coverage including coverage for completed operations until the expiration of the specified warranty periods.
  5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.
- B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Architect and Owner's Project Manager will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
  2. Cost of additional re-inspections by Architect and Owner's Project manager will be deducted from Final Payment to the Contractor.

#### **1.05 WARRANTIES**

- A. Submittal Time: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.

- B. Partial Occupancy: Submit properly executed warranties within 10 days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor.
- C. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.
  - 1. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch (215-by-280-mm) paper.
  - 2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
  - 3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
- D. Provide additional copies of each warranty to include in operation and maintenance manuals.

## **PART 2 PRODUCTS**

### **2.01 MATERIALS**

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

## **PART 3 EXECUTION**

### **3.01 FINAL CLEANING**

- A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
  - 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:
    - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
    - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
    - c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
    - d. Remove tools, construction equipment, machinery, and surplus material from Project site.
    - e. Remove snow and ice to provide safe access to building.
    - f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
    - g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
    - h. Sweep concrete floors broom clean in unoccupied spaces.
    - i. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.
    - j. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
    - k. Remove labels that are not permanent.

- l. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
    - 1) Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.
  - m. Wipe surfaces of mechanical and electrical equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
  - n. Replace parts subject to unusual operating conditions.
  - o. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
  - p. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
  - q. Clean ducts, blowers, and coils if units were operated without filters during construction.
  - r. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.
  - s. Leave Project clean and ready for occupancy.
- C. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

**END OF SECTION**



**SECTION 01 7823**  
**OPERATION AND MAINTENANCE DATA**

**PART 1 GENERAL**

**1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

**1.02 SUMMARY**

- A. This Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:
  - 1. Operation and maintenance documentation directory.
  - 2. Emergency manuals.
  - 3. Operation manuals for systems, subsystems, and equipment.
  - 4. Maintenance manuals for the care and maintenance of products, material, finishes, systems, and equipment.
- B. Related Sections include the following:
  - 1. Division 1 Section 01 33 00 "Submittal Procedures" for submitting copies of submittals for operation and maintenance manuals.
  - 2. Division 1 Section 01 77 00 "Closeout Procedures" for submitting operation and maintenance manuals.
  - 3. Division 1 Section 01 78 39 "Project Record Documents" for preparing Record Drawings for operation and maintenance manuals.
  - 4. Divisions 2 through 49 Sections for specific operation and maintenance manual requirements for the Work in those Sections.

**1.03 DEFINITIONS**

- A. System: An organized collection of parts, equipment, or subsystems united by regular interaction.
- B. Subsystem: A portion of a system with characteristics similar to a system.

**1.04 SUBMITTALS**

- A. Initial Submittal: Submit 2 draft copies of each manual at least 15 working days before requesting inspection for Final Completion. Include a complete operation and maintenance directory. Architect will return one copy of draft and mark whether general scope and content of manual are acceptable.
- B. Final Submittal: Submit one copy of each manual in final form at least 15 days before final inspection. Architect will return copy with comments within 15 days after final inspection.
  - 1. Correct or modify each manual to comply with Architect's comments. Submit 3 copies of each corrected manual within 15 days of receipt of Architect's comments.

**1.05 COORDINATION**

- A. Where operation and maintenance documentation includes information on installations by more than one factory-authorized service representative, assemble and coordinate information furnished by representatives and prepare manuals.

**PART 2 PRODUCTS**

**2.01 OPERATION AND MAINTENANCE DOCUMENTATION DIRECTORY**

- A. Organization: Include a section in the directory for each of the following:
  - 1. List of documents.
  - 2. List of systems.
  - 3. List of equipment.
  - 4. List of all subcontractors and material suppliers, including names, addresses and phone numbers.
  - 5. Table of contents.

- B. List of Systems and Subsystems: List systems alphabetically. Include references to operation and maintenance manuals that contain information about each system.
- C. List of Equipment: List equipment for each system, organized alphabetically by system. For pieces of equipment not part of system, list alphabetically in separate list.
- D. Tables of Contents: Include a table of contents for each emergency, operation, and maintenance manual.
- E. Identification: In the documentation directory and in each operation and maintenance manual, identify each system, subsystem, and piece of equipment with same designation used in the Contract Documents. If no designation exists, assign a designation according to ASHRAE Guideline 4, "Preparation of Operating and Maintenance Documentation for Building Systems."

## 2.02 MANUALS, GENERAL

- A. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:
  - 1. Title page.
  - 2. Table of contents.
  - 3. Manual contents.
- B. Title Page: Enclose title page in transparent plastic sleeve. Include the following information:
  - 1. Subject matter included in manual.
  - 2. Name and address of Project.
  - 3. Name and address of Owner.
  - 4. Date of submittal.
  - 5. Name, address, and telephone number of Contractor.
  - 6. Name and address of Architect.
  - 7. Cross-reference to related systems in other operation and maintenance manuals.
- C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.
  - 1. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents for all volumes in each volume of the set.
- D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.
  - 1. Binders: Heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch (215-by-280-mm) paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.
    - a. If two or more binders are necessary to accommodate data of a system, organize data in each binder into groupings by subsystem and related components. Cross-reference other binders if necessary to provide essential information for proper operation or maintenance of equipment or system.
    - b. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents. Indicate volume number for multiple-volume sets.
  - 2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section. Mark each tab to indicate contents. Include a Table of Contents for each volume with a list of products and major components of equipment included in the section on the face of each divider, cross-referenced to Specification Section number and title of Project Manual.
  - 3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software media for computerized electronic equipment.
  - 4. Supplementary Text: Prepared on 8-1/2-by-11-inch (215-by-280-mm) white bond paper.

5. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.
  - a. If oversized drawings are necessary, fold drawings to same size as text pages and use as foldouts.
  - b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

### 2.03 EMERGENCY MANUALS

- A. Content: Organize manual into a separate section for each of the following:
  1. Type of emergency.
  2. Emergency instructions.
  3. Emergency procedures.
- B. Type of Emergency: Where applicable for each type of emergency indicated below, include instructions and procedures for each system, subsystem, piece of equipment, and component:
  1. Fire.
  2. Flood.
  3. Gas leak.
  4. Water leak.
  5. Power failure.
  6. Water outage.
  7. System, subsystem, or equipment failure.
  8. Chemical release or spill.
- C. Emergency Instructions: Describe and explain warnings, trouble indications, error messages, and similar codes and signals. Include responsibilities of Owner's operating personnel for notification of Installer, supplier, and manufacturer to maintain warranties.
- D. Emergency Procedures: Include the following, as applicable:
  1. Instructions on stopping.
  2. Shutdown instructions for each type of emergency.
  3. Operating instructions for conditions outside normal operating limits.
  4. Required sequences for electric or electronic systems.
  5. Special operating instructions and procedures.

### 2.04 OPERATION MANUALS

- A. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:
  1. System, subsystem, and equipment descriptions.
  2. Performance and design criteria if Contractor is delegated design responsibility.
  3. Operating standards.
  4. Operating procedures.
  5. Operating logs.
  6. Wiring diagrams.
  7. Control diagrams.
  8. Piped system diagrams.
  9. Precautions against improper use.
  10. License requirements including inspection and renewal dates.
- B. Descriptions: Include the following:
  1. Product name and model number.
  2. Manufacturer's name.
  3. Equipment identification with serial number of each component.
  4. Equipment function.
  5. Operating characteristics.
  6. Limiting conditions.
  7. Performance curves.

8. Engineering data and tests.
  9. Complete nomenclature and number of replacement parts.
- C. Operating Procedures: Include the following, as applicable:
1. Startup procedures.
  2. Equipment or system break-in procedures.
  3. Routine and normal operating instructions.
  4. Regulation and control procedures.
  5. Instructions on stopping.
  6. Normal shutdown instructions.
  7. Seasonal and weekend operating instructions.
  8. Required sequences for electric or electronic systems.
  9. Special operating instructions and procedures.
- D. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.
- E. Piped Systems: Diagram piping as installed, and identify color-coding where required for identification.

## **2.05 PRODUCT MAINTENANCE MANUAL**

- A. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.
- B. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.
- C. Product Information: Include the following, as applicable:
1. Product name and model number.
  2. Manufacturer's name.
  3. Color, pattern, and texture.
  4. Material and chemical composition.
  5. Reordering information for specially manufactured products.
- D. Maintenance Procedures: Include manufacturer's written recommendations and the following:
1. Inspection procedures.
  2. Types of cleaning agents to be used and methods of cleaning.
  3. List of cleaning agents and methods of cleaning detrimental to product.
  4. Schedule for routine cleaning and maintenance.
  5. Repair instructions.
  6. Contact information.
- E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.
- F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
1. Include procedures to follow and required notifications for warranty claims.

## **2.06 SYSTEMS AND EQUIPMENT MAINTENANCE MANUAL**

- A. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.
- B. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.

- C. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including the following information for each component part or piece of equipment:
  - 1. Standard printed maintenance instructions and bulletins.
  - 2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
  - 3. Identification and nomenclature of parts and components.
  - 4. List of items recommended to be stocked as spare parts.
- D. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:
  - 1. Test and inspection instructions.
  - 2. Troubleshooting guide.
  - 3. Precautions against improper maintenance.
  - 4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
  - 5. Aligning, adjusting, and checking instructions.
  - 6. Demonstration and training videotape, if available.
- E. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.
  - 1. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.
  - 2. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.
- F. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.
- G. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
  - 1. Include procedures to follow and required notifications for warranty claims.

### **PART 3 EXECUTION**

#### **3.01 MANUAL PREPARATION**

- A. Operation and Maintenance Documentation Directory: Prepare a separate manual that provides an organized reference to emergency, operation, and maintenance manuals.
- B. Emergency Manual: Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by Owner's operating personnel for types of emergencies indicated.
- C. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.
- D. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.
  - 1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
  - 2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.
- E. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.

1. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.
- F. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in Record Drawings to ensure correct illustration of completed installation.
1. Do not use original Project Record Documents as part of operation and maintenance manuals.
  2. Comply with requirements of newly prepared Record Drawings in Division 1 Section 01 78 39 "Project Record Documents."
- G. Comply with Division 1 Section 01 77 00 "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

**END OF SECTION**



**SECTION 01 7839**  
**PROJECT RECORD DOCUMENTS**

**PART 1 GENERAL**

**1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

**1.02 SUMMARY**

- A. This Section includes administrative and procedural requirements for Project Record Documents, including the following:
  - 1. Record Drawings.
  - 2. Record Specifications.
  - 3. Record Product Data.
- B. Related Sections include the following:
  - 1. Division 1 Section 01 77 00 "Closeout Procedures" for general closeout procedures.
  - 2. Division 1 Section 01 78 23 "Operation and Maintenance Data" for operation and maintenance manual requirements.
  - 3. Divisions 2 through 49 Sections for specific requirements for Project Record Documents of the Work in those Sections.

**1.03 SUBMITTALS**

- A. Record Drawings: Comply with the following:
  - 1. Number of Copies: Submit copies of Record Drawings as follows:
    - a. Final Submittal: Submit one set of marked-up Record Prints (not "Job Shack" set).
- B. Record Specifications: Submit one copy of Project's Specifications, including addenda and contract modifications.
- C. Record Product Data: Submit one copy of each Product Data submittal.
  - 1. Where Record Product Data is required as part of operation and maintenance manuals, submit marked-up Product Data as an insert in manual instead of submittal as Record Product Data.

**PART 2 PRODUCTS**

**2.01 RECORD DRAWINGS**

- A. Record Prints: Maintain one set of blue- or black-line white prints of the Contract Drawings and Shop Drawings.
  - 1. Preparation: Mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.
    - a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
    - b. Accurately record information in an understandable drawing technique.
    - c. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
  - 2. Content: Types of items requiring marking include, but are not limited to, the following:
    - a. Dimensional changes to Drawings.
    - b. Revisions to details shown on Drawings.
    - c. Depths of foundations below first floor.
    - d. Locations and depths of underground utilities.
    - e. Revisions to routing of piping and conduits.
    - f. Revisions to electrical circuitry.
    - g. Actual equipment locations.
    - h. Duct size and routing.

- i. Locations of concealed internal utilities.
  - j. Changes made by Change Order.
  - k. Changes made following Architect's written orders.
  - l. Details not on the original Contract Drawings.
  - m. Field records for variable and concealed conditions.
  - n. Record information on the Work that is shown only schematically.
3. Mark the Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. If Shop Drawings are marked, show cross-reference on the Contract Drawings.
  4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
  5. Mark important additional information that was either shown schematically or omitted from original Drawings.
  6. Note Alternate numbers, Change Order numbers, and similar identification, where applicable.
- B. Format: Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
1. Record Prints: Organize Record Prints and newly prepared Record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
  2. Record Transparencies: Organize into unbound sets matching Record Prints. Place transparencies in durable tube-type drawing containers with end caps. Mark end cap of each container with identification. If container does not include a complete set, identify Drawings included.
  3. Identification: As follows:
    - a. Project name.
    - b. Date.
    - c. Designation "PROJECT RECORD DRAWINGS."
    - d. Name of Architect and Owner's Project Manager.
    - e. Name of Contractor.

## 2.02 RECORD SPECIFICATIONS

- A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
  2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
  3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.

## 2.03 RECORD PRODUCT DATA

- A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.
1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
  2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
  3. Note related Change Orders where applicable.

## 2.04 MISCELLANEOUS RECORD SUBMITTALS

- A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

**PART 3 EXECUTION**

**3.01 RECORDING AND MAINTENANCE**

- A. Recording: Maintain one copy of each submittal during the construction period for Project Record Document purposes. Post changes and modifications to Project Record Documents as they occur; do not wait until the end of Project.
- B. Maintenance of Record Documents and Samples: Store Record Documents and Samples in the field office apart from the Contract Documents used for construction. Do not use Project Record Documents for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to Project Record Documents for Architect's and Owner's Project Manager's reference during normal working hours.

**END OF SECTION**



**SECTION 03 1000**  
**CONCRETE FORMING AND ACCESSORIES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Formwork for cast-in place concrete, with shoring, bracing and anchorage.
- B. Openings for other work.
- C. Form accessories.
- D. Form stripping.

**1.02 RELATED REQUIREMENTS**

- A. Section 03 2000 - Concrete Reinforcing.
- B. Section 03 3000 - Cast-in-Place Concrete.
- C. Section 04 2000 - Unit Masonry: Reinforcement for masonry.
- D. Section 05 5000 - Metal Fabrications: Anchor Bolts for Metal Fabrications and other trades.
- E. Section 06 1000 - Rough Carpentry: Anchor bolts for Rough Carpentry.

**1.03 REFERENCE STANDARDS**

- A. ACI 117 - Standard Specifications for Tolerances for Concrete Construction and Materials; 2010.
- B. ACI 301 - Specifications for Structural Concrete for Buildings; American Concrete Institute; 2010.
- C. OSSC - Oregon Structural Specialty Code, latest edition.

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

**PART 2 PRODUCTS**

**2.01 FORMWORK - GENERAL**

- A. Provide concrete forms, accessories, shoring, and bracing as required to accomplish cast-in-place concrete work.
- B. Design and construct to provide resultant concrete that conforms to design with respect to shape, lines, and dimensions.
- C. Chamfer outside corners of beams, joists, columns, walls, and other surfaces exposed to view unless otherwise indicated on Drawings.
- D. Formwork design and engineering are Contractor's responsibility. Comply with applicable state and local codes with respect to design, fabrication, erection, and removal of formwork.

**2.02 WOOD FORM MATERIALS**

- A. Form Materials:
  - 1. At exposed vertical surfaces: MDO plywood, smooth and free of any surface texture.
  - 2. At other locations: Contractor discretion in accordance with ACI 347.

**2.03 FORMWORK ACCESSORIES**

- A. Form Ties: Snap-off type, galvanized metal, adjustable length, cone type, free of defects that could leave holes larger than 1 inch in concrete surface.
- B. Form Release Agent: Capable of releasing forms from hardened concrete without staining or discoloring concrete or forming bugholes and other surface defects, compatible with concrete and form materials, and not requiring removal for satisfactory bonding of coatings to be applied.
  - 1. Composition: Colorless mineral oil-based, soy-based, or vegetable-oil based compound.

- C. Reveal / Chamfer Strips: Rigid plastic or wood strip type; 3/4 x 3/4 inch size unless otherwise noted on Drawings; maximum possible lengths. Mill wood strips from straight-grained lumber and surface all sides.
- D. Embedded Anchor Shapes, Plates, Angles and Bars: As specified in Section 05 1200.

### **PART 3 EXECUTION**

#### **3.01 EXAMINATION**

- A. Verify lines, levels and centers before proceeding with formwork. Ensure that dimensions agree with drawings.
- B. Verify subgrade is at proper depth to accommodate footing and slab thickness.

#### **3.02 EARTH FORMS**

- A. Earth forms are not permitted.

#### **3.03 ERECTION - FORMWORK**

- A. Erect formwork, shoring and bracing to achieve design requirements, in accordance with requirements of ACI 301.
- B. Provide bracing to ensure stability of formwork. Shore or strengthen formwork subject to overstressing by construction loads.
- C. Arrange and assemble formwork to permit dismantling and stripping. Do not damage concrete during stripping. Permit removal of remaining principal shores.
- D. Align joints and make watertight. Keep form joints to a minimum.
- E. Unless otherwise indicated, install form ties equidistant and symmetrical, aligned vertically and horizontally.
- F. Obtain approval before framing openings in structural members that are not indicated on drawings.
- G. Provide chamfer strips at the following locations:
  - 1. External corners of walls, beams, and exposed edges of slabs
  - 2. Vertical control joints at 12'-0" min or as described on the Drawings at all exposed concrete.
  - 3. Other locations indicated on Drawings.
- H. Coordinate this section with other sections of work that require attachment of components to formwork.
- I. If formwork is placed after reinforcement, resulting in insufficient concrete cover over reinforcement, request instructions from Architect before proceeding.

#### **3.04 APPLICATION - FORM RELEASE AGENT**

- A. Apply form release agent on formwork in accordance with manufacturer's recommendations.
- B. Apply prior to placement of reinforcing steel, anchoring devices, and embedded items.
- C. Do not apply form release agent where concrete surfaces will receive special finishes or applied coverings that are affected by agent. Soak inside surfaces of untreated forms with clean water. Keep surfaces coated prior to placement of concrete.

#### **3.05 INSERTS, EMBEDDED PARTS, AND OPENINGS**

- A. Provide formed openings where required for items to be embedded in or passing through concrete work.
- B. Locate and set in place items that will be cast directly into concrete. Do not 'wet set'.
- C. Place anchor bolts in accordance with AISC Code of Standard Practice.
- D. Coordinate with work of other sections in forming and placing openings, slots, reglets, recesses, sleeves, bolts, anchors, other inserts, and components of other work.



- E. Install accessories in accordance with manufacturer's instructions, so they are straight, level, and plumb. Ensure items are not disturbed during concrete placement.
- F. Provide temporary ports or openings in formwork where required to facilitate cleaning and inspection. Locate openings at bottom of forms to allow flushing water to drain.
- G. Close temporary openings with tight fitting panels, flush with inside face of forms, and neatly fitted so joints will not be apparent in exposed concrete surfaces.

**3.06 FORM CLEANING**

- A. Clean forms as erection proceeds, to remove foreign matter within forms.
- B. Clean formed cavities of debris prior to placing concrete.

**3.07 FORMWORK TOLERANCES**

- A. Construct formwork to maintain tolerances required by ACI 117, unless otherwise indicated.

**3.08 FIELD QUALITY CONTROL**

- A. An independent testing agency will perform field quality control tests, as specified in Section 01 4000.
- B. Inspect erected formwork, shoring, and bracing to ensure that work is in accordance with formwork design, and to verify that supports, fastenings, wedges, ties, and items are secure.

**3.09 FORM REMOVAL**

- A. Do not remove forms or bracing until concrete has gained sufficient strength to carry its own weight and imposed loads.
- B. Loosen forms carefully. Do not wedge pry bars, hammers, or tools against finish concrete surfaces scheduled for exposure to view.

**END OF SECTION**



**SECTION 03 2000**  
**CONCRETE REINFORCING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Reinforcing steel for cast-in-place concrete.
- B. Reinforcing steel for masonry
- C. Supports and accessories for steel reinforcement.
- D. Installation of Epoxy Adhesive Anchors in concrete.

**1.02 RELATED REQUIREMENTS**

- A. Section 03 1000 - Concrete Forming and Accessories.
- B. Section 03 3000 - Cast-in-Place Concrete.
- C. Section 04 2000 - Unit Masonry: Reinforcement for masonry.

**1.03 REFERENCE STANDARDS**

- A. ACI 301 - Specifications for Structural Concrete for Buildings; American Concrete Institute International; 2010.
- B. ACI 318 - Building Code Requirements For Structural Concrete and Commentary; American Concrete Institute International; 2011.
- C. ACI SP-66 - ACI Detailing Manual; American Concrete Institute International; 2004.
- D. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement; 2013.
- E. CRSI (DA4) - Manual of Standard Practice; Concrete Reinforcing Steel Institute; 2009.

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Comply with requirements of ACI SP-66. Include bar schedules, shapes of bent bars, spacing of bars, and location of splices.
- C. Product Data: Submit manufacturer's data on epoxy adhesives.

**1.05 QUALITY ASSURANCE**

- A. Perform work of this section in accordance with ACI 301.
- B. Provide 48 hours notice to Architect for review of completed reinforcement. Allow 24 hours for Architect's review. Allow sufficient time in construction schedule for corrections to reinforcement prior to placement of concrete.

**PART 2 PRODUCTS**

**2.01 REINFORCEMENT**

- A. Reinforcing Steel: ASTM A615/A615M Grade 60 (420); A706 where noted on structural drawings.
  - 1. Deformed billet-steel bars.
  - 2. Unfinished.
  - 3. Minimum 95 percent post-industrial recycled content.
- B. Reinforcing Steel, weldable: ASTM A706/A706M, Grade 60, deformed billet-steel bars.
- C. Steel Dowels: ASTM A615, 60ksi yield grade; smooth; where shown on drawings wrap or coat 1/2 of length with grease or coating designed to eliminate bond with concrete, allowing free movement of bar.
- D. Reinforcement Accessories:
  - 1. Tie Wire: Annealed, minimum 16 gage.

2. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for adequate support of reinforcement during concrete placement; avoid damage to underslab vapor barrier where installed.
3. Provide stainless steel or plastic components for placement within 1-1/2 inches of weathering surfaces.
4. Mechanical couplers to meet or exceed strength of connected elements.

## **2.02 FABRICATION**

- A. Fabricate concrete reinforcing in accordance with CRSI (DA4) - Manual of Standard Practice and ACI 318.
- B. Welding of reinforcement is not permitted unless shown on Drawings.

## **2.03 EPOXY ANCHORING SYSTEM**

- A. Epoxy resin, ASTM C881, Type IV, Grade 3, Class B or Class C, Grade 2 may be used in vertical application; Simpson SET-XP Epoxy, Hilti HIT-RE 500SD (at concrete), Hilti HY-150 Max (at CMU), or approved.

## **PART 3 EXECUTION**

### **3.01 PLACEMENT**

- A. Place, support and secure reinforcement against displacement. Do not deviate from required position.
- B. Do not displace or damage vapor barrier.
- C. Accommodate placement of formed openings.
- D. Conform to Structural Drawings and applicable codes for concrete cover over reinforcement.
- E. In locations where new concrete is doweled to existing work, drill holes in existing concrete, insert steel dowels and pack solid with non-shrink grout, except where dowels are specifically permitted to be ungrouted or required to be epoxied as shown on the Drawings.
- F. Do not "wet-set" reinforcing bars or anchor bolts.

### **3.02 SPECIAL REINFORCEMENT INSTALLATION, UNLESS OTHERWISE SHOWN ON DRAWINGS**

- A. At Electrical Service Entrance:
  1. Provide 1 each, #4 bar lap spliced to foundation or slab reinforcing at lowest elevation. Extend minimum 12 inches above wall framing base plate near main electrical service entry point. Cap reinforcing end with protective plastic cap. Conform installation to National Electric Code Article 250-52, 250-66, 250-68 and 250-70.
- B. At Wall Corners and Intersections:
  1. Splice horizontal wall reinforcing with splice bars and corner bars; space and size to match horizontal wall reinforcing.
  2. Extend beyond corner or intersection 48 bar diameters; 24 inches minimum.
- C. At Wall Openings:
  1. Provide 2 each #5 bars around Openings; extend vertical bars full wall height and horizontal bars 24 inches minimum beyond opening corners.
  2. Where not possible: Hook bar ends.
- D. At Slab Re-entrant Corners:
  1. Provide 1 each, 48 inch long, #4 bar diagonally across re-entrant corner.

### **3.03 FIELD QUALITY CONTROL**

- A. An independent testing agency, as specified in Section 01 4000, will inspect installed reinforcement for conformance to contract documents before concrete placement.
- B. An independent testing agency, as specified in Section 01400, will provide special inspection for all epoxy adhesive installation in accordance with the manufacturer's ICBO report.

**END OF SECTION**

**SECTION 03 3000**  
**CAST-IN-PLACE CONCRETE**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Footings, stem walls, floors, and slabs on grade.
- B. Joint devices associated with concrete work.
- C. Concrete curing.

**1.02 RELATED REQUIREMENTS**

- A. Section 03 1000 - Concrete Forming and Accessories: Forms and accessories for formwork; placement of anchors and embeds.
- B. Section 03 2000 - Concrete Reinforcing.
- C. Section 03 3511 - Concrete Floor Finishes: Densifiers, hardeners, applied coatings, and polishing.
- D. Section 05 12 00 - Structural Steel: Grouting under base plates.
- E. Section 07 9005 - Joint Sealers: Sealants for saw cut joints and isolation joints in slabs.

**1.03 REFERENCE STANDARDS**

- A. ACI 211.1 - Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete; American Concrete Institute International; 1991 (Reapproved 2002).
- B. ACI 301 - Specifications for Structural Concrete; American Concrete Institute International; 2010.
- C. ACI 302.1R - Guide for Concrete Floor and Slab Construction; American Concrete Institute International; 2004 (Errata 2007).
- D. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete; American Concrete Institute International; 2000.
- E. ACI 305R - Hot Weather Concreting; American Concrete Institute International; 2010.
- F. ACI 306R - Cold Weather Concreting; American Concrete Institute International; 2010.
- G. ACI 308R - Guide to Curing Concrete; American Concrete Institute International; 2001 (Reapproved 2008).
- H. ACI 318 - Building Code Requirements for Structural Concrete and Commentary; American Concrete Institute International; 2011.
- I. ASTM C33/C33M - Standard Specification for Concrete Aggregates; 2013.
- J. ASTM C39/C39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens; 2012a.
- K. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete; 2013.
- L. ASTM C150/C150M - Standard Specification for Portland Cement; 2012.
- M. ASTM C173/C173M - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method; 2012.
- N. ASTM C260/C260M - Standard Specification for Air-Entraining Admixtures for Concrete; 2010a.
- O. ASTM C494/C494M - Standard Specification for Chemical Admixtures for Concrete; 2013.
- P. ASTM C618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete; 2012.
- Q. ASTM C685/C685M - Standard Specification for Concrete Made by Volumetric Batching and Continuous Mixing; 2011.

- R. ASTM D1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types); 2004 (Reapproved 2013).
- S. OSSC - Oregon Structural Specialty Code, latest edition.

#### **1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Submit manufacturers' data on manufactured products showing compliance with specified requirements and installation instructions.
- C. Mix Design: Submit proposed concrete mix design.
  - 1. Indicate proposed mix design complies with requirements of ACI 318, Chapter 5 - Concrete Quality, Mixing and Placing, and requirements of the OSSC.
- D. Project Record Documents: Accurately record actual locations of embedded utilities and components that will be concealed from view upon completion of concrete work.

#### **1.05 QUALITY ASSURANCE**

- A. Perform work of this section in accordance with ACI 301 and ACI 318.
- B. Follow recommendations of ACI 305R when concreting during hot weather.
- C. Follow recommendations of ACI 306R when concreting during cold weather.

### **PART 2 PRODUCTS**

#### **2.01 FORMWORK**

- A. Comply with requirements of Section 03 1000.

#### **2.02 REINFORCEMENT**

- A. Comply with requirements of Section 03 2000.

#### **2.03 CONCRETE MATERIALS**

- A. Cement: ASTM C150, Type I - Normal, or Type II - Moderate Portland type.
- B. Fine and Coarse Aggregates: ASTM C 33.
- C. Fly Ash: ASTM C618, Class C or F.
- D. Slag: Ground Granulated Blast-Furnace Slag; ASTM C989, Grade 100 or 120.
- E. Water: Clean and not detrimental to concrete.

#### **2.04 ADMIXTURES**

- A. Do not use chemicals that will result in soluble chloride ions in excess of 0.1 percent by weight of cement. Calcium chloride is not allowed.
- B. Air Entrainment Admixture: ASTM C260/C260M.
- C. High Range Water Reducing and Retarding Admixture: ASTM C494/C494M Type G.
- D. Water Reducing Admixture: ASTM C494/C494M Type A.

#### **2.05 ACCESSORY MATERIALS**

- A. Screw Anchors for Concrete and Masonry: Carbon steel, heat treated, since plated Heavy duty screw anchor. Use where shown on drawings. Simpson Strong-Tie Titen HD, Power's Wedge-Bolt, or approved.

#### **2.06 BONDING AND JOINTING PRODUCTS**

- A. Slab Isolation Joint Filler: 1/2 inch thick, height equal to slab thickness, with removable top section that will form 1/2 inch deep sealant pocket after removal.
  - 1. Material: ASTM D1751, cellulose fiber.



## 2.07 CURING MATERIALS

- A. Curing Compound, Naturally Dissipating: Clear, water-based, liquid membrane-forming compound, that dissipates within 3 to 5 weeks; complying with ASTM C309, Type 1.
  - 1. Ensure compatibility with Hardeners, Sealers, or Coatings specified in Section 03 3511.
- B. Moisture-Retaining Sheet: ASTM C171.
  - 1. Curing paper, regular.
  - 2. Polyethylene film, clear, minimum nominal thickness of 0.0040 in..
  - 3. White-burlap-polyethylene sheet, weighing not less than 10 oz/per linear yd, 40 inches wide.
- C. Water: Potable, not detrimental to concrete.

## 2.08 CONCRETE MIX DESIGN

- A. Proportioning Normal Weight Concrete: Comply with ACI 211.1 recommendations.
  - 1. Replace as much Portland cement as possible with fly ash, ground granulated blast furnace slag, silica fume, or rice hull ash as is consistent with ACI recommendations.
- B. Concrete Strength: Establish required average strength for each type of concrete on the basis of field experience or trial mixtures, as specified in ACI 301.
  - 1. For trial mixtures method, employ independent testing agency acceptable to Architect for preparing and reporting proposed mix designs.
  - 2. Supplier is responsible for achieving or exceeding concrete design strengths.
- C. Admixtures: Add acceptable admixtures as recommended in ACI 211.1 and at rates recommended or required by manufacturer.
  - 1. Use accelerating admixtures in cold weather only when approved by Architect. Use of admixtures will not relax cold weather placement requirements.
  - 2. Use set retarding admixtures during hot weather only when approved by Architect.
- D. Add air entraining agent to normal weight concrete mix for horizontal work exposed to exterior.
- E. Normal Weight Concrete:
  - 1. At Footings / Stem Walls:
    - a. Compressive Strength, when tested in accordance with ASTM C 39/C 39M at 28 days: 3,000 psi.
    - b. Fly Ash or Slag Content: Minimum 15 percent and maximum 25 percent of cementitious materials by weight.
    - c. Water-Cementitious materials Ratio: Maximum 50 percent by weight.
    - d. Total Air Content: 5 percent, plus or minus 1-½%, per ASTM C 173 .
    - e. Maximum Aggregate Size: ¾ inch.
  - 2. At Interior Slabs-on-Grade:
    - a. Compressive Strength, when tested in accordance with ASTM C 39/C 39M at 28 days: 3,000 psi
    - b. Fly Ash or Slag Content: Minimum 15 percent and maximum 25 percent of cementitious materials by weight.
    - c. Water-Cementitious Materials Ratio: Maximum 42 percent by weight.
    - d. Total Air Content: 5 percent plus or minus 1-½%, per ASTM C 173.
    - e. Maximum Aggregate Size: ¾ inch.
    - f. Note: The Water-Cement Ratio is the governing criteria as the intent is to keep the moisture content of the slab low.

## 2.09 MIXING

- A. On Project Site: Mix in drum type batch mixer, complying with ASTM C685. Mix each batch not less than 1-1/2 minutes and not more than 5 minutes.
- B. Transit Mixers: Comply with ASTM C94/C94M.

### **PART 3 EXECUTION**

#### **3.01 EXAMINATION**

- A. Verify lines, levels, and dimensions before proceeding with work of this section.

#### **3.02 PREPARATION**

- A. Verify that forms are clean and free of rust before applying release agent.
- B. Coordinate placement of embedded items with erection of concrete formwork and placement of form accessories.
- C. Where new concrete is to be bonded to previously placed concrete, prepare existing surface by cleaning with steel brush and applying bonding agent in accordance with manufacturer's instructions.
- D. In locations where new concrete is doweled to existing work, drill holes in existing concrete, insert steel dowels and pack solid with non-shrink grout.

#### **3.03 PLACING CONCRETE**

- A. Place concrete in accordance with ACI 304R.
- B. Place concrete for floor slabs in accordance with ACI 302.1R.
- C. Notify Architect not less than 24 hours prior to commencement of placement operations.
- D. Ensure reinforcement, inserts, embedded parts, and formed construction joint devices will not be disturbed during concrete placement.
- E. Place concrete continuously without construction (cold) joints wherever possible; where construction joints are necessary, before next placement prepare joint surface by removing laitance and exposing the sand and sound surface mortar, by sandblasting or high-pressure water jetting.
- F. Finish floors level and flat, unless otherwise indicated, within the tolerances specified below.

#### **3.04 SLAB JOINTING**

- A. Locate joints as indicated on the drawings.
- B. Anchor joint fillers and devices to prevent movement during concrete placement.
- C. Isolation Joints: Use preformed joint filler with removable top section for joint sealant, total height equal to thickness of slab, set flush with top of slab.
  - 1. Install where indicated on drawings, and wherever necessary to separate slab from other building members, including columns, walls, equipment foundations, footings, stairs, manholes, sumps, and drains.
- D. Load Transfer Construction and Contraction Joints: Install load transfer devices as indicated; saw cut joint at surface as indicated for contraction joints.
- E. Saw Cut Contraction Joints: Saw cut joints before concrete begins to cool, within 4 to 12 hours after placing; use 3/16 inch thick blade and cut at least 1 inch deep but not less than one quarter (1/4) the depth of the slab.

#### **3.05 FLOOR FLATNESS AND LEVELNESS TOLERANCES**

- A. Maximum Variation of Surface Flatness:
  - 1. Exposed Concrete Floors: 1/4 inch in 10 ft.
  - 2. Under Seamless Resilient Flooring: 1/4 inch in 10 ft.
  - 3. Under Carpeting: 1/4 inch in 10 ft.
- B. Correct the slab surface if tolerances are less than specified.
- C. Correct defects by grinding or by removal and replacement of the defective work. Areas requiring corrective work will be identified. Re-measure corrected areas by the same process.

#### **3.06 CONCRETE FINISHING**

- A. Repair surface defects, including tie holes, immediately after removing formwork.

- B. Unexposed Form Finish: Rub down or chip off fins or other raised areas 1/4 inch or more in height.
- C. Exposed Form Finish: Rub down or chip off and smooth fins or other raised areas 1/4 inch or more in height. Provide finish as follows:
  - 1. Smooth Rubbed Finish: Wet concrete and rub with carborundum brick or other abrasive, not more than 24 hours after form removal.
- D. Concrete Slabs: Finish to requirements of ACI 302.1R, and as follows:
  - 1. Other Surfaces to Be Left Exposed: "Steel trowel" as described in ACI 302.1R, minimizing burnish marks and other appearance defects.

### 3.07 CURING AND PROTECTION

- A. Comply with requirements of ACI 308R. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.
- B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.
- C. Surfaces Not in Contact with Forms:
  - 1. Initial Curing: Start as soon as free water has disappeared and before surface is dry. Keep continuously moist for not less than three days by water ponding, water-fog spray, or saturated burlap.
    - a. Ponding: Maintain 100 percent coverage of water over floor slab areas, continuously for 4 days.
    - b. Spraying: Spray water over floor slab areas and maintain wet.
    - c. Saturated Burlap: Saturate burlap-polyethylene and place burlap-side down over floor slab areas, lapping ends and sides; maintain in place.
  - 2. Final Curing: Begin after initial curing but before surface is dry.
    - a. Curing Compound: Apply in two coats at right angles, using application rate recommended by manufacturer.

### 3.08 FIELD QUALITY CONTROL

- A. An independent testing agency will perform field quality control tests, as specified in Section 01 4000.
- B. Provide free access to concrete operations at project site and cooperate with appointed firm. Notify Architect and Testing Lab at least 48 hours before intended concrete placement.
- C. Submit proposed mix design of each class of concrete to inspection and testing firm for review prior to commencement of concrete operations.
- D. Tests of concrete and concrete materials may be performed at any time to ensure conformance with specified requirements.
- E. Compressive Strength Tests: ASTM C 39/C 39M. For each sampling of concrete, mold and cure a set of five concrete test cylinders. Obtain test samples for every 150 cu yd or less of each class of concrete placed in each day.
  - 1. Perform compressive strength tests on sets of cylinders at their respective age as follows:
    - a. One at seven days
    - b. One at 14 days
    - c. Two at 28 days, and
    - d. Hold one for future use
  - 2. If at the end of the project all of the concrete reaches the required compressive strength, the held cylinders may be discarded without being tested.
- F. Take one additional test cylinder during cold weather concreting, cured on job site under same conditions as concrete it represents.
- G. Perform one air content test for each set of cylinders taken for air-entrained concrete, following procedures of ASTM C173/C173M.

**3.09 DEFECTIVE CONCRETE**

- A. Defective Concrete: Concrete not conforming to required lines, details, dimensions, tolerances or specified requirements.
- B. Repair or replacement of defective concrete will be determined by the Architect. The cost of additional testing shall be borne by Contractor when defective concrete is identified.
- C. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of Architect for each individual area.

**3.10 PROTECTION**

- A. Do not permit traffic over unprotected concrete floor surface until fully cured.

**END OF SECTION**

**SECTION 04 2000**  
**UNIT MASONRY**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Concrete Block.
- B. Mortar and Grout.
- C. Accessories.

**1.02 RELATED REQUIREMENTS**

- A. Section 03 2000 - Concrete Reinforcing: Reinforcing steel for grouted masonry.
- B. Section 07 6200 - Sheet Metal Flashing and Trim: Through-wall masonry flashings.
- C. Section 07 9005 - Joint Sealers: Backing rod and sealant at control and expansion joints.

**1.03 REFERENCE STANDARDS**

- A. ACI 530/530.1/ERTA - Building Code Requirements and Specification for Masonry Structures and Related Commentaries; American Concrete Institute International; 2011.
- B. ASTM C90 - Standard Specification for Loadbearing Concrete Masonry Units; 2013.
- C. ASTM C91/C91M - Standard Specification for Masonry Cement; 2012.
- D. ASTM C140/C140M - Standard Test Methods of Sampling and Testing Concrete Masonry Units and Related Units; 2013.
- E. ASTM C144 - Standard Specification for Aggregate for Masonry Mortar; 2011.
- F. ASTM C150/C150M - Standard Specification for Portland Cement; 2012.
- G. ASTM C207 - Standard Specification for Hydrated Lime for Masonry Purposes; 2006 (Reapproved 2011).
- H. ASTM C270 - Standard Specification for Mortar for Unit Masonry; 2012.
- I. ASTM C404 - Standard Specification for Aggregates for Masonry Grout; 2011.
- J. ASTM C476 - Standard Specification for Grout for Masonry; 2010.
- K. ASTM C780 - Standard Test Method for Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry; 2012.
- L. ASTM C1148 - Standard Test Method for Measuring the Drying Shrinkage of Masonry Mortar; 1992a (Reapproved 2008) .
- M. ASTM C1314 - Standard Test Method for Compressive Strength of Masonry Prisms; 2012.
- N. ASTM C1357 - Standard Test Methods for Evaluating Masonry Bond Strength; 2009.
- O. ASTM E514/E514M - Standard Test Method for Water Penetration and Leakage Through Masonry; 2011.

**1.04 ADMINISTRATIVE REQUIREMENTS**

**1.05 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data for masonry units, mortar, and masonry accessories.

**1.06 QUALITY ASSURANCE**

- A. Comply with provisions of ACI 530/530.1/ERTA, except where exceeded by requirements of the contract documents.
- B. Installer: Company specializing in performing the work of this Section with minimum three years documented experience.
- C. Advance notices: Notify Architect and Testing Lab at least 48 hours before Grout placement.

### 1.07 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, handle, and store masonry units by means that will prevent mechanical damage and contamination by other materials.

## PART 2 PRODUCTS

### 2.01 CONCRETE MASONRY UNITS

- A. Concrete Block: Comply with referenced standards and as follows:
  - 1. Size: Standard units with nominal face dimensions of 16 x 8 inches by 8 inches thick nominal depth unless otherwise indicated on the drawings for specific locations.
  - 2. Special Shapes: Provide non-standard blocks configured for corners, lintels, and other detailed conditions. Field cut stretchers to make Bond Beams in CMU to assure color uniformity.
  - 3. Load-Bearing Units: ASTM C90, medium weight.
    - a. Hollow block.
    - b. Minimum compressive unit strength 1,900 psi, maximum moisture content 40 percent.
    - c. Maximum moisture content 40 percent.
    - d. Exposed faces: Plain face, Split face, and Ground face where indicated on Drawings.
    - e. Color: Standard Gray
    - f. Exposed faces: Manufacturer's standard color and smooth texture where indicated.
  - 4. Units with Integral Water Repellent: Concrete block units as specified in this section with polymeric liquid admixture added to concrete masonry units at the time of manufacture.
    - a. Performance of Units with Integral Water Repellent:
      - 1) Water Permeance: When tested per ASTM E514 and for a minimum of 72 hours.
        - (a) No water visible on back of wall above flashing at the end of 24 hours.
        - (b) No flow of water from flashing equal to or greater than 0.032 gallons per hour at the end of 24 hours.
        - (c) No more than 25% of wall area above flashing visibly damp at end of test.
      - 2) Flexural Bond Strength: ASTM C1357; minimum 10% increase.
      - 3) Compressive Strength: ASTM C1314; maximum 5% decrease.
      - 4) Drying Shrinkage: ASTM C1148; maximum 5% increase in shrinkage.
    - b. Use only in combination with mortar and grout that also has integral water repellent admixture.
    - c. Use water repellent admixtures for masonry units, mortar and grout by a single manufacturer.

### 2.02 MORTAR AND GROUT MATERIALS

- A. Masonry Cement: ASTM C91, Type S.
- B. Portland Cement: ASTM C150, Type I; color as required to produce approved color sample.
- C. Hydrated Lime: ASTM C207, Type S.
- D. Mortar Aggregate: ASTM C144.
- E. Grout Aggregate: ASTM C404.
- F. Water: Clean and potable.
- G. Integral Water Repellent Admixture for Mortar and Grout: Polymeric liquid admixture added to mortar and grout at the time of manufacture.
  - 1. Use only in combination with masonry units manufactured with integral water repellent admixture.
  - 2. Use only water repellent admixture for mortar and grout from the same manufacturer as water repellent admixture in masonry units.
  - 3. Meet or exceed performance specified for water repellent admixture used in masonry units.

### **2.03 REINFORCEMENT AND ANCHORAGE**

- A. Reinforcing Steel: Type specified in Section 03 2000; size as indicated on drawings; uncoated finish.

### **2.04 FLASHINGS**

- A. Metal Flashing Materials: Stainless Steel, as specified in Section 07 6200.

### **2.05 ACCESSORIES**

- A. Cleaning Solution: Non-acidic, not harmful to masonry work or adjacent materials; approved by masonry manufacturer, compatible with water repellent specified in Section 07 1900.

### **2.06 MORTAR AND GROUT MIXES**

- A. Mortar for Unit Masonry: ASTM C270, using the Property Specification.
  - 1. Loadbearing masonry: Type S (1800 psi).
  - 2. Non-loadbearing masonry: Type N (750 psi).
  - 3. Color: Natural Gray.
- B. Grout: ASTM C476. Consistency required to fill completely volumes indicated for grouting; fine grout for spaces with smallest horizontal dimension of 2 inches or less; coarse grout for spaces with smallest horizontal dimension greater than 2 inches. Minimum compressive strength 2000 psi.
- C. Admixtures: Add to mixture at manufacturer's recommended rate and in accordance with manufacturer's instructions; mix uniformly.
- D. Mixing: Use mechanical batch mixer and comply with referenced standards.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that field conditions are acceptable and are ready to receive masonry.
- B. Verify that related items provided under other sections are properly sized and located.
- C. Verify that built-in items are in proper location, and ready for roughing into masonry work.

### **3.02 PREPARATION**

- A. Direct and coordinate placement of metal anchors supplied for installation under other sections.
- B. Provide temporary bracing during installation of masonry work. Maintain in place until building structure provides permanent bracing.
- C. Coordinate masonry work with installation of windows, doors, louvers, anchors, concrete slabs, and mechanical and electrical work.

### **3.03 COLD AND HOT WEATHER REQUIREMENTS**

- A. Comply with requirements of ACI 530/530.1/ERTA or applicable building code, whichever is more stringent.

### **3.04 COURSING**

- A. Establish lines, levels, and coursing indicated. Protect from displacement.
- B. Maintain masonry courses to uniform dimension. Form vertical and horizontal joints of uniform thickness.
- C. Concrete Masonry Units:
  - 1. Bond: Running.
  - 2. Coursing: One unit and one mortar joint to equal 8 inches.
  - 3. Mortar Joints: Match existing.

### **3.05 PLACING AND BONDING**

- A. Lay hollow masonry units with face shell bedding on head and bed joints.
- B. Buttering corners of joints or excessive furrowing of mortar joints is not permitted.



- C. Remove excess mortar and mortar smears as work progresses.
- D. Interlock intersections and external corners, except for units laid in stack bond.
- E. Do not shift or tap masonry units after mortar has achieved initial set. Where adjustment must be made, remove mortar and replace.
- F. Perform job site cutting of masonry units with proper tools to provide straight, clean, unchipped edges. Prevent broken masonry unit corners or edges.

### **3.06 REINFORCEMENT AND ANCHORAGE - SINGLE WYTHE MASONRY**

- A. Install reinforcement as indicated on Drawings.
- B. Install horizontal joint reinforcement 8 inches on center.
- C. Secure reinforcement to prevent displacement during grouting operations.
- D. Install wall control joints as shown on Drawings. Stop horizontal reinforcing at joints except where shown otherwise.

### **3.07 GROUTED COMPONENTS**

- A. Support and secure reinforcing bars from displacement. Maintain position within 1/2 inch of dimensioned position.
- B. Place and consolidate grout fill without displacing reinforcing.

### **3.08 CONTROL AND EXPANSION JOINTS**

- A. Do not continue horizontal joint reinforcement through control and expansion joints.
- B. Form expansion joint as detailed.

### **3.09 BUILT-IN WORK**

- A. As work progresses, install built-in metal door frames and other items to be built into the work and furnished under other sections.
- B. Install built-in items plumb, level, and true to line.

### **3.10 TOLERANCES**

- A. Maximum Variation From Unit to Adjacent Unit: 1/16 inch.
- B. Maximum Variation from Plane of Wall: 1/4 inch in 10 ft and 1/2 inch in 20 ft or more.
- C. Maximum Variation from Plumb: 1/4 inch per story non-cumulative; 1/2 inch in two stories or more.
- D. Maximum Variation from Level Coursing: 1/8 inch in 3 ft and 1/4 inch in 10 ft; 1/2 inch in 30 ft.
- E. Maximum Variation of Joint Thickness: 1/8 inch in 3 ft.
- F. Maximum Variation from Cross Sectional Thickness of Walls: 1/4 inch.

### **3.11 CUTTING AND FITTING**

- A. Cut and fit for pipes, conduit, and sleeves. Coordinate with other sections of work to provide correct size, shape, and location.
- B. Obtain approval prior to cutting or fitting masonry work not indicated or where appearance or strength of masonry work may be impaired.

### **3.12 FIELD QUALITY CONTROL**

- A. An independent testing agency will perform field quality control tests, as specified in Section 01 4000.
- B. An independent testing agency will perform special inspection, as specified in Section 01400, to observe placement of reinforcing for masonry construction required to have Special Inspection as indicated on the Drawings.
- C. Concrete Masonry Unit Tests: Test each variety of concrete unit masonry in accordance with ASTM C140/C140M for conformance to requirements of this specification.

- D. Mortar Tests: Test each type of mortar in accordance with ASTM C780, testing with same frequency as masonry samples.

**3.13 CLEANING**

- A. Remove excess mortar and mortar droppings.
- B. Replace defective mortar. Match adjacent work.
- C. Clean soiled surfaces with cleaning solution.
- D. Use non-metallic tools in cleaning operations.

**3.14 PROTECTION**

- A. Without damaging completed work, provide protective boards at exposed external corners that are subject to damage by construction activities.

**END OF SECTION**



**SECTION 05 5000**  
**METAL FABRICATIONS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Shop fabricated steel items.

**1.02 RELATED REQUIREMENTS**

- A. Section 03 3000 - Cast-in-Place Concrete: Placement of metal fabrications in concrete.
- B. Section 09 9000 - Painting and Coating: Paint finish.

**1.03 REFERENCE STANDARDS**

- A. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2012.
- B. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless; 2012.
- C. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2013.
- D. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2009.
- E. ASTM A283/A283M - Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates; 2013.
- F. ASTM A325 - Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength; 2010.
- G. ASTM A325M - Standard Specification for Structural Bolts, Steel, Heat Treated 830 MPa Tensile Strength (Metric); 2013.
- H. ASTM A500/A500M - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes; 2013.
- I. AWS A2.4 - Standard Symbols for Welding, Brazing, and Nondestructive Examination; American Welding Society; 2012.
- J. AWS D1.1/D1.1M - Structural Welding Code - Steel; American Welding Society; 2010.
- K. IAS AC172 - Accreditation Criteria for Fabricator Inspection Programs for Structural Steel; International Accreditation Service, Inc.; 2011.
- L. SSPC-Paint 15 - Steel Joist Shop Primer; Society for Protective Coatings; 1999 (Ed. 2004).
- M. SSPC-Paint 20 - Zinc-Rich Primers (Type I, "Inorganic," and Type II, "Organic"); Society for Protective Coatings; 2002 (Ed. 2004).
- N. SSPC-SP 2 - Hand Tool Cleaning; Society for Protective Coatings; 1982 (Ed. 2004).

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Indicate profiles, sizes, critical dimensions, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories. Include erection drawings, elevations, and details where applicable.
  - 1. Indicate welded connections using standard AWS A2.4 welding symbols. Indicate net weld lengths.
  - 2. Indicate members to be galvanized, location and size of drain holes, and which members are to receive field finish painting that may impact the galvanizing process.
- C. Welders' Certificates: Submit certification for welders employed on the project, verifying AWS qualification within the previous 12 months.
- D. Furnish anchor bolt setting drawings and installation details for steel items provided by this Section.

- E. Material Samples: provide the following material samples unless the fabricator supplying the work of this section is also supplying the work in section 05 1200 - Structural Steel.
  - 1. Submit sample of all required welds. Approved sample will be used as the standard for all welding.

### **1.05 QUALITY ASSURANCE**

- A. Fabricator Qualifications: A qualified steel fabricator that is accredited by the International Accreditation Service (IAS) Fabricator Inspection Program for Structural Steel (AC172).

## **PART 2 PRODUCTS**

### **2.01 MATERIALS - STEEL**

- A. Steel channels, angles, bars, and plates: ASTM A 36/A 36M unless otherwise noted on Drawings.
- B. Steel W Shapes and Tees: ASTM A992/A992M (Fy = 50 ksi).
- C. Steel Tubing and Hollow Steel Sections: ASTM A 500, Grade B cold-formed structural tubing.
- D. Plates: ASTM A 283.
- E. Pipe: ASTM A 53/A 53M, Grade B Schedule 40, hot-dip galvanized finish.
- F. Bolts, Nuts, and Washers: ASTM A 325 (ASTM A 325M), Type 1, galvanized to ASTM A 153/A 153M where connecting galvanized components.
- G. Anchor Bolts, Headed Anchor Rods: ASTM A 307, Grade C, plain.
- H. Welding Materials: AWS D1.1/D1.1M; type required for materials being welded.
- I. Shop and Touch-Up Primer: SSPC-Paint 15, complying with project's VOC limitations.
- J. Touch-Up Primer for Galvanized Surfaces: SSPC-Paint 20, Type I - Inorganic, complying with project's VOC limitations.

### **2.02 ACCESSORY MATERIALS**

- A. Steel Floor Grating:
  - 1. Manufacturer: Welded Steel Grating Model W-19-4, by Grating Pacific, LLC., or approved.
  - 2. Material: ASTM A569 carbon steel.
  - 3. Load Rating: Able to support traffic loads.
  - 4. Panel Size and Span: As shown on Drawings; maximum length of individual segments (not shown on the Drawings) 5 feet.
  - 5. Bearing Bar Size & Spacings: 2 inch x 3/16 inch bearing bars, spaced 1-3/16 inch on center; cross bars 4 inches on center; welded cross bar and bearing bar intersection.
  - 6. Top Surface: Slip Resistant, Plain.
  - 7. Banding: Provide banding at panel ends.
  - 8. Finish: Galvanize after fabrication to ASTM A 123/A 123M.
  - 9. Frame: Provide galvanized steel angle frame for casting into concrete.
  - 10. Extent: Where shown on drawings.
- B. Diamond Plate
  - 1. Thickness: 1/4 inch
  - 2. Pattern: Diamond Tread (Single Bar or 5 Bar, alternating direction is acceptable).
  - 3. Finish: Galvanized
  - 4. Size: 12" longer in each direction than the electrical junction boxes installed at the base of the Field Lights.
  - 5. Extent: See the Drawings for application, and fastening details.

### **2.03 FASTENERS, BOLTS, ANCHORS**

- A. Powder-Driven Fasteners: Hilti DX system, or approved. Similar to Hilti DS Heavy Duty Pins.
- B. Post-Installed Concrete Bolts: Simpson Titen HD, Powers Wedge-Bolt, or approved.
- C. Post-Installed Concrete Screws: Simpson Titen Concrete and Masonry Screws, Hilti Kwik-Con II or approved.

- D. Expansion Anchors: Hilti KB-TZ, ITW Ramset/Redhead Power-Stud, Simpson Strong Bolt Wedge Anchor, or approved: See drawings for size. Hot-dipped galvanized. Stainless steel for attachment into masonry, where exposed, or where noted.
  - 1. Seismic qualification tested in accordance with ACI 355.2 and ICC-ES AC 193.
  - 2. Meets ductility requirements of ACI 318 D 3.3.
  - 3. Meets ICC-ES ESR-1917.
  - 4. Anchors to be used in locations, configurations, and materials only as approved by the manufacturer.
- E. Self-Drilling Screws: ITW Buildex, or approved; type and drill point as required for materials being fastened.
- F. Epoxy Adhesive Anchors for Concrete and Concrete Block:
  - 1. Concrete and Epoxy preparation as required by epoxy manufacturer's ICBO report.

#### **2.04 FABRICATION**

- A. Fit and shop assemble items in largest practical sections, for delivery to site.
- B. Fabricate items with joints tightly fitted and secured.
- C. Provide holes and connections for work of other trades.
- D. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.
- E. Exposed Mechanical Fastenings: Flush countersunk screws or bolts; unobtrusively located; consistent with design of component, except where specifically noted otherwise.
- F. Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.
- G. Fabricate any Structural Connections not specifically detailed on Drawings as Directed by Architect and at no additional cost to Owner. If Directions are not obtained, fabricate consistent with balance of Design and strong enough to fully develop Members involved.
- H. Form elbows and bends to uniform radii, free from buckles and twists, and with finished surfaces smooth.
- I. Cap and fully weld exposed ends of pipe and tubing.

#### **2.05 FABRICATED ITEMS**

- A. Downspouts: Galvanized, Schedule 40 Steel Pipe
- B. Gutters: Formed from 11 ga Steel Plate bent and welded to shapes shown on the Drawings.
- C. See Drawings for additional items.

#### **2.06 FINISHES - STEEL**

- A. Prime paint all steel items.
  - 1. Exceptions: Galvanize items indicated on Drawings.
  - 2. Exceptions: Do not prime surfaces in direct contact with concrete, where field welding is required, and items to be covered with sprayed fireproofing.
- B. Prepare surfaces to be primed in accordance with SSPC-SP2.
- C. Clean surfaces of rust, scale, grease, and foreign matter prior to finishing.
- D. Prime Painting: One coat.
- E. Galvanizing: Galvanize after fabrication to ASTM A123/A123M requirements. Provide minimum 1.7 oz/sq ft galvanized coating.

#### **2.07 FABRICATION TOLERANCES**

- A. Squareness: 1/8 inch maximum difference in diagonal measurements.
- B. Maximum Offset Between Faces: 1/16 inch.

- C. Maximum Misalignment of Adjacent Members: 1/16 inch.
- D. Maximum Bow: 1/8 inch in 48 inches.
- E. Maximum Deviation From Plane: 1/16 inch in 48 inches.

**PART 3 EXECUTION**

**3.01 EXAMINATION**

- A. Verify that field conditions are acceptable and are ready to receive work.

**3.02 PREPARATION**

- A. Clean and strip primed steel items to bare metal where site welding is required.
- B. Supply setting templates to the appropriate entities for steel items required to be cast into concrete or embedded in masonry.

**3.03 INSTALLATION**

- A. Install items plumb and level, accurately fitted, free from distortion or defects.
- B. Provide for erection loads, and for sufficient temporary bracing to maintain true alignment until completion of erection and installation of permanent attachments.
- C. Field weld components indicated .
- D. Perform field welding in accordance with AWS D1.1/D1.1M.
- E. Obtain approval prior to site cutting or making adjustments not scheduled.
- F. Treat field welded areas of galvanized members with zinc solder to replace galvanized protection.
- G. Touch-up Field Connections and damaged Shop Treatment areas as erection proceeds. Immediately prior to final covering, remove Rust and retreat any Members showing evidence of Rust through Shop Treatment over approximately 5% or more to total Shop Treatment area.
- H. Remove loose rust, heavy Mill Scale, Oil, Dirt, and other bond-reducing Foreign Substances from Members scheduled to receive Finish Painting, or other direct-to-steel Coatings.

**3.04 TOLERANCES**

- A. Maximum Variation From Plumb: 1/4 inch per story, non-cumulative.
- B. Maximum Offset From True Alignment: 1/4 inch.
- C. Maximum Out-of-Position: 1/4 inch.

**END OF SECTION**



**SECTION 07 4113  
METAL ROOF PANELS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Structural roofing system of preformed steel panels.
- B. Fastening system.
- C. Factory finishing.
- D. Accessories and miscellaneous components.

**1.02 RELATED REQUIREMENTS**

- A. Section 06 1000 - Rough Carpentry: Roof sheathing.
- B. Section 07 9005 - Joint Sealers: Field-installed sealants.

**1.03 REFERENCE STANDARDS**

- A. ASCE 7 - Minimum Design Loads for Buildings and Other Structures; 2011.
- B. ASTM A792/A792M - Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process; 2010.
- C. ASTM D1970/D1970M - Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection; 2013.
- D. ASTM E1592 - Standard Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference; 2005 (Reapproved 2012).
- E. ASTM E1646 - Standard Test Method for Water Penetration of Exterior Metal Roof Panel Systems by Uniform Static Air Pressure Difference; 1995 (Reapproved 2011).
- F. ASTM E1680 - Standard Test Method for Rate of Air Leakage Through Exterior Metal Roof Panel Systems; 2011.
- G. UL 580 - Standard for Tests for Uplift Resistance of Roof Assemblies; Current Edition, Including All Revisions.

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
  - 1. Storage and handling requirements and recommendations.
  - 2. Installation methods.
  - 3. Specimen warranty.
- C. Warranty: Submit specified manufacturer's warranty and ensure that forms have been completed in Owner's name and are registered with manufacturer.

**1.05 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in the manufacture of roofing systems similar to those required for this project.
  - 1. Not less than 5 years of documented experience.
- B. Manufacturer Qualifications: Company specializing in the manufacture of roofing systems similar to those required for this project, with not less than 5 years of documented experience.
- C. Installer Qualifications: Company trained and authorized by roofing system manufacturer.

**1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Provide strippable plastic protection on prefinished roofing panels for removal after installation.
- B. Store roofing panels on project site as recommended by manufacturer to minimize damage to panels prior to installation.

### 1.07 WARRANTY

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
- B. Finish Warranty: Provide manufacturer's special warranty covering failure of factory-applied exterior finish on metal roof panels and agreeing to repair or replace panels that show evidence of finish degradation, including significant fading, chalking, cracking, or peeling within specified warranty period of 5 year period from date of Substantial Completion.
- C. Waterproofing Warranty: Provide manufacturer's warranty for weathertightness of roofing system, including agreement to repair or replace roofing that fails to keep out water within specified warranty period of 5 years from date of Substantial Completion.

## PART 2 PRODUCTS

### 2.01 MANUFACTURERS

- A. Design is based on Span-Lok, manufactured by AEP-Span.
- B. Other acceptable manufacturers are:
  - 1. Architectural Building Components: [www.archmetalroof.com](http://www.archmetalroof.com).
  - 2. ATAS International, Inc: [www.atas.com](http://www.atas.com).
  - 3. Metal Sales Manufacturing Corporation: [www.metalsales.us.com](http://www.metalsales.us.com).
  - 4. Petersen Aluminum Corporation: [www.pac-clad.com](http://www.pac-clad.com).
- C. Substitutions: See Section 01 6000 - Product Requirements.

### 2.02 STRUCTURAL METAL ROOF PANELS

- A. Structural Metal Roofing: Provide complete roofing assemblies, including roof panels, clips, fasteners, connectors, and miscellaneous accessories, tested for conformance to the following minimum standards:
  - 1. Structural Design Criteria: Provide panel assemblies designed to safely support design loads at support spacing indicated, with deflection not to exceed 1/180 of the span when tested in accordance with ASTM E1592.
    - a. Dead Loads: Weight of roofing system, and roof-mounted components where indicated.
    - b. Live Loads: As required by ASCE 7.
    - c. Snow Load: 140 psf (Drift)
  - 2. Overall: Complete weathertight system tested and approved in accordance with ASTM E1592.
  - 3. Wind Uplift: Class 90 wind uplift resistance of UL 580.
  - 4. Air Infiltration: Maximum 0.06 cfm/sq ft at air pressure differential of 6.24 lbf/sq ft, when tested according to ASTM E1680.
  - 5. Water Penetration: No water penetration when tested according to procedures and recommended test pressures of ASTM E1646. Perform test immediately following air infiltration test.
  - 6. Thermal Movement: Design system to accommodate without deformation anticipated thermal movement over ambient temperature range of 100 degrees F.
- B. Metal Panels: Factory-formed panels with factory-applied finish.
  - 1. Type: Single skin, uninsulated.
  - 2. Steel Panels:
    - a. Aluminum-zinc alloy-coated SS (structural steel) sheet conforming to ASTM A792/A792M; minimum AZ50 coating.
    - b. Steel Thickness: Minimum 20 gage.
  - 3. Texture: Smooth.
  - 4. Width: Maximum panel coverage of 16 inches.

### **2.03 ATTACHMENT SYSTEM**

- A. Concealed System: Provide manufacturer's standard galvanized steel concealed anchor clips designed for specific roofing system and engineered to meet performance requirements, including anticipated thermal movement.
  - 1. Anchor clips shall be tested to establish that the clips will have 75% of the material thickness remaining after 100,000 cycles of the full range of motion.
- B. Bearing Plates: 24 gauge 4"x6" Zinalume coated steel bearing plate.

### **2.04 PANEL FINISH**

- A. Fluoropolymer Coating System: Manufacturer's standard multi-coat thermocured coating system, including minimum 70 percent fluoropolymer color topcoat with minimum total dry film thickness of 0.9 mil; color and gloss as scheduled.
- B. Underside finish: Manufacturer's standard off-white enamel.

### **2.05 ACCESSORIES AND MISCELLANEOUS ITEMS**

- A. Miscellaneous Sheet Metal Items: Provide flashings, trim, moldings, and closure strips of the same material, thickness, and finish as used for the roofing panels. Items completely concealed after installation may optionally be made of stainless steel.
- B. Sealants: As specified in Section 07 9005.
  - 1. Exposed sealant must cure to rubber-like consistency.
  - 2. Concealed sealant must be non-hardening type.
- C. Underlayment: Synthetic non-asphaltic sheet, intended by manufacturer for mechanically fastened roofing underlayment without sealed seams.
  - 1. Self Sealability: Passing nail sealability test specified in ASTM D1970/D1970M.
  - 2. Low Temperature Flexibility: Passing test specified in ASTM D1970/D1970M.
  - 3. Fasteners: As specified by manufacturer and building code qualification report or approval, if any.

### **2.06 FABRICATION**

- A. Panels: Fabricate panels and accessory items at factory, using manufacturer's standard processes as required to achieve specified appearance and performance requirements.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Do not begin installation of preformed metal roof panels until substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

### **3.02 PREPARATION**

- A. Broom clean wood sheathing prior to installation of roofing system.
- B. Coordinate roofing work with provisions for weather barrier, slip sheet, roof drainage, flashing, trim, penetrations, and other adjoining work to assure that the completed roof will be free of leaks.
- C. Remove protective film from surface of roof panels immediately prior to installation. Strip film carefully, to avoid damage to prefinished surfaces.
- D. Separate dissimilar metals by applying a bituminous coating, self-adhering rubberized asphalt sheet, or other permanent method approved by roof panel manufacturer.
- E. Where metal will be in contact with wood or other absorbent material subject to wetting, seal joints with sealing compound and apply one coat of heavy-bodied bituminous paint.

### 3.03 INSTALLATION

- A. Overall: Install roofing system in accordance with approved shop drawings and panel manufacturer's instructions and recommendations, as applicable to specific project conditions. Anchor all components of roofing system securely in place while allowing for thermal and structural movement.
  - 1. Install roofing system with concealed clips and fasteners, except as otherwise recommended by manufacturer for specific circumstances.
  - 2. Minimize field cutting of panels. Where field cutting is absolutely required, use methods that will not distort panel profiles. Use of torches for field cutting is absolutely prohibited.
- B. Accessories: Install all components required for a complete roofing assembly, including flashings, gutters, downspouts, trim, moldings, closure strips, preformed crickets, caps, equipment curbs, rib closures, ridge closures, and similar roof accessory items.
- C. Install roofing felt and building paper slip sheet on roof deck before installing preformed metal roof panels. Secure by methods acceptable to roof panel manufacturer, minimizing use of metal fasteners. Apply from eaves to ridge in shingle fashion, overlapping horizontal joints a minimum of 2 inches and side and end laps a minimum of 3 inches. Offset seams in building paper and seams in roofing felt.
- D. If required by metal roof manufacturer or underlayment manufacturer, install slip sheet over weather barrier before installing metal roof panels.
- E. Roof Panels: Install panels in strict accordance with manufacturer's instructions, minimizing transverse joints except at junction with penetrations.

### 3.04 CLEANING

- A. At completion of each day's work, sweep panels, flashings and gutters clean. Do not allow fasteners, cuttings, filings or scraps to accumulate.
- B. Clean exposed sheet metal work at completion of installation. Remove grease and oil films, excess joint sealer, handling marks, and debris from installation, leaving the work clean and unmarked, free from dents, creases, waves, scratch marks, or other damage to the finish.

### 3.05 PROTECTION

- A. Do not permit storage of materials or roof traffic on installed roof panels. Provide temporary walkways or planks as necessary to avoid damage to completed work. Protect roofing until completion of project.
- B. Replace damaged roof panels or accessories before date of Substantial Completion. Panels or flashings that have severe paint and/or substrate damage shall be replaced as directed by the Architect's or Owner's representative.

**END OF SECTION**

**SECTION 07 6200**  
**SHEET METAL FLASHING AND TRIM**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Fabricated sheet metal items, including flashings, gutters, and downspouts.

**1.02 RELATED REQUIREMENTS**

- A. Section 07 4113 - Metal Roof Panels: Flashings associated with roofing system.
- B. Section 07 9005 - Joint Sealers.

**1.03 REFERENCE STANDARDS**

- A. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels; 2013.
- B. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2013.
- C. ASTM B32 - Standard Specification for Solder Metal; 2008.
- D. ASTM B749 - Standard Specification for Lead and Lead Alloy Strip, Sheet, and Plate Products; 2003 (Reapproved 2009).
- E. ASTM D226/D226M - Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing; 2009.
- F. ASTM D4479/D4479M - Standard Specification for Asphalt Roof Coatings - Asbestos-Free; 2007 (Reapproved 2012)e1.
- G. ASTM D4586/D4586M - Standard Specification for Asphalt Roof Cement, Asbestos-Free; 2007 (Reapproved 2012)e1.
- H. SMACNA (ASMM) - Architectural Sheet Metal Manual; Sheet Metal and Air Conditioning Contractors' National Association; 2012.

**1.04 ADMINISTRATIVE REQUIREMENTS**

- A. Preinstallation Meeting: Convene one week before starting work of this section.

**1.05 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Indicate material profile, jointing pattern, jointing details, fastening methods, flashings, terminations, and installation details.

**1.06 QUALITY ASSURANCE**

- A. Perform work in accordance with SMACNA Architectural Sheet Metal Manual requirements and standard details, except as otherwise indicated.
- B. Fabricator and Installer Qualifications: Company specializing in sheet metal work with 5 years of documented successful experience.

**1.07 DELIVERY, STORAGE, AND HANDLING**

- A. Stack material to prevent twisting, bending, and abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.
- B. Prevent contact with materials that could cause discoloration or staining.

**1.08 WARRANTY**

- A. Provide two year warranty under provisions of Section 01 7800.
- B. Include material, installation, and repairs resulting from weather tightness failure.

## **PART 2 PRODUCTS**

### **2.01 SHEET MATERIALS**

- A. Galvanized Steel: ASTM A653/A653M, with G90/Z275 zinc coating; minimum 0.025 inch (24 ga) thick base metal.
- B. Pre-Finished Galvanized Steel: ASTM A653/A653M, with G90/Z275 zinc coating; minimum 0.025 inch (24 ga) thick base metal, shop pre-coated with PVDF coating.
  - 1. PVDF (Polyvinylidene Fluoride) Coating: Superior Performance Organic Finish, AAMA 2605; multiple coat, thermally cured fluoropolymer finish system.
  - 2. Color: As scheduled.
- C. Lead: ASTM B749, 2.5 lb/sq ft thick.

### **2.02 ACCESSORIES**

- A. Fasteners: Stainless steel, with soft neoprene washers.
- B. Underlayment: ASTM D226/D226M, organic roofing felt, Type I ("No. 15").
- C. Slip Sheet: Rosin sized building paper.
- D. Primer: Zinc chromate type.
- E. Protective Backing Paint: Asphaltic mastic, ASTM D4479 Type I.
- F. Sealant: Type as specified in Section 07 9005.
- G. Plastic Cement: ASTM D4586, Type I.
- H. Solder: ASTM B32; Sn50 (50/50) type.
- I. Flux: Rosin, cut Muriatic Acid, or commercial preparation suitable for use.
- J. Strainers: Same material as gutter. Provide within gutter at each downspout.

### **2.03 FABRICATION**

- A. Form sections true to shape, accurate in size, square, and free from distortion or defects.
- B. Fabricate cleats of same material as sheet, minimum 2 inches wide, interlocking with sheet.
- C. Form pieces in longest possible lengths.
- D. Hem exposed edges on underside 1/2 inch; miter and seam corners.
- E. Form material with flat lock seams, except where otherwise indicated. At moving joints, use sealed lapped, bayonet-type or interlocking hooked seams.
- F. Fabricate corners from one piece with minimum 18 inch long legs; seam for rigidity, seal with sealant.
- G. Fabricate vertical faces with bottom edge formed outward 1/4 inch and hemmed to form drip.
- H. Fabricate flashings to allow toe to extend 1 1/2 inches over roofing edge. Return and brake edges.

### **2.04 GUTTER AND DOWNSPOUT FABRICATION**

- A. Gutters: Profile as indicated.
- B. Downspouts: Round profile.
- C. Gutters and Downspouts: Sizes as indicated on the drawings.
- D. Accessories: Profiled to suit gutters and downspouts.
  - 1. Anchorage Devices: In accordance with SMACNA requirements.
  - 2. Gutter Supports: Brackets.
  - 3. Downspout Supports: Brackets.
- E. Seal metal joints.

### **2.05 SHEET METAL FASCIA FABRICATION**

- A. Fabricate from 22 gage prefinished steel.

- B. Form end joints with cover plate seams matching panel profiles.
- C. Form interlocking panels as shown on drawings.

### **PART 3 EXECUTION**

#### **3.01 EXAMINATION**

- A. Verify roof openings, curbs, pipes, sleeves, ducts, and vents through roof are solidly set, reglets in place, and nailing strips located.
- B. Verify roofing termination and base flashings are in place, sealed, and secure.
- C. Verify that nailers and blocking are properly installed.

#### **3.02 PREPARATION**

- A. Install starter and edge strips, and cleats before starting installation.
- B. Back paint concealed metal surfaces with protective backing paint to a minimum dry film thickness of 15 mil.

#### **3.03 INSTALLATION**

- A. Conform to drawing details.
- B. Install Work watertight, without waves, warps, buckles, tool marks, fastening stresses, distortion, or defects which impair strength of mar appearance.
- C. Secure flashings in place using concealed fasteners. Use exposed fasteners only where permitted.
- D. Apply plastic cement compound between metal flashings and felt flashings.
- E. Fit flashings tight in place. Make corners square, surfaces true and straight in planes, and lines accurate to profiles.
- F. Seal metal joints watertight.
- G. Install planes and lines in true alignment. Allow for sheet metal expansion and contraction.
- H. Copings:
  - 1. Install copings with continuous cleat on the exterior side, fastened at 16 inches on center. Use exposed fasteners with neoprene washers through elongated holes on the roof side, at 24 inches on center.

#### **3.04 SCHEDULE**

- A. Drip Edge Flashings: 24 gage precoated steel.
- B. Coping, Cap, Parapet, and Ledge Flashings: 24 gage precoated galvanized steel, unless otherwise indicated.
- C. Roofing Penetration Flashings, for Pipes, Structural Steel, and Equipment Supports: 24 gage precoated steel, unless otherwise indicated.

**END OF SECTION**





**SECTION 07 9005  
JOINT SEALERS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Sealants and joint backing.

**1.02 REFERENCE STANDARDS**

- A. ASTM C834 - Standard Specification for Latex Sealants; 2010.
- B. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2014.
- C. ASTM C1193 - Standard Guide for Use of Joint Sealants; 2013.
- D. SCAQMD 1168 - South Coast Air Quality Management District Rule No.1168; current edition; [www.aqmd.gov](http://www.aqmd.gov).

**1.03 ADMINISTRATIVE REQUIREMENTS**

- A. Coordinate the work with other sections referencing this section.

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data indicating sealant chemical characteristics, performance criteria, substrate preparation, limitations, color availability, and installation instructions.
  - 1. Include temperature ranges for storage and application of materials, and special cold-weather application requirements or limitations.
  - 2. SpecData sheet for substrate cleaner and substrate primer recommended by sealant manufacturer for specific substrate surface and conditions.

**1.05 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.
- B. Applicator Qualifications: Company specializing in performing the work of this section with minimum three years documented experience and approved by manufacturer.

**1.06 FIELD CONDITIONS**

- A. Maintain temperature and humidity recommended by the sealant manufacturer during and after installation.

**1.07 WARRANTY**

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
- B. Correct defective work within a one year period after Date of Substantial Completion.
- C. Warranty: Include coverage for installed sealants and accessories which fail to achieve airtight seal and watertight seal, exhibit loss of adhesion or cohesion, or do not cure.

**PART 2 PRODUCTS**

**2.01 MANUFACTURERS**

- A. Gunnable and Pourable Sealants:
  - 1. BASF Construction Chemicals-Building Systems: [www.buildingsystems.basf.com](http://www.buildingsystems.basf.com).
  - 2. Bostik Inc: [www.bostik-us.com](http://www.bostik-us.com).
  - 3. Dow Corning Corporation: [www.dowcorning.com](http://www.dowcorning.com).
  - 4. Momentive Performance Materials, Inc (formerly GE Silicones): [www.momentive.com](http://www.momentive.com).
  - 5. Pecora Corporation: [www.pecora.com](http://www.pecora.com).
  - 6. Tremco Global Sealants: [www.tremcosealants.com](http://www.tremcosealants.com).
  - 7. Substitutions: See Section 01 6000 - Product Requirements.

## 2.02 SEALANTS

- A. Sealants and Primers - General: Provide only products having lower volatile organic compound (VOC) content than required by South Coast Air Quality Management District Rule No.1168.
- B. General Purpose Exterior Sealant: Polyurethane; ASTM C920, Grade NS, Class 25, Uses M, G, and A; single component.
  - 1. Color: To be selected by Architect from manufacturer's standard range.
  - 2. Product: Similar to NP2 manufactured by Soneborn or equal.
  - 3. Applications: Use for:
    - a. Control, expansion, and soft joints in masonry.
    - b. Joints between concrete and other materials.
    - c. Joints between metal frames and other materials.
    - d. Other exterior joints for which no other sealant is indicated.
- C. General Purpose Interior Sealant: Acrylic emulsion latex; ASTM C834, Type OP, Grade NF single component, paintable.
  - 1. Color: To be selected by Architect from manufacturer's standard range.
  - 2. Product: Sonolac manufactured by Sonneborn or equal.
  - 3. Applications: Use for:
    - a. Interior wall and ceiling control joints.
    - b. Joints between door and window frames and wall surfaces.
    - c. Other interior joints for which no other type of sealant is indicated.
- D. Silicone Sealant: ASTM C920, Grade NS, Class 25, Uses NT, A, G, M, O; single component, solvent curing, non-sagging, non-staining, fungus resistant, non-bleeding.
  - 1. Color: To be selected by Architect from manufacturer's standard range.
  - 2. Movement Capability: Plus and minus 25 percent.
  - 3. Service Temperature Range: -65 to 180 degrees F.
  - 4. Shore A Hardness Range: 15 to 35.
  - 5. Applications: Use for:
  - 6. Products:
    - a. Bostik Inc: [www.bostik-us.com](http://www.bostik-us.com).
    - b. Dow Corning Corporation: [www.dowcorning.com](http://www.dowcorning.com).
    - c. Momentive Performance Materials, Inc (GE Silicones products): [www.momentive.com](http://www.momentive.com).
    - d. Pecora Corporation; 890NST Ultra Low Modulus Architectural Silicone Sealant - Class 100: [www.pecora.com](http://www.pecora.com).

## 2.03 ACCESSORIES

- A. Primer: Non-staining type, recommended by sealant manufacturer to suit application.
- B. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.
- C. Joint Backing: Round foam rod compatible with sealant; ASTM D 1667, closed cell PVC; oversized 30 to 50 percent larger than joint width.
- D. Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application.

## PART 3 EXECUTION

### 3.01 EXAMINATION

- A. Verify that substrate surfaces are ready to receive work.
- B. Verify that joint backing and release tapes are compatible with sealant.

### 3.02 PREPARATION

- A. Remove loose materials and foreign matter that could impair adhesion of sealant.
- B. Clean and prime joints in accordance with manufacturer's instructions.

- C. Perform preparation in accordance with manufacturer's instructions and ASTM C1193.
- D. Protect elements surrounding the work of this section from damage or disfigurement.

**3.03 INSTALLATION**

- A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.
- B. Perform installation in accordance with ASTM C1193.
- C. Measure joint dimensions and size joint backers to achieve width-to-depth ratio, neck dimension, and surface bond area as recommended by manufacturer, except where specific dimensions are indicated.
- D. Install bond breaker where joint backing is not used.
- E. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.
- F. Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.
- G. Tool joints concave. Remove and replace sealant in joints improperly tooled.

**3.04 CLEANING**

- A. Clean adjacent soiled surfaces.

**3.05 PROTECTION**

- A. Protect sealants until cured.

**END OF SECTION**



**SECTION 08 3613**  
**SECTIONAL DOORS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Overhead sectional doors, manually operated.
- B. Operating hardware and supports.
- C. Electrical controls.

**1.02 RELATED REQUIREMENTS**

- A. Section 04 2000 - Unit Masonry - Prepared opening

**1.03 REFERENCE STANDARDS**

- A. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2013.
- B. ASTM E330/E330M - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference; 2014.
- C. DASMA 102 - American National Standard Specifications for Sectional Overhead Type Doors; Door & Access Systems Manufacturers' Association, International; 2011.

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Indicate opening dimensions and required tolerances, connection details, anchorage spacing, hardware locations, and installation details.
- C. Product Data: Show component construction, anchorage method, and hardware.
- D. Manufacturer's Installation Instructions: Include any special procedures required by project conditions.
- E. Operation Data: Include normal operation, troubleshooting, and adjusting.
- F. Maintenance Data: Include data for motor and transmission, shaft and gearing, lubrication frequency, spare part sources.
- G. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

**1.05 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years of documented experience.
- B. Installer: Company specializing in performing the work of this section with minimum three years of experience.
- C. Conform to applicable code for motor and motor control requirements.
- D. Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories Inc., as suitable for the purpose specified.

**1.06 WARRANTY**

- A. See Section 01 7800 - Closeout Submittals for warranty requirements.
- B. Correct defective Work within a five year period after Date of Substantial Completion.
- C. Warranty: Include coverage for electric motor and transmission.
- D. Provide five year manufacturer warranty for electric operating equipment.

**PART 2 PRODUCTS**

**2.01 MANUFACTURERS**

- A. Overhead Door Co. .

- B. Other Acceptable Manufacturers:
  - 1. Clopay Corporation: [www.clopaydoor.com](http://www.clopaydoor.com).
  - 2. Clopay Corporation: [www.clopaydoor.com](http://www.clopaydoor.com).
  - 3. Wayne-Dalton, a Division of Overhead Door Corporation: [www.wayne-dalton.com](http://www.wayne-dalton.com).
  - 4. Substitutions: See Section 01 6000 - Product Requirements.

## 2.02 STEEL DOOR COMPONENTS

- A. Steel Doors: Flush steel, insulated; standard lift operating style with track and hardware; complying with DASHMA 102, Commercial application.
  - 1. Similar to Overhead Door Model 591.
  - 2. Performance: Withstand positive and negative wind loads equal to 1.5 times design wind loads specified by local code without damage or permanent set, when tested in accordance with ASTM E330/E330M, using 10 second duration of maximum load.
  - 3. Door Nominal Thickness: 1-3/4 inches thick.
  - 4. Exterior Finish: Pre-finished with baked enamel of color as selected. <<comes in white or brown, maybe grey >>>
  - 5. Interior Finish: Pre-finished with baked enamel of white color.
  - 6. Glazed Lights: None
  - 7. Operation: Chain hoist.
- B. Door Panels: Flush steel construction; outer steel sheet of 0.015 inch thick, flat profile; inner steel sheet of 0.015 inch thick, flat profile; ribbed, textured, rabbeted weather joints at meeting rails; insulated R-14.

## 2.03 DOOR COMPONENTS

- A. Track: Rolled galvanized steel, 0.090 inch thick; 3 inch wide, continuous one piece per side; galvanized steel mounting brackets 1/4 inch thick.
- B. Hinge and Roller Assemblies: Heavy duty hinges and adjustable roller holders of galvanized steel; floating hardened steel bearing rollers, located at top and bottom of each panel, each side.
- C. Lift Mechanism: Torsion spring on cross head shaft, with braided galvanized steel lifting cables.
  - 1. For Manual Operation: Requiring maximum exertion of 25 lbs force to open.
- D. Sill Weatherstripping: Resilient hollow rubber strip, one piece; fitted to bottom of door panel, full length contact.
- E. Jamb Weatherstripping: Roll formed steel section full height of jamb, fitted with resilient weatherstripping, placed in moderate contact with door panels.
- F. Head Weatherstripping: EPDM rubber seal, one piece full length.
- G. Panel Joint Weatherstripping: Neoprene foam seal, one piece full length.
- H. Lock: Inside center mounted, adjustable keeper, spring activated latch bar with feature to retain in locked or retracted position; interior and exterior handle.

## 2.04 MATERIALS

- A. Sheet Steel: Hot-dipped galvanized steel sheet, ASTM A653/A653M, with G60/Z180 coating, plain surface.
- B. Insulation: Rigid polyurethane, .

## PART 3 EXECUTION

### 3.01 EXAMINATION

- A. Verify that wall openings are ready to receive work and opening dimensions and tolerances are within specified limits.

### 3.02 INSTALLATION

- A. Install door unit assembly in accordance with manufacturer's instructions.



- B. Anchor assembly to wall construction and building framing without distortion or stress.
- C. Securely brace door tracks suspended from structure. Secure tracks to structural members only.
- D. Fit and align door assembly including hardware.

**3.03 TOLERANCES**

- A. Maximum Variation from Plumb: 1/16 inch.
- B. Maximum Variation from Level: 1/16 inch.
- C. Longitudinal or Diagonal Warp: Plus or minus 1/8 inch from 10 ft straight edge.
- D. Maintain dimensional tolerances and alignment with adjacent work.

**3.04 ADJUSTING**

- A. Adjust door assembly for smooth operation and full contact with weatherstripping.

**3.05 CLEANING**

- A. Clean doors and frames and glazing.
- B. Remove temporary labels and visible markings.

**3.06 PROTECTION**

- A. Protect installed products from damage during subsequent construction.
- B. Do not permit construction traffic through overhead door openings after adjustment and cleaning.

**END OF SECTION**



**SECTION 08 7100  
DOOR HARDWARE**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Door hardware for gates.

**1.02 RELATED REQUIREMENTS**

- A. Section 23 3113 - Chain Link Fence: Components to secure Exit Device to Gate and Fence

**1.03 REFERENCE STANDARDS**

- A. 36 CFR 1191 - Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities; Final Rule; current edition; (ADA Standards for Accessible Design).
- B. ANSI/ICC A117.1 - American National Standard for Accessible and Usable Buildings and Facilities; International Code Council; 2009.
- C. BHMA A156.2 - American National Standard for Bored and Preassembled Locks & Latches; Builders Hardware Manufacturers Association; 2011 (ANSI/BHMA A156.2).
- D. BHMA A156.3 - American National Standard for Exit Devices; Builders Hardware Manufacturers Association; 2008 (ANSI/BHMA A156.3).
- E. DHI (LOCS) - Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames; Door and Hardware Institute; 2004.
- F. DHI WDHS.3 - Recommended Locations for Architectural Hardware for Flush Wood Doors; Door and Hardware Institute; 1993; also in WDHS-1/WDHS-5 Series, 1996.
- G. NFPA 80 - Standard for Fire Doors and Other Opening Protectives; 2013.
- H. NFPA 101 - Life Safety Code; National Fire Protection Association; 2012.
- I. OSSC - Oregon Structural Specialty Code; current edition.
- J. UL (BMD) - Building Materials Directory; Underwriters Laboratories Inc.; current edition.

**1.04 ADMINISTRATIVE REQUIREMENTS**

- A. Coordinate the manufacture, fabrication, and installation of products onto which door hardware will be installed.
- B. Furnish templates for door and frame preparation to manufacturers and fabricators of products requiring internal reinforcement for door hardware.
- C. Preinstallation Meeting: Convene a preinstallation meeting one week prior to commencing work of this section; require attendance by all affected installers.
- D. Sequence installation to ensure utility connections are achieved in an orderly and expeditious manner.

**1.05 SUBMITTALS**

- A. See Section 01 3300 - Submittal Procedures, for submittal procedures.
- B. Hardware Schedule: Detailed listing of each item of hardware to be installed on each door. Use door numbering scheme as included in the Contract Documents. Identify electrically operated items and include power requirements.
- C. Manufacturer's Installation Instructions: Indicate special procedures, perimeter conditions requiring special attention.
- D. Project Record Documents: Record actual locations of concealed equipment, services, and conduit.
- E. Maintenance Data: Include data on operating hardware, lubrication requirements, and inspection procedures related to preventative maintenance.
  - 1. Final hardware schedule
- F. Keys: Deliver with identifying tags to Owner by security shipment direct from hardware supplier.

- G. Warranty: Submit manufacturer's warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.
- H. Maintenance Materials and Tools: Furnish the following for Owner's use in maintenance of project.
  - 1. See Section 01 6000 - Product Requirements, for additional provisions.
  - 2. Tools: One set of all special wrenches or tools applicable to each different or special hardware component, whether supplied by the hardware component manufacturer or not.
- I. Owner Training: Prior to final project acceptance, supplier's representative shall instruct Owner how to properly adjust and maintain hardware.

#### **1.06 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years of documented experience.
- B. Hardware Supplier Qualifications: Company specializing in supplying commercial door hardware with 5 years of experience.
- C. Hardware Supplier Personnel: Employ an Architectural Hardware Consultant (AHC) to assist in the work of this section.
- D. Prior to final project acceptance, supplier's representative shall make one field inspection and certify, in writing to the Architect, that hardware installation complies with the project documents, approved hardware schedule, and Manufacturer's instructions, and that installation is complete and all hardware items have been properly installed and correctly adjusted, or provide a list of items that require correction.

#### **1.07 DELIVERY, STORAGE, AND HANDLING**

- A. Package hardware items individually; label and identify each package with door opening code to match hardware schedule.

#### **1.08 WARRANTY**

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
- B. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.

### **PART 2 PRODUCTS**

#### **2.01 DOOR HARDWARE - GENERAL**

- A. Provide all hardware specified or required to make doors fully functional, compliant with applicable codes, and secure to the extent indicated.
- B. Provide all items of a single type of the same model by the same manufacturer.
- C. Provide products that comply with the following:
  - 1. Applicable provisions of federal, state, and local codes.
  - 2. ADA Standards for Accessible Design.
  - 3. ANSI/ICC A117.1, American National Standard for Accessible and Usable Buildings and Facilities.
  - 4. Applicable provisions of NFPA 101, Life Safety Code.
  - 5. Fire-Rated Doors: NFPA 80.
  - 6. All Hardware on Fire-Rated Doors : Listed and classified by UL as suitable for the purpose specified and indicated.
  - 7. Hardware for Smoke and Draft Control Doors (Indicated as "S" on Drawings): Provide hardware that enables door assembly to comply with air leakage requirements of the applicable code.
- D. Finishes: Identified in schedule.
- E. Locksets: Strikes to have extended curved lip where required to protect trim from being marred by extended latch bolt.

## 2.02 EXIT DEVICES

- A. Locking Functions: Functions as defined in BHMA A156.3, and as follows:
  - 1. Entry/Exit, Free Swing: Key outside retracts latch, latch holdback (dogging) for free swing during occupied hours, not fire-rated; outside trim must be specified as lever or pull.
- B. Manufacturers:
  - 1. Von Duprin, an Allegion brand: [www.allegion.com/us](http://www.allegion.com/us).
- C. Description:
  - 1. Product: 134253 VOND NIGHT LATCH 98 Trim Satin Chrome
  - 2. Rim, IC Core
  - 3. Provide Strike to be secured to Strike Latch Receiver Bracket.
- D. Coordination with Egress Gate
  - 1. Fence and Gate Provider/Installer to provide and install the Exit Device Mounting Plate, and the Strike Latch Receiver Bracket. The Exit Device Provider/Installer to mount Exit Device to Gate, provide and install the latch, and adjust for complete installation.
  - 2. Extent: Provide at Egress Gate D. See 5/A081.

## PART 3 EXECUTION

### 3.01 EXAMINATION

- A. Verify that doors and frames are ready to receive work; labeled, fire-rated doors and frames are present and properly installed, and dimensions are as indicated on shop drawings.

### 3.02 INSTALLATION

- A. Install hardware in accordance with manufacturer's instructions and applicable codes.
- B. Use templates provided by hardware item manufacturer.
- C. Mounting heights for hardware from finished floor to center line of hardware item:
  - 1. For steel doors and frames: Comply with DHI "Recommended Locations for Architectural Hardware for Steel Doors and Frames."
  - 2. For wood doors: Comply with DHI "Recommended Locations for Architectural Hardware for Wood Flush Doors."
  - 3. At doors with attached pulls separate from the exit devices, and door cylinder locks, verify location of cylinder with Architect to maintain access clearance. Cylinder is not to be located in line with and behind door pulls.
- D. Owner to provide and install core, cylinder, and associated collars and rim.

### 3.03 FIELD QUALITY CONTROL

- A. Provide an Architectural Hardware Consultant to inspect installation and certify that hardware and installation has been furnished and installed in accordance with manufacturer's instructions and as specified.

### 3.04 ADJUSTING

- A. Adjust hardware for smooth operation.
- B. Adjust gasketing for complete, continuous seal; replace if unable to make complete seal.
- C. Test and adjust all Locks and Latches, including Lock Keyways for smooth and easy operation.

### 3.05 CLEANING

- A. Clean adjacent surfaces soiled by hardware installation. Clean finished hardware per manufacturer's instructions after final adjustments has been made. Replace items that cannot be cleaned to manufacturer's level of finish quality at no additional cost.

### 3.06 PROTECTION

- A. Protect finished Work under provisions of Section 01 7000.
- B. Do not permit adjacent work to damage hardware or finish.

## END OF SECTION



**SECTION 09 9000**  
**PAINTING AND COATING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Surface preparation.
- B. Field application of paints, stains, varnishes, and other coatings.
- C. Scope: Finish all interior and exterior surfaces exposed to view, unless fully factory-finished and unless otherwise indicated, including the following:
  - 1. Both sides and edges of plywood backboards for electrical and telecom equipment before installing equipment.
- D. Do Not Paint or Finish the Following Items:
  - 1. Items fully factory-finished unless specifically so indicated; materials and products having factory-applied primers are not considered factory finished.
  - 2. Items indicated to receive other finishes.
  - 3. Items indicated to remain unfinished.
  - 4. Fire rating labels, equipment serial number and capacity labels, and operating parts of equipment.
  - 5. Non-metallic roofing and flashing.
  - 6. Stainless steel, anodized aluminum, bronze, terne, and lead items, unless otherwise indicated.
  - 7. Marble, granite, slate, and other natural stones.
  - 8. Floors, unless specifically so indicated.
  - 9. Ceramic and other tiles.
  - 10. Brick, architectural concrete, cast stone, integrally colored plaster and stucco.
  - 11. Exterior insulation and finish system (EIFS).
  - 12. Glass.
  - 13. Acoustical materials, unless specifically so indicated.
  - 14. Concealed pipes, ducts, and conduits.

**1.02 REFERENCE STANDARDS**

- A. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency; current edition.

**1.03 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide complete list of all products to be used, with the following information for each:
  - 1. Manufacturer's name, product name and/or catalog number, and general product category (e.g. "alkyd enamel").
  - 2. MPI product number (e.g. MPI #47).
  - 3. Cross-reference to specified paint system(s) product is to be used in; include description of each system.
  - 4. Manufacturer's installation instructions.
- C. Samples: Submit three paper "draw down" samples, 8-1/2 by 11 inches in size, illustrating range of colors available for each finishing product specified.
  - 1. Where sheen is specified, submit samples in only that sheen.
- D. Manufacturer's Instructions: Indicate special surface preparation procedures and substrate conditions requiring special attention.
- E. Maintenance Data: Submit data on cleaning, touch-up, and repair of painted and coated surfaces.
- F. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
  - 1. See Section 01 6000 - Product Requirements, for additional provisions.



2. Extra Paint and Coatings: 1 gallon of each color; store where directed.
3. Label each container with color in addition to the manufacturer's label.

#### **1.04 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified, with minimum three years documented experience.
- B. Applicator Qualifications: Company specializing in performing the type of work specified with minimum five years experience.

#### **1.05 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.
- B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.
- C. Paint Materials: Store at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.
- D. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction over project.

#### **1.06 FIELD CONDITIONS**

- A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.
- B. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.
- C. Provide lighting level of 80 ft candles measured mid-height at substrate surface.

### **PART 2 PRODUCTS**

#### **2.01 MANUFACTURERS**

- A. Provide all paint and coating products used in any individual system from the same manufacturer; no exceptions.
- B. Paints:
  1. Glidden Professional: [www.gliddenprofessional.com](http://www.gliddenprofessional.com).
  2. Benjamin Moore & Co: [www.benjaminmoore.com](http://www.benjaminmoore.com).
  3. Parker Paint Mfg Co Inc., a Comex Group company: [www.parkerpaint.com](http://www.parkerpaint.com).
  4. PPG Architectural Finishes, Inc: [www.ppgaf.com](http://www.ppgaf.com).
  5. Pratt & Lambert Paints: [www.prattandlambert.com](http://www.prattandlambert.com).
  6. Sherwin-Williams Company: [www.sherwin-williams.com](http://www.sherwin-williams.com).
- C. Primer Sealers: Same manufacturer as top coats.
- D. Block Fillers: Same manufacturer as top coats.
- E. Substitutions: See Section 01 6000 - Product Requirements.

#### **2.02 PAINTS AND COATINGS - GENERAL**

- A. Paints and Coatings: Ready mixed, unless intended to be a field-catalyzed coating.
  1. Where MPI paint numbers are specified, provide products listed in Master Painters Institute Approved Product List, current edition available at [www.paintinfo.com](http://www.paintinfo.com), for specified MPI categories, except as otherwise indicated.
  2. Provide paints and coatings of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.
  3. Provide materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.

4. For opaque finishes, tint each coat including primer coat and intermediate coats, one-half shade lighter than succeeding coat, with final finish coat as base color.
  5. Supply each coating material in quantity required to complete entire project's work from a single production run.
  6. Do not reduce, thin, or dilute coatings or add materials to coatings unless such procedure is specifically described in manufacturer's product instructions.
- B. Primers: Where the manufacturer offers options on primers for a particular substrate, use primer categorized as "best" by the manufacturer.
- C. Volatile Organic Compound (VOC) Content:
1. Provide coatings that comply with the most stringent requirements specified in the following:
    - a. 40 CFR 59, Subpart D--National Volatile Organic Compound Emission Standards for Architectural Coatings.
    - b. Architectural coatings VOC limits of State in which the project is located.
  2. Determination of VOC Content: Testing and calculation in accordance with 40 CFR 59, Subpart D (EPA Method 24), exclusive of colorants added to a tint base and water added at project site; or other method acceptable to authorities having jurisdiction.
- D. Chemical Content: The following compounds are prohibited:
1. Aromatic Compounds: In excess of 1.0 percent by weight of total aromatic compounds (hydrocarbon compounds containing one or more benzene rings).
  2. Acrolein, acrylonitrile, antimony, benzene, butyl benzyl phthalate, cadmium, di (2-ethylhexyl) phthalate, di-n-butyl phthalate, di-n-octyl phthalate, 1,2-dichlorobenzene, diethyl phthalate, dimethyl phthalate, ethylbenzene, formaldehyde, hexavalent chromium, isophorone, lead, mercury, methyl ethyl ketone, methyl isobutyl ketone, methylene chloride, naphthalene, toluene (methylbenzene), 1,1,1-trichloroethane, vinyl chloride.
- E. Flammability: Comply with applicable code for surface burning characteristics.
- F. Sheens: Provide the sheens specified; where sheen is not specified, sheen will be selected later by Architect from the manufacturer's full line.
- G. Colors: As indicated in Color Schedule
1. In finished areas, finish pipes, ducts, conduit, and equipment the same color as the wall/ceiling they are mounted on/under.
  2. In utility areas, finish equipment, piping, conduit, and exposed duct work in colors according to the color coding scheme indicated.

### 2.03 REFERENCED GLOSS LEVELS

- A. Some of the following Gloss Level references may be used in the Paint Systems outlined below and are defined here for reference. Gloss units are as measured at 60 degrees from perpendicular, per ASTM D523.
1. Gloss Level 1 a traditional matte finish - flat: maximum 5 units.
  2. Gloss Level 2 a high side sheen flat - a 'velvet-like' finish: maximum 10 units.
  3. Gloss Level 3 a traditional 'eggshell-like' finish: 10-25 units.
  4. Gloss Level 4 a 'satin': 20-35 units.
  5. Gloss Level 5 a traditional semi-gloss: 35-70 units.
  6. Gloss Level 6 a traditional gloss: 70-85 units.
  7. Gloss Level 7 a high gloss: more than 85 units.

### 2.04 PAINT SYSTEMS - EXTERIOR

- A. All Exterior and Interior Concrete Masonry surfaces Indicated to be Painted, Unless Otherwise Indicated: Including concrete masonry.
1. Preparation as specified by manufacturer.
  2. Two top coats and one coat primer recommended by manufacturer.
  3. Satin: MPI gloss level 4; use this sheen at all locations.
  4. Primer On Concrete and Concrete Masonry: One heavy coat latex block filler (100 percent acrylic) squeegeed into pores.

- B. Wood or Fiber-Cement, Opaque, Latex, 3 Coat:
  - 1. One coat of latex primer sealer, MPI # 6.
  - 2. Semi-gloss: Two coats of latex enamel; MPI #15.
- C. Ferrous Metals, Unprimed, 3 Coat:
  - 1. One coat of alkyd primer MPI #79.
  - 2. Semi-gloss: Two coats of latex enamel MPI #163.
  - 3. Note: For primed Structural Steel and/or Shop Fabricated Metals, omit primer from this assembly.

## **2.05 ACCESSORY MATERIALS**

- A. Accessory Materials: Provide all primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials required to achieve the finishes specified whether specifically indicated or not; commercial quality.
- B. Patching Material: Latex filler.
- C. Fastener Head Cover Material: Latex filler.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that surfaces are ready to receive work as instructed by the product manufacturer.
- B. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.
- C. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
- D. Test shop-applied primer for compatibility with subsequent cover materials.
- E. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:
  - 1. Masonry, Concrete, and Concrete Unit Masonry: 12 percent.
  - 2. Interior Wood: 15 percent, measured in accordance with ASTM D4442.
  - 3. Exterior Wood: 15 percent, measured in accordance with ASTM D4442.

### **3.02 PREPARATION**

- A. Clean surfaces thoroughly and correct defects prior to coating application.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- C. Remove or mask surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces or finishing.
- D. Seal surfaces that might cause bleed through or staining of topcoat.
- E. Remove mildew from impervious surfaces by scrubbing with solution of tetra-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.
- F. Concrete and Unit Masonry Surfaces to be Painted: Remove dirt, loose mortar, scale, salt or alkali powder, and other foreign matter. Remove oil and grease with a solution of tri-sodium phosphate; rinse well and allow to dry. Remove stains caused by weathering of corroding metals with a solution of sodium metasilicate after thoroughly wetting with water. Allow to dry.

### **3.03 APPLICATION**

- A. Apply products in accordance with manufacturer's instructions.
- B. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.
- C. Apply each coat to uniform appearance.
- D. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.

- E. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

**3.04 CLEANING**

- A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.

**3.05 PROTECTION**

- A. Protect finished coatings until completion of project.
- B. Touch-up damaged coatings after Substantial Completion.

**END OF SECTION**



**SECTION 10 4400**  
**FIRE PROTECTION SPECIALTIES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Fire extinguishers.
- B. Fire extinguisher cabinets.

**1.02 REFERENCE STANDARDS**

- A. NFPA 10 - Standard for Portable Fire Extinguishers; 2013.

**1.03 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Indicate cabinet physical dimensions.
- C. Product Data: Provide extinguisher operational features.
- D. Manufacturer's Installation Instructions: Indicate special criteria and wall opening coordination requirements.

**1.04 FIELD CONDITIONS**

- A. Do not install extinguishers when ambient temperature may cause freezing of extinguisher ingredients.

**PART 2 PRODUCTS**

**2.01 MANUFACTURERS**

- A. Fire Extinguishers:
  - 1. Ansul, Inc: [www.ansul.com](http://www.ansul.com).
  - 2. Pyro-Chem: [www.pyrochem.com](http://www.pyrochem.com).
  - 3. JL Industries, Inc: [www.jlindustries.com](http://www.jlindustries.com)
  - 4. Larsen's Manufacturing Co: [www.larsensmfg.com](http://www.larsensmfg.com).
  - 5. Substitutions: See Section 01 6000 - Product Requirements.
- B. Fire Extinguishers, Cabinets and Accessories:
  - 1. Ansul, Inc.: [www.ansul.com](http://www.ansul.com).
  - 2. JL Industries, Inc: [www.jlindustries.com](http://www.jlindustries.com).
  - 3. Larsen's Manufacturing Co: [www.larsensmfg.com](http://www.larsensmfg.com).
  - 4. Potter-Roemer: [www.potterroemer.com](http://www.potterroemer.com).
  - 5. Pyro-Chem: [www.pyrochem.com](http://www.pyrochem.com).
  - 6. Substitutions: See Section 01 6000 - Product Requirements.

**2.02 FIRE EXTINGUISHERS**

- A. Fire Extinguishers - General: Comply with product requirements of NFPA 10 and applicable codes, whichever is more stringent.
  - 1. Provide extinguisher in each cabinet and elsewhere where shown on Drawings.
- B. Multi-Purpose Dry Chemical Type Fire Extinguishers: Heavy duty steel tank, with pressure gage.
  - 1. UL Class: A:B:C.
    - a. 4-A:60B:C, 10 pound (Similar to JL "Cosmic 10E").
  - 2. Finish: Factory powder-coated; Red.
  - 3. Contents: Fluidized and siliconized mono ammonium phosphate powder; nonconductive and nontoxic

**2.03 FIRE EXTINGUISHER CABINETS**

- A. Similar to JL Industries Cosmopolitan C1837V17.
- B. Cabinet Configuration: Semi-recessed type.
  - 1. Sized to accommodate extinguisher and accessories.

- 2. Trim: Returned to wall surface, with 2-1/2 inch projection, 1-3/4 inch wide face.
- C. Tub: Primed sheet steel, powder-coated finish.
- D. Door: 0.036 inch thick stainless steel reinforced for flatness and rigidity; latch. Hinge doors for 180 degree opening with continuous piano hinge. Provide nylon catch.
- E. Door Glazing: Glass, clear, 1/8 inch thick tempered. Set in resilient channel gasket glazing.
- F. Cabinet Mounting Hardware: Appropriate to cabinet. Pre-drill for anchors.
- G. Weld, fill, and grind components smooth.
- H. Finish of Cabinet Exterior Trim and Door: No. 4.
- I. Finish of Cabinet Interior: White enamel.

**PART 3 EXECUTION**

**3.01 EXAMINATION**

- A. Verify existing conditions before starting work.
- B. Verify rough openings for cabinet are correctly sized and located.

**3.02 INSTALLATION**

- A. Install in accordance with manufacturer's instructions.
- B. Install cabinets plumb and level in wall openings, maximum 54 inches from finished floor to inside top of cabinet.
- C. Secure rigidly in place.
- D. Place extinguishers in cabinets.

**3.03 FIELD QUALITY CONTROL**

- A. Ensure that each extinguisher is fully charged, and that inspection of each extinguisher has been performed, as evidenced by the National Association of Fire Equipment Distributors certification tag, just prior to turnover.

**END OF SECTION**



**SECTION 11 6833**  
**ATHLETIC FIELD EQUIPMENT**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Football Goal Posts
- B. Shot Put Stopboard

**1.02 RELATED SECTIONS**

- A. Section 02970 - All Rubber Infilled Synthetic Turf

**1.03 SUBMITTALS**

- A. See Section 01330 - Submittal Procedures.
- B. Product Data: Manufacturer's specifications and technical data including preparation instructions and recommendations, installation methods, and maintenance procedures.

**PART 2 PRODUCTS**

**2.01 MANUFACTURERS**

- A. Stackhouse Athletic Equipment; [www.stackhouseathletic.com](http://www.stackhouseathletic.com); 800-285-3604
- B. Gill Athletics; [www.gillathletics.com](http://www.gillathletics.com); 800-637-3090
- C. Substitutions: See Section 01 6000 – Product Requirements

**2.02 FOOTBALL GOAL POSTS**

- A. Product Semi-permanent "goose neck" goal posts, steel models FGNGPH with top plate set 8" below grade as manufactured by Stackhouse Athletic Equipment.
- B. Goose Neck: 4.5" O.D., schedule 40 steel pipe, primed and painted white.
- C. Crossbar: 3" I.D., schedule 40 steel pipe, primed and painted white.
- D. Uprights: (2) 2" I.D., schedule 40 steel pipe, primed and painted white.
- E. Top Mounting Plate: ¾" x 16" x 16" steel, (4) ½" steel gussets, with adjusting nuts.
- F. Ground Sleeve: ¾" x 16" x 16" steel plate, (4) ¾" stud bolts with adjusting nuts, (4) 1" I.D. steel pipe, 3" I.D. steel center pipe, primer coat.
- G. Extent of Work: 2 goal posts at each field.

**2.03 SHOT PUT TOE BOARD**

- A. Product: Polyurethane Shot Put Toe Board by Stackhouse.
- B. Material: Polyurethane.
- C. Dimensions: 4 ft long, match radius of throw circle per the Drawings.
- D. Color: White
- E. Fasten to throw circle pad with at least two bolts.
- F. Extent: of Work: One at Shot Put pad.

**2.04 CONCRETE:**

- A. A. 3,000 psi mix
- B. B. See drawings for size of concrete footings.

**PART 3 EXECUTION**

**3.01 PREPARATION**

- A. Protect previously installed work.

**3.02 INSTALLATION**

- A. Install in accordance with manufacturer's instructions.

**3.03 PROTECTION**

- A. Protect installed units until completion of project.
- B. Replace damaged units before Substantial Completion.

**END OF SECTION**

**SECTION 31 2200**  
**GRADING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Removal of topsoil.
- B. Rough grading the site for site improvements.
- C. Finish grading .

**1.02 RELATED REQUIREMENTS**

- A. Section 31 2316 - Excavation.
- B. Section 31 2323 - Fill: Filling and compaction.

**1.03 SUBMITTALS**

- A. Project Record Documents: Accurately record actual locations of utilities remaining by horizontal dimensions, elevations or inverts, and slope gradients.

**PART 2 PRODUCTS**

**2.01 MATERIALS**

- A. Topsoil: See Section 31 2323.

**PART 3 EXECUTION**

**3.01 EXAMINATION**

- A. Verify that survey bench mark and intended elevations for the Work are as indicated.

**3.02 PREPARATION**

- A. Identify required lines, levels, contours, and datum.
- B. Stake and flag locations of known utilities.

**3.03 ROUGH GRADING**

- A. Remove topsoil from areas to be further excavated, re-landscaped, or re-graded, without mixing with foreign materials.
- B. Do not remove topsoil when wet.
- C. Remove subsoil from areas to be further excavated, re-landscaped, or re-graded.
- D. Do not remove wet subsoil, unless it is subsequently processed to obtain optimum moisture content.
- E. When excavating through roots, perform work by hand and cut roots with sharp axe.
- F. Stability: Replace damaged or displaced subsoil to same requirements as for specified fill.

**3.04 SOIL REMOVAL**

- A. Remove excavated topsoil from site.

**3.05 FINISH GRADING**

- A. Before Finish Grading:
  - 1. Verify building and trench backfilling have been inspected.
  - 2. Verify subgrade has been contoured and compacted.
- B. Remove debris, roots, branches, stones, in excess of 1/2 inch in size. Remove soil contaminated with petroleum products.
- C. In areas where vehicles or equipment have compacted soil, scarify surface to depth of 3 inches.
- D. Place imported topsoil as needed to blend in new improvements with existing grades, per the Drawings.

- E. Fine grade topsoil to eliminate uneven areas and low spots. Maintain profiles and contour of subgrade.

**3.06 TOLERANCES**

- A. Top Surface of Subgrade: Plus or minus 0.10 foot (1-3/16 inches) from required elevation.
- B. Top Surface of Finish Grade: Plus or minus 0.04 foot (1/2 inch).

**3.07 REPAIR AND RESTORATION**

- A. Existing Facilities, Utilities, and Site Features to Remain: If damaged due to this work, repair or replace to original condition.

**3.08 FIELD QUALITY CONTROL**

- A. See Section 31 2323 for compaction density testing.

**3.09 CLEANING**

- A. Leave site clean and raked, ready to receive landscaping.

**END OF SECTION**

**SECTION 31 2316  
EXCAVATION**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Excavating for foundations, slabs-on-grade, paving, and site improvements..

**1.02 RELATED REQUIREMENTS**

- A. Section 31 2200 - Grading: Grading.
- B. Section 31 2323 - Fill: Fill materials, filling, and compacting.

**PART 2 PRODUCTS - NOT USED**

**PART 3 EXECUTION**

**3.01 EXAMINATION**

- A. Verify that survey bench mark and intended elevations for the work are as indicated.

**3.02 PREPARATION**

- A. Identify required lines, levels, contours, and datum locations.
- B. See Section 31 2200 for additional requirements.

**3.03 EXCAVATING**

- A. Excavate to accommodate construction operations and site improvements.
- B. Notify Architect of unexpected subsurface conditions and discontinue affected Work in area until notified to resume work.
- C. Slope banks of excavations deeper than 4 feet to angle of repose or less until shored.
- D. Do not interfere with 45 degree bearing splay of foundations.
- E. Cut utility trenches wide enough to allow inspection of installed utilities.
- F. Hand trim excavations. Remove loose matter.
- G. Remove lumped subsoil, boulders, and rock up to 1/3 cu yd measured by volume.
- H. Correct areas that are over-excavated and load-bearing surfaces that are disturbed; see Section 31 2323.
- I. Grade top perimeter of excavation to prevent surface water from draining into excavation.
- J. Remove excavated material that is unsuitable for re-use from site.
- K. Remove excess excavated material from site.

**3.04 FIELD QUALITY CONTROL**

- A. See Section 01 4000 - Quality Requirements, for general requirements for field inspection and testing.
- B. Provide for visual inspection of load-bearing excavated surfaces before placement of foundations.

**3.05 PROTECTION**

- A. Prevent displacement of banks and keep loose soil from falling into excavation; maintain soil stability.
- B. Protect bottom of excavations and soil adjacent to and beneath foundation from freezing.

**END OF SECTION**



## SECTION 31 2323

### FILL

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

- A. Filling, backfilling, and compacting for footings and site improvements.

##### 1.02 RELATED REQUIREMENTS

- A. Section 03 3000 - Cast-in-Place Concrete.
- B. Section 31 2200 - Grading: Site grading.
- C. Section 31 2316 - Excavation: Removal and handling of soil to be re-used.
- D. Section 31 2324 - Subbase at Synthetic Turf: Field drainage pipe, fill, and testing procedures at base for Synthetic Turf

##### 1.03 REFERENCE STANDARDS

- A. AASHTO T 180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54 kg (10-lb) Rammer and a 457 mm (18 in.) Drop; American Association of State Highway and Transportation Officials; 2010
- B. ASTM C136 - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates; 2006.
- C. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft<sup>3</sup> (600 kN-m/m<sup>3</sup>)); 2012.
- D. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft<sup>3</sup> (2,700 kN m/m<sup>3</sup>)); 2012.
- E. ASTM D2487 - Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System); 2011.

##### 1.04 SUBMITTALS

- A. See Section 01 3300 - Submittal Procedures, for submittal procedures.
- B. Fill Composition Test Reports: Results of laboratory tests on proposed and actual materials used.
- C. Compaction Density Test Reports.

##### 1.05 DELIVERY, STORAGE, AND HANDLING

- A. When necessary, store materials on site in advance of need.
- B. When fill materials need to be stored on site, locate stockpiles where allowed by the Owner.
  - 1. Separate differing materials with dividers or stockpile separately to prevent intermixing.
  - 2. Prevent contamination.
  - 3. Protect stockpiles from erosion and deterioration of materials.

#### PART 2 PRODUCTS

##### 2.01 FILL MATERIALS

- A. Structural Fill
  - 1. Select Fill: 1 1/2 or 3/4 inch minus, clean (i.e. less than 5% passing the #200 US Sieve), well-graded, crushed gravel or rock.
  - 2. Granular Fill: 1 1/2 or 3/4 inch minus, clean (i.e. less than 5% passing the #200 US Sieve), well-graded, crushed gravel or rock.
  - 3. Stabilization Fill: 1 1/2 or 3/4 inch minus, clean (i.e. less than 5% passing the #200 US Sieve), well-graded, crushed gravel or rock.
- B. Shot Put Fill: 1/4 inch minus, clean (i.e. less than 5% passing the #200 US Sieve), well-graded, crushed gravel or rock.
- C. Sand: Natural river or bank sand; washed; free of silt, clay, loam, friable or soluble materials, and organic matter.



1. Graded in accordance with ASTM C136; within the following limits:
  - a. No. 4 sieve: 100 percent passing.
  - b. No. 14 sieve: 10 to 100 percent passing.
  - c. No. 50 sieve: 5 to 90 percent passing.
  - d. No. 100 sieve: 4 to 30 percent passing.
  - e. No. 200 sieve: 0 percent passing.
- D. Topsoil: Friable loam; imported borrow.
  1. Graded.
  2. Free of roots, rocks larger than 1/2 inch, subsoil, debris, large weeds and foreign matter.
  3. Acidity range (pH) of 5.5 to 7.5.
  4. Containing a minimum of 4 percent and a maximum of 25 percent inorganic matter.
  5. Conforming to ASTM D2487 Group Symbol OH.

## **2.02 SOURCE QUALITY CONTROL**

- A. See Section 01 4000 - Quality Requirements, for general requirements for testing and analysis of soil material.
- B. Where fill materials are specified by reference to a specific standard, test and analyze samples for compliance before delivery to site.
- C. If tests indicate materials do not meet specified requirements, change material and retest.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Identify required lines, levels, contours, and datum locations.
- B. See Section 31 2200 for additional requirements.

### **3.02 PREPARATION**

- A. Scarify subgrade surface to a depth of 6 inches to identify soft spots.
- B. Cut out soft areas of subgrade not capable of compaction in place. Backfill with general fill.
- C. Compact subgrade to density equal to or greater than requirements for subsequent fill material.
- D. Until ready to fill, maintain excavations and prevent loose soil from falling into excavation.

### **3.03 FILLING**

- A. Fill to contours and elevations indicated using unfrozen materials.
- B. Employ a placement method that does not disturb or damage other work.
- C. Systematically fill to allow maximum time for natural settlement. Do not fill over porous, wet, frozen or spongy subgrade surfaces.
- D. Maintain optimum moisture content of fill materials to attain required compaction density.
- E. Slope grade away from building minimum 2 inches in 10 ft, unless noted otherwise. Make gradual grade changes. Blend slope into level areas.
- F. Correct areas that are over-excavated.
  1. Other areas: Use general fill, flush to required elevation, compacted to minimum 97 percent of maximum dry density.
- G. Compaction Density Unless Otherwise Specified or Indicated:
- H. Reshape and re-compact fills subjected to vehicular traffic.

### **3.04 FIELD QUALITY CONTROL**

- A. See Section 01 4000 - Quality Requirements, for general requirements for field inspection and testing.
- B. Evaluate results in relation to compaction curve determined by testing uncompacted material in accordance with ASTM D698 ("standard Proctor"), ASTM D1557 ("modified Proctor"), or AASHTO T 180.

- C. If tests indicate work does not meet specified requirements, remove work, replace and retest.

**END OF SECTION**



**SECTION 31 2324**  
**SUBBASE AT SYNTHETIC TURF**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Filling, backfilling, and compacting for footings and site improvements.
- B. Verification and demonstration that the installed subbase meets the requirements of this section
- C. Survey to demonstrate surface planarity.

**1.02 RELATED REQUIREMENTS**

- A. Section 03 3000 - Cast-in-Place Concrete.
- B. Section 31 2200 - Grading: Site grading.
- C. Section 31 2316 - Excavation: Removal and handling of soil to be re-used.
- D. Section 31 2323 - Fill

**1.03 REFERENCE STANDARDS**

- A. AASHTO T 180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54 kg (10-lb) Rammer and a 457 mm (18 in.) Drop; American Association of State Highway and Transportation Officials; 2010
- B. ASTM C136 - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates; 2006.
- C. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft<sup>3</sup> (600 kN-m/m<sup>3</sup>)); 2012.
- D. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft<sup>3</sup> (2,700 kN m/m<sup>3</sup>)); 2012.
- E. ASTM D2487 - Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System); 2011.

**1.04 SUBMITTALS**

- A. See Section 01 3300 - Submittal Procedures, for submittal procedures.
- B. Fill Composition Test Reports: Results of laboratory tests on proposed and actual materials used.
- C. Compaction Density Test Reports.

**1.05 QUALITY CONTROL**

- A. Installers Qualifications: Firm with not less than 5 years experience in installation of systems similar in complexity to those required for this project.

**1.06 ADVANCED NOTICES**

- A. Notify the Architect at least 48 hours before starting work of this section.

**1.07 PRE-INSTALLATION MEETING**

- A. Convene one week before starting work of this section
- B. Attendance to include: Owner, Architect, General Contractor, Earthwork sub-contractor, Synthetic Turf Manufacturer and/or Supplier, and Synthetic Turf Installer.

**1.08 DELIVERY, STORAGE, AND HANDLING**

- A. When necessary, store materials on site in advance of need.
- B. When fill materials need to be stored on site, locate stockpiles where allowed by the Owner.
  - 1. Separate differing materials with dividers or stockpile separately to prevent intermixing.
  - 2. Prevent contamination.
  - 3. Protect stockpiles from erosion and deterioration of materials.

## **PART 2 PRODUCTS**

### **2.01 FIELD DRAINAGE PIPE**

- A. Manufacturer: Enkaturf Drain 9323 as manufactured by Colbond Geosynthetics
  - 1. Enkaturf Drain 9323 by Colbond Geosynthetics
  - 2. AdvanEDGE by ADS
  - 3. Substitutions: See Section 01 6000 - Product Requirements
- B. Material: Composite
- C. Pipe Type: Perforated, corrugated, rectangular
- D. Size: 1 inch high by 12 inches wide.
- E. Pipe Accessories: Fittings as needed for complete installation.

### **2.02 BASE COURSE PERMEABLE AGGREGATE**

- A. The Base Course Permeable Aggregate to installed over the Impervious Liner.
- B. Base Course Thickness: 8"
- C. Minimum Infiltration Rate: 30 inches per hour
- D. Aggregate to be open-graded, fractured, fiction course. Material to be clean with minimal fines.
- E. Base course material to be a minimum of 75% fractured with at least one fractured face by mechanical means on each individual particle larger than 1/4".
- F. Acceptable Material Source: Sand and gravel source.
- G. Typical aggregate or aggregate blends found acceptable, as a processed stone drainage course must conform to the following gradation:
  - 1. Sieve      Percent Passing by Weight
  - 2. 1-1/2"    100
  - 3. 1"        90 - 100
  - 4. 3/4"      80 - 100
  - 5. 1/2 "     60 - 80
  - 6. 3/8"     30 - 50
  - 7. No. 4     20 - 40
  - 8. No. 8     10 - 30
  - 9. No. 40    5 - 17
  - 10. No. 100 1 - 4

### **2.03 SOURCE QUALITY CONTROL**

- A. See Section 01 4000 - Quality Requirements, for general requirements for testing and analysis of soil material.
- B. Where fill materials are specified by reference to a specific standard, test and analyze samples for compliance before delivery to site.
- C. If tests indicate materials do not meet specified requirements, change material and retest.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Identify required lines, levels, contours, and datum locations.
- B. See Section 31 2200 for additional requirements.

### **3.02 PROTECTION**

- A. Monuments: Carefully maintain bench marks, monuments, and other reference points. If disturbed or destroyed, replace as directed.
- B. Do not allow construction activity unrelated to the work of this access to the subgrade, or subbase.

- C. Dust Control: Protect persons and property against damage and discomfort caused by dust; water as necessary and when directed.

**3.03 EXCAVATION AND SUBGRADE PREPARATION**

- A. As specified in Section 31 2316 - Excavation and as listed below.
- B. Scarify subgrade surface to a depth of 6 inches to identify soft spots.
- C. Cut out soft areas of subgrade not capable of compaction in place. Backfill with granular fill.
- D. Compact subgrade to density equal to or greater than requirements for subsequent fill material.
- E. Until ready to fill, maintain excavations and prevent loose soil from falling into excavation.

**3.04 FIELD DRAINAGE PIPE INSTALLATION**

- A. Install composite underdrain conduits at interval shown on drawings at a 45-degree angle to sidelines on top of the impermeable liner, securing to liner every 15 linear feet with duct tape.
- B. Cover ends of field drains to eliminate rock fills, from entering pipe.
- C. Extend ends of composite drains over the perimeter drain collector trench system.

**3.05 AGGREGATE BASE PLACEMENT - GENERAL**

- A. Delivery Moisture Content of Stone Base: Processed stone must contain 90% to 110% of the optimum moisture content to ensure that fines do not migrate in transit or during placement and to facilitate proper compaction. The Contractor shall apply water to the processed stone on site to attain and maintain this minimum moisture content.
- B. No trucks or equipment will be allowed to drive over the top of the field drainage except track-equipped machinery utilized in spreading base aggregate materials, or where a 12" depth base aggregate temporary roadway has been established.
- C. In the event unauthorized traffic is observed or evidence to cross field drainage, the Contractor shall, at their own expense, expose the drainpipe in the area directed for observation by the Owner's Representative and repair any damage promptly.

**3.06 AGGREGATE BASE HANDLING AND PLACEMENT:**

- A. Prior to aggregate placement, remove any excess or contaminated backfill from the drainage trenches.
- B. Should any separation of the materials occur, during any stage of the spreading or stockpiling, the Contractor must immediately remove and dispose of segregated material and correct or change handling procedures to prevent any further separation. Double handling of materials should be avoided.
- C. The Contractor shall utilize laser-controlled equipment for the grading of the processed stone to ensure accuracy in grading tolerances.
- D. Maximum Lift: 6"
- E. Install processed stone base, whenever possible, from sideline toward centerline, parallel to the composite drain network, to the lines and grades shown on the drawings. Material should not be pushed more than 30' from the point of discharge to avoid segregation of materials. Care should be taken to never damage the permeable liner.
- F. Each layer must be spread uniformly with equipment that will not cause perceptible separation in gradation (segregation of the aggregates), preferably a self-propelled paving machine, or a small grader or low ground pressure (LPG) dozer.
- G. The Contractor shall grade the surface of the processed stone acceptable to receive the final synthetic turf surface system.

**3.07 AGGREGATE BASE COMPACTION**

- A. The processed stone shall be compacted to a minimum density of not less than 95% of maximum density as determined by ASTM D698.

- B. Proof-roll compacted stone base to identify any "soft spots" indicated by rutting or deflection. Mark any such areas for additional compaction or correction. Use tandem or tri-axle dump trucks fully loaded with not less than total load of twenty (20) tons weight. Proof rolling operations should be preformed in the presence of the Owner's Representative.
- C. Areas that deviate should be marked with spray paint and corrected by re-grading or filling low areas with crushed stone, granite chips or screenings and rolling tight to achieve proper density, permeability and surface stability.

**3.08 TESTING OF COMPLETED AGGREGATED DRAINAGE LAYER:**

- A. The surface of the processed stone course shall be well drained at all times. No standing water shall be permitted at any time. The permeability of the proposed aggregate shall be lab tested per Din 8035 Part 6 (preferred), ASTM 2434 (constant head), or ASTM D3385 (double-ring) testing methods. Final in-place aggregate shall have an initial percolation rate of not less than twenty-five (25) inches per hour. Infiltration testing of the installed aggregate base shall be conducted (at a minimum of) one sample per every 5,000 square feet, or as otherwise directed by the Owner's Representative, using a "Zero Head, Double Bucket" method for field testing. The test shall be conducted in the presence of the Owner.
- B. The tests shall be performed by the testing agency selected by the Owner. The contractor shall coordinate all aspects of the test with the testing agency. The owner will pay for the testing services.
- C. All test results will be logged and documented by the testing agency. If at any time the processed stone base does not meet specifications, it shall be the Contractor's responsibility to restore, at his expense, the processed stone base to the required grade, cross-section and density as well as the stipulated infiltration rate.
- D. When it has been confirmed that the work is in compliance with all the requirements identified in this section, the contractor shall notify the Owner's Representative to schedule a final inspection by the Synthetic Turf System Installer. During this final inspection the Contractor shall make available an orbital laser system for checking grades. Any deficiencies uncovered during this inspection must be remedied to the satisfaction of the Synthetic Turf System Installer before the base system will be considered acceptable.

**3.09 PROOF ROLL AND VERIFICATION OF SUBBASE**

- A. Upon completion of subgrade excavation and prior to placement of bottom course of permeable base, and upon completion of installation of bottom course of permeable base, the Contractor for the Middle School Site Improvements projects will coordinate proof rolls of the area under the synthetic turf fields.
- B. In attendance at the proof rolls shall be the architect, general contractor, and earthwork contractor for the Site Improvements project, and the architect, general contractor, earthwork contractor, synthetic turf manufacturer's rep, and synthetic turf installer from the Synthetic Turf Fields project, geotechnical engineer procured by the owner, and the owner.
- C. Proof-roll using a loaded, 10 yd<sup>3</sup> dump truck. Proof rolling should be observed by the Geotechnical Engineer. Areas of pumping or deflection observed beneath the truck wheels should be overexcavated and replaced, and proof-rolled again.

**3.10 TOLERANCES**

- A. The finished aggregate surface shall not deviate (tolerance-to-grade) by more than +0 or -1/4" (.02') from designated compacted grade elevations when checked by survey. Surface shall also not indicate any deviation more than 1/4" (.02') in 10' (any direction) when placed under a 10-foot straight edge. This tolerance is required over the entire field. The perimeter curbs, nailers, concrete flatwork immediately abutting the synthetic turf perimeter shall not deviate (tolerance-to-grade) by more than +0 or -1/4" (.02').
- B. Surface elevations and planarity shall be verified by means of a survey, performed by a licensed surveyor, utilizing a maximum grid size spacing of 10 ft x 10 ft. Provide a printed copy of the survey to the Architect prior to installation of the synthetic turf.



**3.11 FIELD QUALITY CONTROL**

- A. See Section 01 4000 - Quality Requirements, for general requirements for field inspection and testing.
- B. Evaluate results in relation to compaction curve determined by testing uncompacted material in accordance with ASTM D698 ("standard Proctor"), ASTM D1557 ("modified Proctor"), or AASHTO T 180.
- C. If tests indicate work does not meet specified requirements, remove work, replace and retest.

**END OF SECTION**



**SECTION 31 2333  
TRENCHING AND BACKFILL**

**PART 1 GENERAL**

**1.01 CONTRACT CONDITIONS**

- A. Work of this section is bound by the Contract Conditions and Division 1, bound herewith, in addition to this specification and accompanying drawings.

**1.02 SECTION INCLUDES**

- A. Excavation and fills, including compaction, of on-site private storm drain.
- B. Section 31 2200 – Grading
- C. Section 31 2316 -- Excavation

**1.03 REFERENCED SPECIFICATIONS**

- A. ODOT Standard Specifications (current edition).

**1.04 DEFINITIONS**

- A. Rock: Material that cannot be removed by one-yard shovel, by backhoe with 9,500 lb. digging force, by pick and shovel, or by 200 HP Crawler fitted with normal excavating equipment. Ripper attachment as might be hooked into seam is not considered “normal” excavating equipment.
- B. Unstable Soil: Soft, loose, wet, or disturbed ground that is incapable of supporting material, equipment, personnel, or structure.

**1.05 SUBMITTALS**

- A. Comply with Section 01 3000, unless otherwise indicated.
- B. Product Data: Manufacturer's specifications and technical data including performance, construction, and manufacturing information.
- C. Field Quality Control submittals as specified in Part 3 of this Section.
  - 1. Field Tests
  - 2. Special Inspections for Code Compliance

**1.06 QUALITY REQUIREMENTS**

- A. Manufacturer's Qualifications: Not less than 5 years experience in the actual production of specified products.
- B. Installer's Qualifications: Firm with not less than 5 years experience in installation of systems similar in complexity to those required for this project.
- C. Product/Material Qualifications:
  - 1. Design Data: Compaction testing shall be in accordance with Section 01 4000, QUALITY REQUIREMENTS.
  - 2. Test reports: Provide imported material gradation test reports. Provide material compaction test reports.

**1.07 DELIVERY, STORAGE, AND HANDLING**

- A. Delivery, Storage and Protection: Comply with manufacturer's recommendations.
  - 1. Protect from damage by the elements and construction procedures.

**1.08 ADVANCE NOTICES**

- A. Notify Engineer at least 48 hours before starting work of this section.

**1.09 COORDINATION**

- A. Coordinate with other trades affecting or affected by work of this section.

## **PART 2 PRODUCTS**

### **2.01 CRUSHED ROCK**

- A. Imported, clean, 3/4" - 0 crushed rock or crushed gravel, free from foreign material and meeting the requirements of ODOT Standard Specifications (current edition) 02630.
- B. To be used for Pipe Base Material, Pipe Zone Material, and Trench Backfill.

### **2.02 DRAIN ROCK**

- A. Imported, clean, 1/2" to 1-1/2" uncrushed, nearly round aggregate free from foreign material and meeting the requirements of ODOT Standard Specifications (current edition) 01090.12.

### **2.03 DRAINAGE GEOTEXTILE**

- A. Non-woven geotextile; grab tensile strength 90 lb minimum per ASTM D4632 each direction; burst strength 185 psi minimum per ASTM D3786; puncture strength 55 lb minimum per ASTM D4833 or ASTM D3787 OSHD TM 816; No. 70 sieve or smaller opening per ASTM D4751; minimum 150 gal/min/ft<sup>2</sup>. Amoco 4545 or approved.

### **2.04 TRACER WIRE**

- A. Electrically conductive tracer wire, 18 - gauge, insulated copper or heavier, green in color, or other approved material. To be placed full length of trench with non - metallic pipe.

## **PART 3 EXECUTION**

### **3.01 EXISTING CONDITIONS**

- A. Prior to starting work of this section, verify that existing grades and field conditions agree with drawings. Notify Engineer of deviations.
- B. Do not start work of this section until all unsatisfactory conditions have been corrected. Commencing work implies acceptance of existing conditions.
- C. If field measurements differ slightly from drawing dimensions, modify work as required for accurate fit. If measurements differ substantially, notify Engineer prior to starting work of this section.

### **3.02 PROTECTION**

- A. Monuments: Carefully maintain bench marks, monuments, and other reference points. If disturbed or destroyed, replace as directed.
- B. Existing Utilities: Existing utilities shall be field located. Protect active utility lines encountered. Repair or replace utility lines damaged by work of this section.
- C. Pavement Cleaning: Maintain pavements and walkways clean at all times.
- D. Dust Control: Protect persons and property against damage and discomfort caused by dust; water as necessary and when directed.
- E. Other Work and Adjacent Property: Protect against damage caused by work of this section.

### **3.03 GENERAL REQUIREMENTS**

- A. Contractor shall do all trenching and excavating necessary or required for proper construction of the work and placement or installation of materials. Tunneling or jacking shall not be used unless approved in writing by the Engineer.
- B. Cutting Pavements: Cut vertical, straight - line joints using power saw designed for cutting pavements. Cut minimum one foot beyond each side of trench.
- C. Obstructions: Remove all obstructions encountered within the trench area or adjacent thereto. If requested by Contractor, Engineer may make minor changes in trench alignment to avoid major obstructions, provided such alignment changes can be made without adversely affecting the intended function of the facility. Contractor shall pay any additional costs resulting from such alignment changes.

- D. Trenching: Minimum trench width to be 12 inches greater than outside diameter of pipe. Maximum trench width at top of trench shall not be limited except where excess width of excavation would cause damage or create damage to adjacent structures or facilities.
- E. Line and Grade: Excavate trench to lines and grades shown on the drawings or as established by the Engineer with proper allowances for pipe thickness and special bedding when required.
- F. Shoring: Shore trench when necessary to prevent caving during excavation in unstable material, or to protect adjacent structures, property, workers, and the public or as required by local, state, or federal agencies. Shoring shall be removed, as the backfilling is done, in a manner that will not damage pipe or permit voids in the backfill. It shall be the sole responsibility of the Contractor to see that safety requirements are met.
- G. Temporary Stockpiling of Excavated Material: Locate at least 2 feet from trench edges. Place excavated material only within approved areas. Do not obstruct roadways, bikeways, or pedestrian walkways. Conform to all federal, state and local codes governing the safe loading of excavated materials adjacent to trenches.
- H. Excess Excavation: Where excavation, through Contractor's error, is carried to levels lower than those shown on drawings, backfill with specified bedding material to proper levels at Contractor's expense.
- I. Drainage: At all times keep trenches dry. Provide and operate pumping equipment necessary to keep excavations free from standing water. Dispose of water in manner to prevent damage to adjacent property and as required by governing jurisdiction.
- J. If rock or unstable soil are encountered, notify Engineer. Removal of rock or unstable soil will be paid for as an addition to the contract.

#### **3.04 EXCAVATION**

- A. Excavate trenches to the line and grades shown on the drawings.

#### **3.05 BACKFILL**

- A. Backfilling shall not commence until after pipe, conduit, structures, and other equipment and appurtenances placed in trench or similar excavations have been properly constructed or installed, as applicable, and inspected. Backfill shall be placed in such a manner as not to disturb, damage, or subject such facilities to unbalanced loads or forces. Make fills as soon as feasible after Engineer's review and acceptance.
- B. Pipe Base: Place required thickness of Pipe Base Material over full width of trench. Provide uniform bearing under entire length of each pipe.
- C. Pipe Zone: Place required thickness of Pipe Zone Material over full width of trench.
- D. Above Pipe Zone: Backfill full width of trench to paving subgrade elevation or to within depth of loam in landscaped areas with Trench Backfill.
- E. Compaction: Trench backfill shall be compacted in maximum 24 inch lifts to:
  - 1. 95 percent compaction under pavement areas per ASTM D698 at an optimum moisture content of  $\pm 2$  percent.
  - 2. 90 percent compaction elsewhere per ASTM D698 at an optimum moisture content of  $\pm 2$  percent.
  - 3. Water settling of trench backfill will not be considered an acceptable compaction procedure.

#### **3.06 MAINTENANCE OF TRENCH BACKFILL**

- A. Contractor shall maintain all backfilled trench surfaces until all work has been completed and accepted. Such maintenance shall include, but not be limited to, addition of appropriate backfill material above the pipe zone to keep backfilled trench surface smooth, free from ruts and potholes, and suitable for traffic flow.

#### **3.07 DISPOSAL OF WASTE MATERIAL AND EXCESS EXCAVATION**

- A. Remove from site excess material and that unsuitable for backfilling.

### **3.08 SETTLEMENT**

- A. Any settlement in trench backfill which occurs during the warranty period and is attributable to construction procedures, such as improper removal of shoring or insufficient compaction, shall be corrected by the contractor at his own expense. Any piping or facilities damaged by such settlement shall be restored to their original condition at the Contractor's expense.

### **3.09 FIELD QUALITY CONTROL**

- A. Refer to Section 01 4000 for responsibilities for arranging, supervising, and payment of field quality control requirements.
- B. Field Tests:
  - 1. Material compaction testing:
    - a. Trench Compaction: A minimum of one field density test shall be conducted on compacted material for every 100 linear feet, or fraction thereof, of trench and for every 3 feet, or fraction thereof, of fill placed.
  - 2. Imported material gradation testing.
- C. Field Inspections: Notify Engineer prior to work of this section.
- D. Special Inspections for Code Compliance: Obtain building inspector approvals.

### **3.10 CLEANING**

- A. Upon completion of the work of this section promptly remove from the working area all scraps, debris, and surplus material.

### **3.11 PROTECTION**

- A. Protect all work installed under this section.
- B. Replace, at no additional cost to Owner, any damaged work of this section.

**END OF SECTION**

**SECTION 31 2500**  
**EROSION AND SEDIMENT CONTROL**

**PART 1 GENERAL**

**1.01 CONTRACT CONDITIONS**

- A. Work of this section is bound by the Contract Conditions and Division 1, bound herewith, in addition to this specification and accompanying drawings.

**1.02 SECTION INCLUDES**

- A. Prevention of erosion due to construction activities.
- B. Prevention of sedimentation of waterways, open drainage ways, and storm and sanitary sewers due to construction activities.
- C. Restoration of areas eroded due to insufficient preventative measures.
- D. Compensation of owner fines levied by authorities having jurisdiction due to non-compliance by contractor.

**1.03 RELATED SECTIONS**

- A. Section 00 3100 – Available Project Information
- B. Section 31 2200 – Grading
- C. Section 31 2316 -- Excavation

**1.04 REFERENCED SPECIFICATIONS**

- A. ODOT Standard Specifications (current edition).

**1.05 SUBMITTALS**

- A. Comply with Section 01 3300, unless otherwise noted.
- B. Product Data: Manufacturer's specifications and technical data including performance, construction, and manufacturing information.
  - 1. Submit for: Inlet protection products.
- C. Closeout Requirements: Comply with Section 01 7700.

**1.06 QUALITY REQUIREMENTS**

- A. All measures indicated in this specification may not be required. Contractor responsible for implementing erosion and sediment controls adequate to comply with permit requirements.
- B. Manufacturer's Qualifications: Not less than 5 years experience in the actual production of specified products.
- C. Installers Qualifications: Firm with not less than 5 years experience in installation of systems similar in complexity to those required for this project.
- D. Regulatory Requirements:
  - 1. Do not begin clearing, grading, or other work involving disturbance of ground surface cover until applicable permits have been obtained.
  - 2. An erosion control permit is required from the City of Eugene. The Owner shall apply, pay for, and secure the permit. The contractor shall comply with the construction erosion control permit.
  - 3. Owner will withhold payment to Contractor equivalent to all fines resulting from non-compliance with applicable regulations.
  - 4. Action Plan: Contractor shall prepare and submit an Action Plan when Erosion and Sediment Control Measures are modified after permit registration is approved. The Action Plan shall identify revisions made to the approved Erosion and Sediment Control Plan, and shall identify corrective actions taken to cease the discharge of sediment into surface waters or stormwater systems. The Action Plan shall be prepared in accordance with the *1200-C Construction Stormwater Permit Registration Guidance* document published by

Oregon DEQ in June 2006. An Action Plan shall be required under the following circumstances:

- a. Emergency Situations: Emergency change in erosion control measures due to emergency situations, where immediate corrective action is required to cease the discharge of significant amounts of sediment from entering surface waters or nearby properties. In emergency situations, contractor shall take immediate action to correct the stormwater discharge. Contractor shall submit action plan to Engineer within 10 calendar days of the discharge identifying the corrective actions taken to cease the discharge.
  - b. Non-Emergency Changes Made Once Project is Underway: Submit Action Plan for changes in the project design affecting stormwater discharges, local conditions, project schedule, weather conditions, or other appropriate reasons. Action Plan shall be required for changes to the Erosion and Sediment Control Measures identified in the Drawings, their location, maintenance required, and any other revisions necessary to prevent and control erosion and sediment runoff. Contractor shall submit action plan to Engineer at least 10 calendar days before implementing the revisions.
- E. Stormwater Runoff: Control increased stormwater runoff due to disturbance of surface cover due to construction activities for this project.
1. Prevent runoff into storm sewer systems, including open drainage channels, in excess of actual capacity or amount allowed by authorities having jurisdiction, whichever is less.
  2. Anticipate runoff volume due to the most extreme short term and 24-hour rainfall events that might occur in 25 years.
- F. Erosion On Site: Minimize wind, water, and vehicular erosion of soil on project site due to construction activities for this project.
1. Control movement of sediment and soil from temporary stockpiles of soil.
  2. Prevent development of ruts due to equipment and vehicular traffic.
  3. If erosion occurs due to non-compliance with these requirements, restore eroded areas at no cost to Owner.
- G. Erosion Off Site: Prevent erosion of soil and deposition of sediment on other properties caused by water leaving the project site due to construction activities for this project.
1. Prevent windblown soil from leaving the project site.
  2. Prevent tracking of mud onto public roads outside site.
  3. Prevent mud and sediment from flowing onto sidewalks and pavements.
  4. If erosion occurs due to non-compliance with these requirements, restore eroded areas at no cost to Owner.
- H. Sedimentation of Waterways On Site: Prevent sedimentation of waterways on the project site, including rivers, streams, lakes, ponds, open drainage ways and storm sewers.
1. If sedimentation occurs, install or correct preventive measures immediately at no cost to Owner; remove deposited sediments and relocate on site; comply with requirements of authorities having jurisdiction.
- I. Sedimentation of Waterways Off Site: Prevent sedimentation of waterways off the project site, including rivers, streams, lakes, ponds, open drainage ways, storm sewers, and sanitary sewers.
1. If sedimentation occurs, install or correct preventive measures immediately at no cost to Owner; remove deposited sediments and relocate on site; comply with requirements of authorities having jurisdiction.
- J. Open Water: Prevent standing water that could become stagnant.
- K. Monitoring and Inspection:



1. Contractor shall be responsible for monitoring the construction erosion control measures and shall make adjustments to measures, in accordance with the drawings and permit, to accommodate changes in earthwork operations and weather conditions.
2. Contractor shall be responsible for appointing an Erosion Control Inspector. Inspector shall be a person knowledgeable in the principles and practice of erosion and sediment controls, who possesses the skills to assess conditions at the construction site that could impact stormwater quality, is knowledgeable in the correct installation of the erosion and sediment controls, and is able to assess the effectiveness of any sediment and erosion control measures selected to control the quality of stormwater discharges from the construction activity. Erosion Control Inspector shall submit periodic inspection reports as noted on the Drawings.

#### **1.07 DELIVERY, STORAGE, AND HANDLING**

- A. Delivery, Storage and Protection: Comply with manufacturer's recommendations.
  1. Protect from damage by the elements and construction procedures.

#### **1.08 ADVANCE NOTICES**

- A. Notify Engineer at least 48 hours before starting work of this section.

#### **1.09 COORDINATION**

- A. Coordinate with other trades affecting or affected by work of this section.

### **PART 2 PRODUCTS**

#### **2.01 BARK/MULCH BIO BERM**

- A. The compost filter berm material consists of compost or a blend of compost and mulch materials according to the specifications as follows.
- B. The filter berm material shall meet particle sizing specifications that when used in a filter berm system are tested in conformance with the outlined methods and scope of ASTM D6459 (latest revision), standard test method for determination of Erosion Controlled Blanket (ECB) Performance in Protecting Hill Slopes from Rainfall Erosion.
- C. The compost portion of the filter berm shall be derived from well-decomposed organic matter source produced by controlled aerobic (biological) decomposition that has been sanitized through the generation of heat and stabilized to the point that it is appropriate for this particular application. Compost material shall be processed through proper thermophilic composting, meeting the U.S. Environmental Protection Agency's definition for a 'process to further reduce pathogens' (PFRP). The compost portion shall meet the chemical, physical and biological properties outlined below.
  1. The pH shall be between 5.0 and 8.5 for berms to receive vegetation.
  2. Nitrogen Content: 0.5 - 2.0%.
  3. Soluble Salts: Maximum 5 mmhos/cm.
  4. Compost shall be weed and pesticide free, with manmade materials comprising less than 1%.

#### **2.02 SEDIMENT FENCE**

- A. Sediment Fence Fabric: Polypropylene geotextile resistant to common soil chemicals, mildew, and insects; non-biodegradable; in longest lengths possible; fabric including seams with the following minimum average roll lengths.
- B. Apparent Opening Size: 30 U.S. Std. Sieve, maximum, when tested in accordance with ASTM D4751 (latest revision).
- C. Permittivity:  $0.05 \text{ sec}^{-1}$ , minimum, when tested in accordance with ASTM D4491 (latest revision).
- D. Ultraviolet Resistance: Retaining at least 70 percent of tensile strength, when tested in accordance with ASTM D4355 (latest revision) after 500 hours exposure.

- E. Grab Tensile Strength-Supported: 100 lb-f, minimum, in cross-machine direction; 120 lb-f, minimum, in machine direction; when tested in accordance with ASTM D4632 (latest revision).
- F. Grab Tensile Strength-Unsupported: 90 lb-f, minimum, in cross-machine direction; 100 lb-f, minimum, in machine direction; when tested in accordance with ASTM D4632 (latest revision).
- G. Color: Manufacturer's standard, with embedment and fastener lines preprinted.
- H. Manufacturers:
  - 1. BP Amoco, Amoco Fabrics and Fibers; [www.geotextile.com](http://www.geotextile.com).
  - 2. TC Mirafi; [www.tcmirafi.com](http://www.tcmirafi.com).
  - 3. Synthetic Industries; [www.fixsoil.com](http://www.fixsoil.com).

### **2.03 BIO-FILTER BAGS**

- A. Provide minimum size 18" x 6" x 30" plastic mesh bags with 1/2 inch openings filled with approximately 45 pounds of clean, 100% recycled wood-product waste.

### **2.04 CATCH BASIN INSERT BAG**

- A. Provide prefabricated filter inserts manufactured specifically for collecting sediment in drainage inlets. Include handles and/or fasteners sufficient to keep the insert from falling into the inlet during maintenance and removal of the insert from the inlet. Insert bags shall be included on the Oregon Qualified Products List (QPL) for Type 3 Inlet Protection, or approved. Curb Inlet Sediment Dams shall be included on the Oregon QPL for Type 6 Inlet Protection, or approved.

### **2.05 STRAW MULCH COVER**

- A. Straw mulch for non-hydroseeding applications from bentgrass, bluegrass, fescue or ryegrass, singly or in combination. If grass seed straw is not available within a reasonable distance of the project, straw from barley, oat or wheat may be allowed upon approval of the Agency. Provide straw that is not moldy, caked, decayed, or of otherwise low quality. Submit certification from the supplier that the straw is free of noxious weed seeds or plant parts. Acceptable documentation will show either (1) that the straw source is from an "Oregon Certified Seed" field, or (2) the seed lab test results of the seed harvested from the straw meet minimum Oregon Certified Seed quality for weed seed content. Use a straw binder or tackifier.

## **PART 3 EXECUTION**

### **3.01 EXISTING CONDITIONS**

- A. Examine site and identify existing features that contribute to erosion resistance; maintain such existing features to greatest extent possible.
- B. Do not start work of this section until all unsatisfactory conditions have been corrected. Commencing work implies acceptance of existing conditions.
- C. If field measurements differ slightly from drawing dimensions, modify work as required for accurate fit. If measurements differ substantially, notify Engineer prior to starting work of this section.

### **3.02 INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES**

- A. Install as shown on drawings, or as directed by Engineer, Erosion and Sediment Control Inspector, or Local Authority Having Jurisdiction. All measures included in this specification or details shown on Drawings may not be necessary. Contractor to utilize measures, as needed, to meet the requirements of erosion control permit(s) and the intent of this specification.

### **3.03 TEMPORARY SEEDING**

- A. When hydraulic seeder is used, seedbed preparation is not required.
- B. When surface soil has been sealed by rainfall or consists of smooth, undisturbed cut slopes and conventional or manual seeding is to be used, prepare seedbed by scarifying sufficiently to allow seed to lodge and germinate.
- C. If temporary mulching was used on planting area but not removed, apply nitrogen fertilizer at 1 pound per 1000 sq. ft.

- D. On soils of very low fertility, apply 10-10-10 fertilizer at rate of 12 to 16 pounds per 1000 sq. ft.
- E. Incorporate fertilizer into soil before seeding.
- F. Apply seed uniformly; if using drill or cultipacker seeder, place seed 1/2 to 1 inch deep.
- G. Irrigate as required to thoroughly wet soil to depth that will ensure germination without causing runoff or erosion.
- H. Repeat irrigation as required until grass is established.

#### **3.04 PROTECTION**

- A. Monuments: Carefully maintain bench marks, monuments, and other reference points. If disturbed or destroyed, replace as directed.
- B. Existing Utilities: Existing utilities shall be field located. Protect active utility lines encountered. Repair or replace utility lines damaged by work of this Section.
- C. Pavement Cleaning: Maintain pavements and walkways clean at all times.
- D. Dust Control: Protect persons and property against damage and discomfort caused by dust; water as necessary and when directed.
- E. Other Work and Adjacent Property: Protect against damage caused by work of this section.

#### **3.05 FIELD QUALITY CONTROL**

- A. Refer to Section 01 4000 for responsibilities for arranging, supervising, and payment of field quality control requirements.
- B. Special Inspections for Code Compliance:
  - 1. Obtain building approvals from Local Authority Having Jurisdiction.
  - 2. Provide periodic inspection reports as noted on the Drawings.

#### **3.06 MAINTENANCE**

- A. Maintain temporary measures until permanent measures have been established.
- B. Repair deficiencies immediately.

#### **3.07 CLEANING**

- A. Remove temporary measures after permanent measures have been installed, unless permitted to remain by Engineer.
- B. Clean out temporary sediment control structures that are to remain as permanent measures.
- C. Where removal of temporary measures would leave exposed soil, shape surface to an acceptable grade and finish to match adjacent ground surfaces.

**3.08 PROTECTION**

- A. Protect all work installed under this section.
- B. Replace at no additional cost to Owner, any damaged work of this Section.

**END OF SECTION**

**SECTION 32 1200  
FLEXIBLE PAVING**

**PART 1 GENERAL**

**1.01 CONTRACT CONDITIONS**

- A. Work of this Section is bound by the Contract Conditions and Division 1, bound herewith, in addition to this specification and accompanying drawings.

**1.02 SECTION INCLUDES**

- A. Asphaltic concrete pavements, crushed rock pavement base for on-site private improvements.

**1.03 WORK INCLUDED BUT SPECIFIED IN OTHER SECTIONS**

- A. Section 31 2200 – Grading
- B. Section 31 2316 -- Excavation

**1.04 REFERENCED SPECIFICATIONS**

- A. 2008 Oregon Standard Specifications for Construction, HMAC Pavement Reference, Section 00744.

**1.05 SUBMITTALS**

- A. Comply with Section 01 3000, unless otherwise indicated.
- B. Product Data: Manufacturer's specifications and technical data including performance, construction, and fabrication information.
  - 1. Submit for job mix formulas (JMF).
- C. Field Quality Control submittals as specified in Part 3 of this Section:
  - 1. Field Tests.
- D. Closeout Requirements: Comply with Section 01 7700.
  - 1. Special warranties
  - 2. Provide record documents.

**1.06 QUALITY ASSURANCE**

- A. Manufacturer's Qualifications: Not less than 5 years experience in the actual production of specified products.
- B. Installer's Qualifications: Firm with not less than 5 years experience in installation of systems similar in complexity to those required for this project.
- C. Pre-installation Conference: Contractor, installer, Engineer, and representatives of other affected trades shall meet at site to review paving operations, acceptance of substrata surfaces, and coordination with other trades.

**1.07 DELIVERY, STORAGE, AND HANDLING**

- A. Delivery, Storage and Protection: Comply with manufacturer's recommendations.
  - 1. Protect materials and maintain product temperature during delivery.

**1.08 SPECIAL WARRANTIES**

- A. Contractor shall warrant installed pavement for a period of 2 years from date of Substantial Completion. When notified in writing from Owner, they shall promptly and without inconvenience and cost to Owner correct said deficiencies to comply with requirements.

**1.09 COORDINATION**

- A. Coordinate with other trades affecting or affected by work of this section.

**1.10 ADVANCE NOTICES**

- A. Notify Engineer at least 48 hours before starting work of this section at each site.

**PART 2 PRODUCTS**

**2.01 CRUSHED ROCK PAVEMENT BASE**

- A. Under Dense Graded HMAC Mixture: Imported Clean 3/4"-0 or 1-1/2"-0 dense graded crushed rock or crushed gravel, free of foreign material and meeting the requirements of ODOT Standard Specifications (current edition) 02630, Base Aggregate.

**2.02 HOT MIXED ASPHALT CONCRETE (HMAC)**

- A. Asphalt Mixture: The asphalt concrete mixture shall be a well-graded, uniform coated, durable mix of the mix type(s) as shown on the plans or approved by the Engineer.

**BROADBAND LIMITS**

DENSE GRADED MIXTURE

Sieve Size	Percentage of Total	Percentage of Total
	Aggregate (by weight)	Aggregate (by weight)
Passing	1/2" Dense	3/4" Dense
1"	--	99-100
3/4"	99-100	92-100
1/2"	90-100	75-91
1/4"	52-80	50-70
No. 10	21-46	21-41
No. 40	8-25	6-24
No. 200	3-8	2-7
Asphalt Cement	4-8	4-8

- B. Asphalt Cement (Binder): Per Oregon Standard Specifications for Construction, (current edition). Use PG (Performance Grade) 64-22 for base and wearing courses.
- C. Aggregate for Base Course Mix: Per Oregon Standard Specifications for Construction (current edition).
- D. Aggregate for Wearing Course (Top Lift of HMAC) Mix: Per Oregon Standard Specifications for Construction (current edition).
- E. Fine Aggregate: Per Oregon Standard Specifications for Construction (current edition).
- F. Mineral Filler: Finely ground particles of limestone, hydrated lime, or other mineral dust, free of foreign matter.
- G. Asphalt Tack Coat: Type CSS-1, CSS-1h, CMS-2, CMS-2S, CMS-2h, CRS-2, HFRS-2 or HFMS-2 emulsified asphalt (EA) conforming to Standard Specifications for Highway Construction (current edition).
- H. Reclaimed Asphalt Pavement (RAP) Material: Shall not exceed 30% in the new pavement. Rap material not permitted in open graded or Level 4 HMAC pavement, in accordance with Standard Specifications for Highway Construction (current edition). Asphalt mixtures including RAP to meet all normal specification and Oregon Standard Specifications for Construction (current edition) requirements.

**2.03 JOB MIX FORMULA (JMF)**

- A. Mix Formula: The Contractor shall submit a JMF for each mixture to be used on the project and meeting the Level 2 criteria of Oregon Standard Specifications for Construction, Current Edition.
- B. The Contractor shall supply the job mix design to the Engineer ten (10) work days prior to production. The job mix formula shall be no more than five (5) years old.
- C. Approval: No paving shall occur until the Contractor receives written approval of the Contractor's job mix formula.

## 2.04 HMAC ACCEPTANCE

- A. The mixture will be accepted by visual inspection of the Engineer. If the mixture is considered suspect, the Contractor shall obtain samples under the observation of the Engineer and tested as per Oregon Standard Specifications for Construction, Current Edition (section 00744.16). Testing shall be performed by an independent testing agency paid for by the Contractor. Contractor to be reimbursed by Owner if testing shows HMAC is within the specified limits and tolerances.

## 2.05 HMAC PRODUCTION QUALITY CONTROL/ASSURANCE

- A. As specified for Level 2 HMAC in the Oregon Standard Specifications for Construction, Current Edition. Submit the appropriate documentation/reports to Engineer for review.

## 2.06 MODIFICATION OF MIXES

- A. Modification: The Engineer reserves the right to modify specified mixes for use under various traffic conditions on various segments of the work and for feathering, spot patching, and other special purposes. The Contractor shall provide mixes proportioned as directed by the Engineer for such purposes.

## PART 3 EXECUTION

### 3.01 EXISTING CONDITIONS

- A. Prior to starting of the work of the section verify that existing grades and field conditions agree with drawings. Notify Engineer of deviations.
- B. Do not start work of this section until all unsatisfactory conditions have been corrected. Commencing work implies acceptance of existing conditions.
- C. If field measurements differ slightly from drawing dimensions, modify work as required for accurate fit. If measurements differ substantially, notify Engineer prior to starting work of this section.

### 3.02 WEATHER LIMITATIONS

- A. Surface Temperature: Asphalt concrete shall be placed on a dry prepared surface when the surface temperature is not less than specified below.

Nominal Specified

Compacted Thickness

of Individual Courses

2" to 2-1/2"      50°F

2-1/2" and over      40°F

- B. Weather: Asphalt concrete shall not be placed during rain or other adverse weather conditions. However, if approved by the Engineer, the mix in transit at the time the adverse conditions occur may be laid if the mix has been covered during transit and is at the specified temperature, if the foundation is free from pools or flow of water, and if all other requirements of these specifications are met. Asphalt concrete mixtures shall not be placed when the foundation is frozen or when, in the opinion of the Engineer, existing or expected weather conditions will prevent the proper handling, finishing, or compaction of the mixtures. Dense graded mixes shall only be placed from 3/15 – 9/30.
- C. Ambient Temperature Caution: The Contractor is cautioned that placing asphalt concrete on cool days when the temperature is less than 60°F may require an adjustment in Contractor's normal placing and compaction procedures so that specified minimum compaction requirements will be met. The temperatures shown in the table in this section are not recommended temperatures for paving, but paving may be allowed at these temperatures on the condition that specified pavement compaction is achieved.



### **3.03 ASPHALT CONCRETE PAVING MACHINE**

- A. Pavers: Pavers shall be self-contained, power-propelled units with an activated screed or strike-off assembly, heated if necessary, and capable of spreading and finishing layers of asphalt concrete material to the widths thicknesses, lines, grades, and cross sections required.

### **3.04 COMPACTORS**

- A. Rollers: Rollers shall be steel wheel, pneumatic tire, vibratory or a combination of these types. They shall be in good condition and capable of reversing without backlash.

### **3.05 PREPARATION OF FOUNDATION**

- A. Bases: All bases and foundations on which the pavement is to be constructed shall meet the applicable specifications and be approved prior to the start of paving. Existing bases and foundations shall be reconditioned as specified or directed.
- B. Edges: Broken or ragged edges of existing paved surfaces underlying or abutting the new pavement shall be trimmed back to firm material. Surfaces against which asphalt concrete is to be placed shall be treated with an asphalt tack coat.
- C. Tack Coat: Prior to placing each lift of asphalt concrete, tack coat asphalt shall be applied to completely cover all cold longitudinal joint and all prepared existing asphalt and portland cement concrete surfaces. Immediately before applying the tack coat, the surface to be tacked shall be clean and dry. The application rate shall be between 0.05 and 0.20 gallons per square yard of surface area to achieve uniform, thorough coverage and as approved by the Engineer. Emulsified asphalt temperature to be between 140 and 185°F and application to be in accordance with manufacturer's recommendations.

### **3.06 CRUSHED ROCK PAVEMENT BASE PLACEMENT**

- A. Placement and compaction shall conform to the requirements of Section 31 2200, Grading and Section 31 2316, Excavation.

### **3.07 PLACING ASPHALT PAVEMENT - SINGLE COURSE**

- A. Place asphalt within 24 hours of applying tack coat. Do not place HMAC pavement on the tack coat until the asphalt separates from the water (breaks), but before it loses its tackiness.
- B. Place up to 3 inch compacted thickness in one lift.
- C. Install drainage covers and frames in correct position and elevation.
- D. Compact pavement by rolling. Do not displace or extrude pavement from position. Use hand-operated compacting equipment in areas inaccessible to rolling equipment.
- E. Develop rolling with consecutive passes to achieve even and smooth finish, without roller marks.

### **3.08 PLACING ASPHALT PAVEMENT - DOUBLE COURSE**

- A. Place asphalt within 24 hours of applying tack coat. Do not place HMAC pavement on the tack coat until the asphalt separates from the water (breaks), but before it loses its tackiness.
- B. Place wearing course over base course in two compacted lifts for pavement thicknesses over 3 inches.
- C. Place wearing course over base course as soon as possible.
- D. Compact pavement by rolling. Do not displace or extrude pavement from position. Use hand-operated compacting equipment in areas inaccessible to rolling equipment.
- E. Develop rolling with consecutive passes to achieve even and smooth finish, without roller marks.

### **3.09 CONTROL OF LINE AND GRADE**

- A. Line and Grade: The Contractor shall furnish, place, and maintain supports, wires, devices, and materials as necessary to provide continuous line and grade reference control to the automatic paver control system on either or both sides of the paving machine.



### 3.10 HAULING, DEPOSITING AND PLACING

- A. Hauling: Cover HMAC if rain or cold air temperatures are encountered any time between loading and placement. Engineer may reject material compromised (below specified temperature, slumping or separating, solidifying or crusting). Rejected loads will be disposed of off-site at the Contractor's expense.
- B. Depositing: Material shall be deposited from vehicles to prevent segregation.
- C. Placing: Do not place material during rain or other adverse weather conditions, unless allowed by Engineer. Material placed in adverse conditions is to meet all normal contract specification requirements. Material in transit at the time adverse conditions occur may be placed if it has been covered during transport, it is placed in areas free of standing or flowing water, temperature and all other requirements are met.

### 3.11 TEMPERATURE CONTROL

- A. Temperature of Mixture:
  - 1. The temperature of the mixture at the time it is placed in final position shall be within 10 degrees of 280°F. The Engineer may adjust the lay-down temperature in 10-degree increments to attain maximum workability and compaction. In no case shall the lay-down temperature of mixture be less than 240°F.

### 3.12 COMPACTION

- A. Rolling: Immediately after the asphalt concrete mixture has been spread, struck off and surface irregularities and other defects remedied, it shall be thoroughly and uniformly rolled until the mixture is compacted. Complete breakdown and intermediate compaction before the mix temperature drops below 180°F.
- B. General:
  - 1. The type, number, and weight of rollers shall be sufficient to compact the mixture while it is still within the specified temperature range. Rollers shall not be operated in vibratory mode when the temperature of the mixture has dropped below 180 degrees.
  - 2. Steel roller wheels shall be moistened with water or other approved material to the least extent necessary to prevent pickup of mixture and not cause spotting or defacement of the surface of the mixture.
  - 3. Rollers shall be operated at speeds recommended by the roller manufacturer and slow enough to avoid displacement of the mixture. The maximum speeds shall be 3 miles per hour for steel-wheeled rollers and pneumatic-tired rollers, unless faster speeds are approved.
  - 4. Care shall be exercised not to displace the line and grade of edges. Displacement of any course occurring as a result of the reversing of the direction of a roller, or from other causes, shall be corrected at once by the use of approved rakes and addition of fresh mixture when required.
  - 5. Any mixture that becomes loose and broken, contaminated, segregated, or is in any way defective, shall be removed and replaced with new mixture at no expense to the Owner.
  - 6. Finish rolling shall continue until all roller marks are eliminated.
  - 7. Along curbs and walls, on walks, irregular areas, and other areas not practicably accessible to specified rollers, the mixture shall be compacted with approved self-propelled rollers, mechanical tampers, hot hand tampers, or heavy hand rollers. On depressed areas, a trench roller may be used or cleated compression strips may be used under the roller to transmit compression to the depressed area.
- C. **Density Requirements:**
  - 1. The Contractor is responsible for process control and shall conduct sampling, testing, measurement and inspection. The contractor shall provide daily nuclear density testing (ODOT Test Method 310C-87) to develop rolling patterns necessary to achieve the

minimum compaction requirement of 91 percent as determined by Rice Density Test AASHTO T 209 as modified by ODOT TM 306. This is in addition to Owner's testing as necessary to ensure the finished pavement meets specifications. A copy of all compaction test reports shall be provided to the Engineer. Contractor to immediately take corrective measures when it is determined that specified compaction density is not achieved. If specified compaction density cannot be achieved the Contractor shall remove and replace the defective asphalt areas at the Contractor's expense. The Owner has the option of accepting these areas with a reduced payment to the Contractor.

2. Asphalt compaction below 88 percent as determined by Rice Density Test AASHTO T 209 as modified by ODOT TM 306 is not acceptable.
3. The Architect will determine the suitability of the final product through final acceptance testing. Results of these tests will be used to determine payment deductions, if any to be assessed against the Contract. The final density of each paving project location will be determined by averaging the results of a minimum of five (5) density tests taken with a nuclear gauge (ODOT TM 310C-87) at randomly selected locations within each paving project.
4. Paving in areas 6 feet wide or less and irregular areas not accessible by large rollers are not subject to the minimum compaction per (2) above.
5. The Owner shall take acceptance tests to verify that the work meets specifications.

### **3.13 PAVEMENT SMOOTHNESS**

- A. Utility Structures: The joint between the pavement and the top surface of utility structures, such as manhole covers and valve boxes located in the traveled way, shall meet the pavement surface tolerances.
- B. Tolerance: The surface of the finished pavement shall be within 0.02 foot of the specified line, grade, and cross section.
- C. Texture: The completed surface of all courses of the mixture shall closely parallel that specified for the top surface of the finished pavement and shall be smooth, uniform on texture and conform to the specified crown and grade.
- D. Job control testing shall be performed with a 10 foot straightedge furnished and operated by the Contractor. The Engineer may observe this testing, or the Engineer may require additional testing to be performed under the Engineer's supervision. Operations to eliminate the unacceptable pavement shall be corrected by the Contractor using a method or methods listed below and approved by the Engineer.
- E. Roughness: When tests show the pavement is not within the above tolerances, the Contractor shall take immediate action to correct equipment or procedures in the paving operations to eliminate the unacceptable pavement roughness.
- F. Method of Correction: Any surface irregularities exceeding the above tolerances shall be corrected by the Contractor using a method or methods listed below and approved by the Engineer.

### **3.14 FIELD QUALITY CONTROL**

- A. Refer to Section 01 4000 for responsibilities for arranging, supervising, and payment of field quality control requirements.
- B. Field Tests:
  1. Base rock compaction testing.
  2. Asphaltic concrete pavement compaction testing.
  3. Asphaltic concrete pavement gradation testing.
- C. Field Inspections: Notify Engineer prior to paving operations.

### **3.15 CORRECTIVE ACTION**

- A. Corrective Measures: The Engineer shall require one or more of the following corrective measure be performed on the deficient areas:
  - 1. Remove and replace the surface course.
  - 2. Place an overlay of a thickness approved by the Engineer.
  - 3. Grind the pavement surface utilizing diamond blades up to a maximum depth of 0.3 inch and apply an emulsion fog coat as directed by the Engineer.
- B. Additional Corrective Work: After completion of the corrective work, if the Engineer finds it is still not satisfactory, the Contractor shall perform additional corrective work on areas still not meeting the above tolerances.
- C. Expense: All corrective work, including furnishing of materials, shall be performed at the Contractor's expense and no adjustment in contract time will be made for corrective action work.
- D. Localized Surface Irregularities: Where surface irregularities are localized or where the Engineer determines corrective work would not be in the Owner's best interests, the Engineer may deduct from payment due the Contractor amounts equivalent to the Engineer's estimate of work costs had the corrective work been done.

### **3.16 STRUCTURE ADJUSTMENT**

- A. Prior to placement of wearing course, locate and adjust to finished pavement grade all catch basins and other structures and appurtenances within the pavement area.

### **3.17 CLEANING**

- A. Trim and remove excess asphalt concrete accumulations from abutting structures such as curbs, manholes, catch basins, and other structure.
- B. Including work of other sections, clean, repair and touch-up, or replace when directed, products which have been soiled, discolored, or damaged by work of this section. Remove excess spilled material and debris from project site upon work completion or sooner, if directed.
- C. Upon completion of the work of this section promptly remove from the working area all scraps, debris, and surplus material.

### **3.18 PROTECTION**

- A. In addition to other required provisions for traffic, the following shall apply to pavement construction: No traffic or equipment shall come in contact with the compacted mixture until it has cooled and set sufficiently to prevent marking; edges shall be protected from being broken down; and edge drop-off(s) one inch or more in height shall be marked with approved reflectorized and/or flashing warning devices visible by day and night to the traveling public, and placed at spacings as specified by the Engineer.
- B. Protect all work installed under this section.
- C. Replace at no additional cost to Owner, any damaged work of this section.

**END OF SECTION**



**SECTION 32 1313  
CONCRETE PAVING**

**PART 1 GENERAL**

**1.01 CONTRACT CONDITIONS**

- A. Work of this Section is bound by the Contract Conditions and Division 1, bound herewith, in addition to this specification and accompanying drawings.

**1.02 SECTION INCLUDES**

- A. On-site private curbs, walks, and vehicular pavement improvements.

**1.03 RELATED SECTIONS**

- A. Section 03 1000 - Concrete Forming and Accessories
- B. Section 03 2000 - Concrete Reinforcing
- C. Section 03 3000 - Cast-In-Place Concrete
- D. Section 31 2200 - Grading
- E. Section 31 2316 - Excavation
- F. Section 32 1373 - Concrete Paving Joint Sealants

**1.04 DESIGN AND ENGINEERING**

- A. Formwork design and engineering, as well as construction, are the sole responsibility of the Contractor.

**1.05 SUBMITTALS**

- A. Comply with Section 01 3000, unless otherwise indicated.
- B. Product Data: Manufacturer's specifications and technical data including performance, construction, fabrication, and installation information.
  - 1. Submit for:
    - a. Concrete Pavement Mix design.
    - b. Joint Sealant.
- C. Quality Control:
  - 1. Submit joint layout drawings for Engineer's review and acceptance.
- D. Closeout Requirements: Comply with Section 01 7700.
  - 1. Provide record documents.

**1.06 WEATHER PRECAUTIONS**

- A. Provide cold weather and/or hot weather protection as recommended in ACI 306 and ACI 305.
- B. Unless adequate protection is provided, concrete shall not be placed during rain, sleet, or snow. Protect concrete from rain water, maintain concrete water ratio and protect concrete surface.
- C. All concrete shall be adequately protected after pouring to prevent damage from freezing, by the use of suitable cover. Frozen and damaged concrete must be removed and replaced at the Contractor's expense. Do not place concrete on frozen earth.

**1.07 QUALITY ASSURANCE**

- A. Manufacturer's Qualifications: Not less than 5 years experience in the actual production of specified products.
- B. Installers Qualifications: Firm with not less than 5 years experience in installation of systems similar in complexity to those required for this project.
- C. Product/Material Qualifications:
  - 1. Design data: Compaction testing shall be in accordance with Section 01 4000, QUALITY REQUIREMENTS.

2. Test reports: Provide job mix test reports.

#### **1.08 DELIVERY, STORAGE, AND HANDLING**

- A. Delivery, Storage and Protection: Comply with manufacturer's recommendations.
  1. Protect from damage by the elements and construction procedures.

#### **1.09 ADVANCE NOTICES**

- A. Notify Engineer at least 48 hours before intended concrete placement.
- B. Place no concrete until formwork and reinforcement have been inspected.

#### **1.10 COORDINATION**

- A. Coordinate with other trades affecting or affected by work of this section.

### **PART 2 PRODUCTS**

#### **2.01 CRUSHED ROCK PAVEMENT BASE**

- A. Imported, clean, 3/4"-0 Crushed Rock Pavement Base as specified in Section 31 2200, Grading, and Section 31 2316, Excavation.

#### **2.02 CAST-IN-PLACE CONCRETE**

- A. Concrete shall be ready-mixed conforming to Section 03 3000, CAST-IN-PLACE CONCRETE, and shall have a minimum compressive strength of 3,000 psi at 28 days.

#### **2.03 JOINT FILLER**

- A. Vehicular Concrete Pavement Joint Sealant:
  1. Joint sealant shall be hot poured rubber meeting the requirements of AASHTO D6690, Type IV. Sealant type shall be approved by the manufacturer for use in the local climate, and shall be approved for use where areas with high levels of foot traffic. Crafco Road saver 222, Special Asphalt Products SA 102.

#### **2.04 EXPANSION JOINT FILLER**

- A. Expansion Joint Filler shall be asphalt-impregnated Cane Fiber per ASTM D1751 (latest revision); 3/8" thickness unless otherwise indicated. Depth as required to extend through full slab depth and to position filler top 1/2 inch below slab top as shown on drawings.FORMS
- B. Conform to Section 03 1000, CONCRETE FORMING AND ACCESSORIES.

#### **2.05 REINFORCEMENT**

- A. Conform to Section 03 2000, CONCRETE REINFORCING.
- B. Provide where shown on drawings.

#### **2.06 CURING COMPOUND**

- A. Curing compound for all other concrete shall conform to AASHTO M171, White Polyethylene Film for curing concrete or AASHTO M148, Liquid Membrane-Forming Compounds for Curing Concrete.

### **PART 3 EXECUTION**

#### **3.01 EXISTING CONDITIONS**

- A. Prior to starting work of this section verify that existing grades and field conditions agree with drawings. Notify Engineer of deviations.
- B. Do not start work of this section until all unsatisfactory conditions have been corrected. Commencing work implies acceptance of existing conditions.
- C. If field measurements differ slightly from drawing dimensions, modify work as required for accurate fit. If measurements differ substantially, notify Engineer prior to starting work of this section.

### 3.02 EXCAVATION

- A. All excavation shall be in accordance with Section 31 2200, Grading and Section 31 2316, Excavation.
- B. .

### 3.03 CRUSHED ROCK PAVEMENT BASE

- A. After the subgrade is compacted and at the proper grade, spread required thickness of 3/4-inch minus crushed rock. Compact by rolling or other approved method. Surface of the compacted base shall be at the proper level to receive the concrete. Manholes, catch basins, inlets, and other such structures shall be completed, adjusted, cured, and otherwise prepared, as applicable, and made clean and ready to have concrete placed in contact with them.

### 3.04 FORMWORK

- A. Conform to the requirements of Section 03 1000, CONCRETE FORMING AND ACCESSORIES. Construct forms to the shape, lines, grades, and dimensions called for on the Drawings. Stake wood or steel forms securely in place, true to line and grade. Brace forms to prevent change of shape or movement in any direction resulting from the weight of the concrete during placement.
- B. Allowable Tolerances: Tops of forms shall not depart from grade line more than 1/8-inch when checked with 10-foot straightedge. Alignment of straight sections shall not vary more than 1/8-inch in 10 feet.

### 3.05 REINFORCEMENT

- A. Reinforcement shall conform to the requirements of Section 03 2000, CONCRETE REINFORCING. Provision shall be made for placing dowels, tie bars, and other devices called for by the Contract Documents, during placement of the pavement. Reinforcement shall be placed on supporting devices, or "chairs," and maintained in position while the pavement is being placed.

### 3.06 FINISHING

- A. After the pavement has been struck off and consolidated, it shall be scraped with a straightedge equipped with a handle to permit operation from the edge of the pavement. Any excess water shall be removed from the surface of the pavement. Irregularities shall be corrected by adding or removing concrete. All disturbed places shall be again straightedged.
- B. After the concrete has been given a preliminary finish, the surface of the pavement shall be checked by the contractor with a straightedge device. Each successive check with the straightedge device shall lap the previous check path by at least half the length of the straightedge. Surface deviations exceeding 0.01 foot shall be corrected. Upon completion of the surface floating, but before any required edge tooling or joint tooling, and before initial set of the surface pavement, the pavement shall be given a textured finish perpendicular to match the existing. The textured finish shall be accomplished by a steel tine tool that will mark the finished pavement to a depth of 1/8 inch plus or minus 1/16 of an inch. Match finish of existing pavement where new pavement is adjacent. The surface of the pavement shall not vary from a true surface, when tested with a 12 foot testing straightedge, more than 1/8 inch in 12 feet.
- C. Finish shall be a light broom finish for slip resistant surface. Broom pattern to be parallel to slope.

### 3.07 JOINTS

- A. Construction joints, expansion joints, and all longitudinal contraction joints shall be placed as indicated in the drawings.
- B. Contraction Joints:
  - 1. Contraction joints shall consist of planes of weakness created by forming grooves in the surface of the pavement.
  - 2. Maximum joint spacing shall be 5 feet for sidewalks, and as shown on drawings for other work.



- C. Construction Joints: Construction joints shall be placed whenever the placing of concrete is suspended for more than 45 minutes. A butt joint with dowels or a thickened-edge joint shall be used if the joint occurs at the location of a contraction joint.

### **3.08 SEALING JOINTS**

- A. Joints to be sealed shall be filled with joint-sealing material before the pavement is opened to traffic and as soon after completion of the curing period as is feasible.
- B. Each joint shall be thoroughly cleaned of all foreign material, including membrane curing compound, and joint faces shall be clean and surface-dry when seal is applied.

### **3.09 PAVEMENT EDGING**

- A. Before final finishing is completed and before final concrete set has occurred, finish concrete edges with edging tool shaped with 1/4 inch radius.
  - 1. Take particular care to maintain surface on both sides of joint in same plane.
  - 2. Do not use kneeling planks on concrete surface.

### **3.10 CURING**

- A. Minimum Curing Period: 7 days.
- B. Uniformly apply compound in accordance with manufacturer's instructions, after final Concrete finishing is complete, and after all free water has disappeared from pavement surface.
- C. Apply to concrete edges immediately after formwork removal.
- D. Do not use membrane compound method if pavement will be exposed to de-icing chemicals within 30 days following curing period completion.
- E. Where asphalt topping is to be placed on concrete, asphalt shall not be placed until the minimum curing period has elapsed, or the concrete has reached at least 75% of the specified 28-day compressive strength.

### **3.11 FIELD QUALITY CONTROL**

- A. Refer to Section 01 4000 for responsibilities for arranging, supervising, and payment of field quality control requirements.
- B. Field Tests:
  - 1. Observance and approval of subgrade and base rock compaction.
  - 2. Concrete cylinder strength tests. Concrete flexural strength tests.
- C. Field Inspections: Notify Engineer prior to work of this section.
- D. Special Inspections for Code Compliance: Obtain building inspector approvals.

### **3.12 DEFECTIVE WORK**

- A. Remove and replace any surfaces which show excessive cracks, pavements that do not drain properly, and other defective concrete.
- B. Minimum Surface Evenness: 1/8 inch per 10 ft.

### **3.13 CLEANING**

- A. Including work of other trades, clean, repair and touch-up, or replace when directed products which have been soiled, discolored, or damaged by work of this section.
- B. Upon completion of the work of this section, promptly remove from the working area all scraps, debris, and surplus material.

### **3.14 PROTECTING COMPLETED WORK**

- A. Protect all work installed under this section.
- B. Replace, at no additional cost to Owner, any damaged work of this section.

**END OF SECTION**



**SECTION 32 1600**  
**CONCRETE SIDEWALKS**

**PART 1 - GENERAL**

**1.01 SECTION INCLUDES**

- A. On-site concrete sidewalks.
- B. Concrete curbs not specified elsewhere
- C. Concrete mowstrips

**1.02 RELATED SECTIONS**

- A. Section 03 1000 - Concrete Forming and Accessories
- B. Section 03 3200 - Concrete Reinforcing
- C. Section 03 3000 - Cast-In-Place Concrete
- D. Section 07 9005 - Joint Sealer
- E. Section 31 2323 - Fill

**1.03 WORK INCLUDED BUT SPECIFIED ELSEWHERE**

- A. Products and construction within the City of Eugene right-of-way shall conform to the 2008 Oregon Standard Specifications for Construction published by ODOT and the Oregon Chapter of APWA and current City of Eugene Amendments.

**1.04 DESIGN AND ENGINEERING**

- A. Formwork design and engineering, as well as construction, are the sole responsibility of the Contractor.

**1.05 SUBMITTALS**

- A. Comply with Section 01 3300 - Submittal Procedures, unless otherwise indicated.
- B. Quality Control: Submit joint layout drawings for review and acceptance.
- C. Closeout Requirements: Comply with Section 01 7700 - Closeout Procedures.
  - 1. Provide record documents.

**1.06 MOCK UP**

- A. Before starting work and in accordance with Section 01 3300, prepare mockups for Architect's review and acceptance of concrete walk surface texture.
- B. Minimum Panels Size: 4 ft. square.
  - 1. Re-prepare, if directed, until accepted.
  - 2. Accepted mockup represents minimum quality standard. Work of lesser quality will be subject to rejection and replacement.
- C. Accepted mockup, in like new condition, may be used in contract work.

**1.07 WEATHER PRECAUTIONS**

- A. Provide cold weather and/or hot weather protection as recommended in ACI 306 and ACI 305.
- B. Unless adequate protection is provided, concrete shall not be placed during rain, sleet, or snow.
  - 1. Protect concrete from rain water, maintain concrete water ratio and protect concrete surface.
- B. All concrete shall be adequately protected after pouring to prevent damage from freezing, by the use of suitable cover. Frozen and damaged concrete must be removed and replaced at the Contractor's expense. Do not place concrete on frozen earth.

**1.08 QUALITY ASSURANCE**

- A. Manufacturer's Qualifications: Not less than 5 years experience in the actual production of specified products.

- B. Installers Qualifications: Firm with not less than 5 years experience in installation of systems similar in complexity to those required for this project.
- C. Product/Material Qualifications:
  - 1. Design data: Compaction testing shall be in accordance with Section 01 4000 - Quality Requirements.
  - 2. Test reports: Provide job mix test reports.

**1.09 DELIVERY, STORAGE, AND HANDLING**

- A. Delivery, Storage and Protection: Comply with manufacturer's recommendations.
  - 1. Protect from damage by the elements and construction procedures.

**1.10 1.10 ADVANCE NOTICES**

- A. Notify Architect at least 48 hours before intended concrete placement.
- B. Place no concrete until formwork and reinforcement have been inspected.

**1.11 COORDINATION**

- A. Coordinate with other trades affecting or affected by work of this section.

**PART 2 PRODUCTS**

**2.01 CRUSHED ROCK PAVEMENT BASE**

- A. Imported, clean, 3/4"-0 Crushed Rock Pavement Base as specified in Section 31 2323 - Fill.

**2.02 CAST-IN-PLACE CONCRETE**

- A. Concrete shall be ready-mixed conforming to Section 03 3000 - Cast-In-Place Concrete.
  - 1. Sidewalks and mowstrips: 2,500 psi at 28 days and a minimum flexural strength of 600 psi at 28 days.
  - 2. Curbs: 3,000 psi at 28 days and a minimum flexural strength of 600 psi at 28 days.

**2.03 FORMS**

- A. Conform to Section 03 1000 - Concrete Forming and Accessories.

**2.04 REINFORCING**

- A. Conform to Section 03 2000 - Concrete Reinforcing

**2.05 CURING COMPOUND**

- A. Curing compound for all other concrete shall conform to AASHTO M171, White Polyethylene Film for curing concrete or AASHTO M148, Liquid Membrane-Forming Compounds for Curing Concrete.

**2.06 ACCESSORIES**

- A. Joint Sealant and Backrod: See Section 07 9005
- B. Expansion Joint Filler: Asphalt-impregnated Cane Fiber per ASTM D1751; 3/8" thickness unless otherwise indicated. Depth as required to extend through full slab depth and to position filler top 1/2 inch below top of slab, or as shown on the Drawings.

**PART 3 EXECUTION**

**3.01 EXISTING CONDITIONS**

- A. Prior to starting work of this section verify that existing grades and field conditions agree with drawings. Notify Engineer of deviations.
- B. Do not start work of this section until all unsatisfactory conditions have been corrected. Commencing work implies acceptance of existing conditions.
- C. If field measurements differ slightly from drawing dimensions, modify work as required for accurate fit.
  - 1. If measurements differ substantially, notify Engineer prior to starting work of this section.

### 3.02 EXCAVATION

- A. All excavation shall be in accordance with Section 31 2316 - Excavation.

### 3.03 CRUSHED ROCK BASE

- A. After the subgrade is compacted and at the proper grade, spread required thickness of 3/4-inch minus crushed rock. Compact by rolling or other approved method. Surface of the compacted base shall be at the proper level to receive the concrete. Manholes, catch basins, inlets, and other such structures shall be completed, adjusted, cured, and otherwise prepared, as applicable, and made clean and ready to have concrete placed in contact with them.

### 3.04 FORMWORK

- A. Conform to the requirements of Section 03 1000, CONCRETE FORMING AND ACCESSORIES.
  - 1. Construct forms to the shape, lines, grades, and dimensions called for on the Drawings. Stake wood or steel forms securely in place, true to line and grade. Brace forms to prevent change of shape of movement in any direction resulting from the weight of the concrete during placement.
- B. Allowable Tolerances: Tops of forms shall not depart from grade line more than 1/8-inch when checked with 10-foot straightedge. Alignment of straight sections shall not vary more than 1/8-inch in 10 feet

### 3.05 FINISHING

- A. After the pavement has been struck off and consolidated, it shall be scraped with a straightedge equipped with a handle to permit operation from the edge of the pavement. Any excess water shall be removed from the surface of the pavement. Irregularities shall be corrected by adding or removing concrete. All disturbed places shall be again straight edged.
- B. After the concrete has been given a preliminary finish, the surface of the pavement shall be checked
  - 1. by the contractor with a straightedge device. Each successive check with the straightedge device shall lap the previous check path by at least half the length of the straightedge. Surface deviations exceeding 0.01 foot shall be corrected. Upon completion of the surface floating, but before any required edge tooling or joint tooling, and before initial set of the surface pavement, the pavement
  - 2. shall be given a textured finish perpendicular to match the existing. The textured finish shall be
  - 3. accomplished by a steel tine tool that will mark the finished pavement to a depth of 1/8 inch plus or minus 1/16 of an inch. Match finish of existing pavement where new pavement is adjacent. The surface of the pavement shall not vary from a true surface, when tested with a 12 foot testing straightedge, more than 1/8 inch in 12 feet.
- C. Finish shall be a light broom finish for slip resistant surface. Broom pattern to be parallel to slope.
- D. Accessible Ramps: Steel trowel finish. Apply tactile warning finish.

### 3.06 JOINTS

- A. Construction joints, expansion joints, transverse contraction joints, and all longitudinal contraction joints shall be placed as indicated in the drawings. Where not specifically described on the Drawings, comply with the following:
- B. Contraction Joints:
  - 1. Longitudinal contraction joints shall consist of planes of weakness created by forming grooves in the surface of the pavement.
  - 2. Maximum joint spacing, as below, and as shown on drawings for other work.
    - a. Sidewalks up to 8 ft wide: Joint spacing to match width of sidewalk.
    - b. Sidewalks over 8 ft wide: Joint spacing to be half of sidewalk width up to 8 ft on center,

- C. Construction Joints: Construction joints shall be placed whenever the placing of concrete is suspended for more than 45 minutes. A butt joint with dowels or a thickened-edge joint shall be used if the joint occurs at the location of a contraction joint.

### **3.07 SEALING JOINTS**

- A. Joints to be sealed shall be filled with joint-sealing material before the pavement is opened to traffic and as soon after completion of the curing period as is feasible.
- B. Each joint shall be thoroughly cleaned of all foreign material, including membrane curing compound, and joint faces shall be clean and surface-dry when seal is applied.

### **3.08 WALK EDGING**

- A. Before final finishing is completed and before final concrete set has occurred, finish concrete edges with edging tool shaped with 1/4 inch radius.
  - 1. Take particular care to maintain surface on both sides of joint in same plane.
  - 2. Do not use kneeling planks on concrete surface.

### **3.09 CURING**

- A. Minimum Curing Period: 3 days.
- B. Uniformly apply compound in accordance with manufacturer's instructions, after final Concrete finishing is complete, and after all free water has disappeared from pavement surface.
- C. Apply to concrete edges immediately after formwork removal.
- D. Do not use membrane compound method if pavement will be exposed to de-icing chemicals within 30 days following curing period completion.

### **3.10 FIELD QUALITY CONTROL**

- A. Refer to Section 01 4000 - Quality Requirements for responsibilities for arranging, supervising, and payment of field quality control requirements.
- B. Field Tests:
  - 1. Observance and approval of subgrade and base rock compaction.
  - 2. Concrete cylinder strength tests. Concrete flexural strength tests.
  - 3. Slump and air tests.
- C. Field Inspections: Notify Architect prior to work of this section.
- D. Special Inspections for Code Compliance: Obtain building inspector approvals.

### **3.11 DEFECTIVE WORK**

- A. Remove and replace any surfaces which show excessive cracks, pavements that do not drain properly, and other defective concrete.
- B. Minimum Surface Evenness: 1/8 inch per 10 ft.

### **3.12 CLEANING**

- A. Including work of other trades, clean, repair and touch-up, or replace when directed products which have been soiled, discolored, or damaged by work of this section.
- B. Upon completion of the work of this section, promptly remove from the working area all scraps, debris, and surplus material.

### **3.13 PROTECTING COMPLETED WORK**

- A. Protect all work installed under this section.
- B. Replace, at no additional cost to Owner, any damaged work of this section.

**END OF SECTION**

**SECTION 32 1800  
SYNTHETIC TURF**

**PART 1 - GENERAL**

**1.01 INTENT**

- A. The Owner intends to procure the installation of the synthetic turf field separately. This specification section is provided for reference only.
- B. The subbase, perimeter curbing and nailer, and drainage will be provided by the work of this project
- C. The synthetic turf system installer shall coordinate with the installation of goal post sleeves by work of another contract.
- D. The synthetic turf system installer shall provide field lines as shown on drawings at each school site.

**PART 2 - PRODUCTS**

**2.01 SYNTHETIC TURF MATERIAL**

- A. A synthetic turf carpet consisting of nominal 2 1/8" long synthetic fiber tufted into a permeable backing. The carpet shall be installed directly on the top of the Top Aggregate Base course.
- B. Carpet Description
  - 1. ASTM D5823 - Pile Height: 2 1/8"
  - 2. ASTM D5848 - Pile Weight: 40 oz./sq. yd.
  - 3. ASTM D5848 - Primary Backing Weight: double layer 8 oz. /sq. yd.
  - 4. ASTM D5848 - Secondary Backing Weight: min 22 oz/sq yd
  - 5. ASTM D5793 - Stitch Gauge: 3/8" or 1/2"
  - 6. ASTM D5793 - Stitches per Inch: min 3 spi
  - 7. ASTM D1335 - Tuft Bind (w/o infill): min 8 lbs.
  - 8. ASTM D5034-05 - Grab Tear, width: > 250 lbs./force
  - 9. ASTM D5034-05 - Grab Tear, length: > 300 lbs./force

**2.02 INFILL MATERIAL**

- A. All-rubber infill system of materials that fill the voids between the fibers allowing the fibers to remain vertical and non-directional and provide the performance criteria described above. The infill is to be installed so as to leave approximately 1/2" of the tufts clear of the top of the infill.

**2.03 FIELD MARKINGS**

- A. Color: As shown on drawings. Colors of field markings to be in sharp contrast to field color.
- B. Width: 4 inches
- C. Material: Identical fiber composition, pile height, and pile weight as that of the field synthetic turf.
- D. Installation type: Tufted, Sewn-In, or Glued and Taped (Contractor's Choice) See "Seams" for more information.
- E. Extent: As noted on drawings. Layouts shall be accurately surveyed and marked prior to installation.

**PART 3 - EXECUTION**

**3.01 EXISTING CONDITIONS**

- A. The installer shall be satisfied as to the nature of the existing field edge and subsurface soil and drainage conditions on site, and shall be responsible for carrying out and paying for any additional tests necessary for the design of the sports fields.
- B. The installer shall review and approve the condition of the prepared subgrade at each site before starting work. See below for additional information.
- C. Immediately notify the owner of any problems discovered at each school site.

- D. Start of installation of synthetic turf under this contract indicates acceptance of subgrade conditions at the site.

### 3.02 PREPARATION OF SITE

- A. The work of Section 31 2324 - Subbase at Synthetic Turf will install a permeable sub-base consisting of 8" of processed stone/rock with a minimum infiltration rate of 30 inches per hour and a maximum density of 95% as determined by ASTM D698. The Site Preparation Package Contractor will perform a proof roll with a loaded truck and the Turf Installation Contractor will be in attendance at the proof roll.
1. In attendance at the proof rolls shall be the architect, general contractor, and earthwork contractor for the Site Improvements project, and the architect, general contractor, earthwork contractor, synthetic turf manufacturer's rep, and synthetic turf installer from the Synthetic Turf Fields project, geotechnical engineer procured by the owner, and the owner.
  2. Proof-roll using a loaded, 10 yd<sup>3</sup> dump truck. Proof rolling should be observed by the Geotechnical Engineer. Areas of pumping or deflection observed beneath the truck wheels should be over-excavated and replaced, and proof-rolled again.
  3. The Site Preparation Package Contractor will install the field with a maximum deviation of .02' (1/4" +/-) over 10 feet from the designed slope as described on the Drawings.
  4. Surface elevations and planarity shall be verified by means of a survey, performed by a licensed surveyor, utilizing a maximum grid size spacing of 10 ft x 10 ft. The Site Improvements Package will provide a printed copy of the survey to the Turf Installation Contractor, through the Owner, prior to installation of the synthetic turf. The Turf Installation Contractor shall notify the Owner in writing of any concerns with the results of the survey prior to installation of the turf.

### 3.03 INSTALLATION OF SYNTHETIC TURF

- A. Install per manufacturer's requirements.
- B. Installation shall not begin until all infill material is delivered to the project site.
1. The Contractor shall thoroughly inspect all materials delivered to the site both for quality and quantity to assure that the entire installation shall have sufficient materials to maintain the schedule and proper mixing ratios.
  2. Synthetic turf shall be loose laid across the field, stretched, and attached to the perimeter edge detail. Turf shall be of sufficient length to permit full cross-field installation. No head or cross seams will be allowed, except as required for inlaid fabric striping or to accommodate programmed field markings.
  3. The bonding or fastening of all system material components shall provide a permanent, tight, secure, and hazard-free athletic playing surface.
  4. All seams shall be flat, tight, and permanent with no separation or fraying. Inlaid markings shall be adhered to a special reinforcing tape with a two-part, high strength polyurethane adhesive applied per the Manufacturer's standard procedures for outdoor applications. The main turf fabric seams can either be glued with reinforcing tape as for inlaid marking seams or be sewn with a double-stitch using environmentally stabilized thread approved by the synthetic turf manufacturer.
  5. Infill materials shall be properly applied in numerous thin lifts using special broadcasting equipment to produce a layered system of rubber particles. The turf shall be raked and brushed properly as the mixture is applied. The infill material shall be installed to a depth as needed in order to meet the specified, initial Gmax Average range described in Part 2 of this Specification Section.
  6. Prepare fill material installation per manufacturer's requirements to eliminate static charge within fill material.

### 3.04 PROTECTING COMPLETED WORK

- A. Post signs and install barricades where necessary to protect completed work of this section against damage and discoloration until systems are ready for Owner's acceptance and full public use.

**END OF SECTION**

**SECTION 32 1823.33**  
**SYNTHETIC RUNNING TRACK SURFACING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Synthetic running track surfaces.
- B. Line markings.

**1.02 RELATED REQUIREMENTS**

- A. Section 32 1200 - Flexible Paving
- B. Section 32 1313 - Concrete Paving.
- C. Section 32 2200 - Grading: Excavation, backfill and compaction required for installation of synthetic running track surfacing.

**1.03 REFERENCE STANDARDS**

- A. ASTM D2240 - Standard Test Method for Rubber Property--Durometer Hardness; 2005 (Reapproved 2010).
- B. IAAF/NCAA - Performance Specification for Synthetic-Surfaced Athletics Tracks (Outdoor), International Amateur Athletic Federation / National Collegiate Athletic Association; 1999.
- C. DIN 4102-1 - Fire Behaviour of Building Materials and Building Components - Part 1: Building materials; concepts, requirements and tests; 1998.
- D. DIN 18035 6 - Sporting Grounds Part 6-Synthetic Surfaces; 2008.

**1.04 ADMINISTRATIVE REQUIREMENTS**

**1.05 SUBMITTALS**

- A. See Section 01 3300 - Submittal Procedures, for submittal procedures.
- B. Product Data: Manufacturer's product data including standard specifications, installation guidelines and maintenance instructions.
  - 1. Submit documentation that synthetic running track surfacing material is free of toxic or hazardous substances that exceed the limits set forth by the U.S. Environmental Protection Agency.
- C. Shop Drawings: Show location and color of lane lines, start lines, finish lines, and related markings for Owner to review a minimum of 4 weeks prior to application.
- D. Samples: Three, 12 inch by 12 inch samples of the full-depth system in the color(s) indicated on the contract documents.
- E. Manufacturer's Qualification Statement.
- F. Certifications:
  - 1. Submit installer's certification that in-place concrete or asphalt substrate is acceptable as installed.
- G. Installer's Qualification Statement.
- H. Manufacturer's Instructions: Submit copies of manufacturer's written installation instructions and other recommendations
- I. Project Record Documents: Record actual locations of installed synthetic running track surfaces.

**1.06 WARRANTY**

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
- B. Provide five year manufacturer warranty for synthetic running track surface system.
- C. The warranty is to be provided directly by the track surfacing sub-contractor to the School District. It is to include the standard company warranty and a two-year performance bond from

a A-rated insurance company licensed to do business in this state. The warranty from the bonding company is to be payable to the School District.

- D. The warranty shall cover defects in materials, excessive color change, excessive wear, and any other features which is not deemed ordinary wear on a running track.

#### **1.07 RELATED WORK**

- A. When surfacing on new asphalt, the asphalt must meet the specifications and standards set by the architect or engineer. The general contractor is responsible for the elevation survey of the asphalt base if required. The asphalt contractor is to provide a flood test of the asphalt base at its expense if required for approval of the base. Refer to the specification for the asphalt base.
- B. Prior to the arrival of the installation crew, a representative of the manufacturer
  - 1. shall visit the job site and check the asphalt base for the following:
  - 2. Dimensional accuracy
  - 3. Strength
  - 4. Surface preparation
  - 5. Planarity
  - 6. If any deficiencies are discovered, the owner's representative will be notified.
- C. All repair work on the base is to be approved by the architect and engineer, all puddles and ridges must be eliminated and meet the published specifications of the relevant governing association; the NFSHSA, NCAA, or IAAF.
- D. The contractor shall be responsible to have adjacent grass edged and removed from all areas receiving the synthetic track surface.

#### **1.08 PROTECTION**

- A. Material and Equipment - Contractor shall be responsible for material and equipment security.
- B. Finished Surfaces - Protect adjacent surfaces against damage or defacement by synthetic Athletic Surfacing and any other material or equipment employed.
- C. Traffic - Prohibit all traffic on all lifts of new surfacing until it has cured, and in no case sooner than 24 hours after completion of the work.

#### **1.09 EXTRA MATERIAL**

- A. Provide School District with fifty pounds of repair Rubber Granules and five gallons of Binder Chemical at each of the four high school sites. 200 pounds and 20 gallons total.

### **PART 2 PRODUCTS**

#### **2.01 MANUFACTURERS**

- A. Synthetic Running Track Surfacing:
  - 1. Atlas Track ([www.atlastrack-tennis.com](http://www.atlastrack-tennis.com))
  - 2. Substitutions: See Section 01 6000 - Product Requirements.

#### **2.02 SYNTHETIC RUNNING TRACK SURFACING SYSTEMS**

- A. Atlas L-3000 by Atlas Track and Tennis
- B. The synthetic Athletic Surface is a polymer resin surface consisting of five (5) layers of rubber, and five (5) spray coats of polymer resin-binder.
  - 1. Only a high quality polymer resin-binder is to be used.
  - 2. No epoxies or asphalt products are allowed.
  - 3. The color of the surface shall be black.
  - 4. The depth shall be a minimum of 3/8 of an inch, (10 mm).
- C. The finished synthetic surface shall provide a dense, durable, seamless, and resilient finished surface.

#### **2.03 RUBBER**

- A. The Synthetic Athletic Surface base course rubber shall be specifically graded styrene butadiene rubber (SBR) granules with a controlled gradation between 0.5 mm and 4.0 mm.



1. Dust and rubber particulate smaller than a No. 200 sieve size shall not exceed 4% of the total rubber.
  2. The rubber is to be dried to less than 2.5% moisture content, and sealed
    - a. in bags.
  3. The color shall be black.
  4. Rubber shall have a minimum hardness of 60 durometer (Shore A).
- B. The Synthetic Athletic Surface wearing course rubber shall be specifically graded styrene butadiene rubber (SBR) granules with a controlled gradation between 0.5 mm and 3.0 mm.
1. Dust and rubber particulate smaller than a No. 200 sieve size shall not exceed 4% of the total rubber.
  2. The rubber is to be dried to less than 2.5% moisture content, and sealed
    - a. in bags.
  3. The color shall be black.
  4. Rubber shall have a minimum hardness of 60 durometer (Shore A).
- C. No strand rubber is allowed in the Synthetic Athletic Surface system.

#### 2.04 BINDER

- A. The Synthetic Athletic Surface binding agent shall be manufacturer=s standard Polymer Resin-Binder and contain a minimum of 50% solids.
1. All polymer resin-binder will be delivered in new unopened containers, clearly labeled by the manufacturer.
  2. The use of asphalt emulsion or tack coat is prohibited at any time in the installation, including the primer.
  3. The polymer resin-binder shall meet the following minimum standards:
    - a. Polymer Type: Carboxylated Styrene Butadiene
    - b. Styrene Butadiene Ratio: 65/35
    - c. Total Solids: 50%
    - d. 9.0
    - e. Viscosity: 200 cps (#2 Spindle @ 20 rpm)
    - f. Weight/Gallon: 8.35 lb.
    - g. Particle Charge: Anionic
    - h. Residual Monomer: 0.07% max.
    - i. Tg Value: -7 C
- B. The polymer resin-binder shall be compatible with SBR granules.
- C. No field mixing of pigment to a neutral color binder shall be allowed.

#### 2.05 STRUCTURAL SPRAY BINDER COATING

- A. Coat surfacing wiht structural spray application of highly pigmented polyurethane coating.
1. 100% solids, meeting all EPA VOC regulations.
  2. Colors: Selected by the Owner.
  3. The polyurethane structural spray coating shall be of adequate viscosity to partially drain into the base mat.

#### 2.06 ACCESSORIES

- A. Track and Event Line Marking Paint: Polyurethane paint formulated for exterior service environments in striping applications in color as specified for line markings.
1. Thickness: 12 mils dry film thickness (DFT).
  2. Multiple coats to achieve thickness as required by paint manufacturer.
  3. Prime surface to achieve adhesion characteristics of paint.

### PART 3 EXECUTION

#### 3.01 EXAMINATION

- A. Verification of Conditions: Examine areas and conditions under which work is to be performed and identify conditions detrimental to proper or timely completion.

1. Do not proceed until unsatisfactory conditions have been corrected.
2. Substrate tolerances:
  - a. Planarity: Not to exceed 1/4 inch in 10 feet, non-cumulative.
  - b. Levelness: Not to exceed 0.1 percent in running direction.
  - c. Concrete Curbs: Ensure top elevations of continuous concrete curbs are at constant elevation.

### 3.02 PREPARATION

- A. Protection: Protect surfaces adjacent to track surfacing operations from polyurethane liquids.
- B. Surface Preparation: Verify substrate is fully cured and free from excess surface oils and chemicals that would impair track surface installation.
  1. Asphalt: Cure asphalt for no less than 28 days. Test cured asphalt and provide documentation that volatiles and latent asphalt content are within limits defined by manufacturer.
  2. The entire surface shall be swept, power blown, or high pressured washed to remove all dirt, oil, grease, or any other foreign matter. The surface shall be free from any loose material.
- C. Ensure that asphalt compaction tests indicate compaction of 95 percent or greater. Check asphalt with 10 foot straightedge in all directions. Repair areas not in conformance or replace with new materials, recompact, and recheck surfaces.
- D. Apply the synthetic surfacing materials only during favorable weather conditions. Work is to progress only when adequate curing can be guaranteed by the installer.
- E. No application of the surfacing shall be conducted during rainfall, when rain is imminent, when freezing temperatures are forecasted, or when gusting winds are occurring.
- F. During surfacing installation and striping, all irrigation sprinkler systems must be shut off, or controlled so that no water falls on the track or event surfaces.
- G. All materials will be installed in strict compliance with the manufacturer's recommendations.
- H. Thorough drying between each layer is required before successive coats of rubber are applied. "Batching" of the binder and rubber, or "wet spraying" binder and rubber, or other methods used to reduce the number of layers applied are not allowed.
- I. Materials shall be applied in even layers with equipment specifically designed for the installation of synthetic resilient surfacing. Allow each layer to cure before a succeeding layer is applied.

### 3.03 INSTALLATION

- A. General:
  1. Comply with manufacturer's recommendations.
  2. Prime areas to be surfaced.
  3. Make substrate surface repairs and minor planarity corrections with repair compound.
  4. Install track surface as specified to achieve track surface performance and physical dimensions within tolerances.
- B. The specified rubber shall be broadcast over the entire track and event areas, and at the curbs around the new Synthetic Turf Athletic Fields, at the rate of 0.80 lb. per sq. yd. The curbs are either existing concrete curbs or newly furnished by the Package A Contractor.
- C. The entire area to be surfaced shall receive a saturation coat of polymer
  1. resin-primer, applied uniformly at a rate of not less than 0.60 lb. per sq. yd.,
  2. (all liquid quantities are wet lb., undiluted). All binder is to be sprayed applied at
  3. 80 psi and must saturate all sides of the rubber.
- D. After proper curing of the primer application, the SBR granules are applied at a rate of 1.825 lb. per sq. yd. The SBR shall be applied in such a manner that it is spread evenly and consistently throughout each coat.
- E. Once the first coat of rubber is in place, it is then sprayed with a coat of polymer resin-binder until it is thoroughly saturated at a rate of 0.83 lb. per sq. yd.

- F. After this layer has completely cured another layer of SBR granules are applied at 1.825 lb. per sq. yd. of the track and event areas. This layer is then, again, saturated with the spray applied polymer resin-binder at a rate of 0.83 lb. per sq. yd.
- G. Step E is repeated one more time.
- H. After curing of the layer in step F, a layer of the specified wearing course SBR granules are applied at the rate of 0.90 lb. per sq. yd. This layer is then saturated with a spray coat of polymer resin-binder applied to the surface at a rate of 0.85 lb. per sq. yd.
- I. The completed system shall have a minimum of 7.2 lb. per sq. yd. of SBR granules and 4.75 lb. per sq. yd. of Polymer Binder.

### **3.04 STRIPING**

- A. All striping shall be accomplished by experienced personnel specializing in
  1. all-weather running track striping.
- B. Provide lane lines, starting lines, and markings required, and conform to the standards for track construction as prescribed by the NFHS, NCAA, or IAAF.
- C. Contractor shall verify with the owner's representative for exact locations, size, shape, and color of the lines and markings before proceeding with markings and striping. Use manufacturer's standard Line Marking Paint and install according to manufacturer's instructions.
- D. Calculations shall be made to the nearest 1/100 th of a foot.
- E. Angles shall be set by using a transit or theodolite capable of reading direct to
  1. 20 seconds.
- F. Measurement shall be made with a steel tape in engineering scale.
- G. Markings shall be clearly identified and color-coded.

### **3.05 TRACK AND EVENT LINE MARKING**

- A. Track and Event Line Markings, General: Comply with the requirements of the referenced IAAF / NCAA standards.
- B. See the Drawings for the events to mark.

### **3.06 TOLERANCES**

- A. Percent Granules: Variation of plus or minus 2 percent.
- B. Surface Thickness, variation: Variation of minus 0.0 inch to plus 1/8 inch.
- C. Color Deviation: 5 Delta E (Hunter) units maximum allowed.
- D. Slopes:
  1. Track Oval:
    - a. Running Direction: 1.0 percent, maximum.
    - b. Lateral Slope: 1.0 percent maximum.
  2. High Jump ("D" area): 1.0 percent maximum, downwards to the cross bar.
  3. Run Ups: Same as track oval unless located in the High Jump ("D") area.

### **3.07 FIELD QUALITY CONTROL**

- A. Tests: Perform thickness, hardness and deformation tests. Employ an Independent Testing Laboratory for the purpose. Submit reports.
- B. Layout:
  1. Employ registered surveyor to document compliance of in-place work with the contract documents and the referenced standards.
  2. Submit reports.

### **3.08 CLEANING**

- A. Leave surfacing in clean condition and free of surface defects.
- B. Reapply and touch up paint striping once during the warranty period.

**3.09 PROTECTION**

- A. Protect installed surfacing from damage during the balance of construction activity.

**END OF SECTION**

**SECTION 32 3113**  
**CHAIN LINK FENCES AND GATES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Fence framework, fabric, and accessories.
- B. Excavation for post bases; concrete foundation for posts.
- C. Manual gates and related hardware.
- D. Ball Stop Netting Sleeves

**1.02 RELATED REQUIREMENTS**

- A. Section 08 7100 - Door Hardware: Gate exit device.

**1.03 REFERENCE STANDARDS**

- A. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2013.
- B. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2009.
- C. ASTM A392 - Standard Specification for Zinc-Coated Steel Chain-Link Fence Fabric; 2011a.
- D. ASTM A491 - Standard Specification for Aluminum-Coated Steel Chain-Link Fence Fabric; 2011.
- E. ASTM F567 - Standard Practice for Installation of Chain-Link Fence; 2011.
- F. ASTM F1043 - Standard Specification for Strength and Protective Coatings on Steel Industrial Chain Link Fence Framework; 2012.
- G. ASTM F1083 - Standard Specification for Pipe, Steel, Hot-Dipped Zinc-Coated (Galvanized) Welded, for Fence Structures; 2010.

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on fabric, posts, accessories, fittings and hardware.
- C. Shop Drawings: Indicate plan layout, spacing of components, post foundation dimensions, hardware anchorage, and schedule of components.
- D. Project Record Documents: Accurately record actual locations of property perimeter posts relative to property lines and easements.

**1.05 QUALITY ASSURANCE**

**PART 2 PRODUCTS**

**2.01 MATERIALS**

- A. Posts, Rails, and Frames: ASTM F1083 Schedule 40 hot-dipped galvanized steel pipe, welded construction, minimum yield strength of 30 ksi.
- B. Wire Fabric: ASTM A 392 zinc coated steel chain link fabric.
- C. Concrete: Type specified in Section 03 3000.

**2.02 COMPONENTS**

- A. Line Posts: 2.38 inch diameter.
- B. Corner and Terminal Posts: 2.88 inch.
- C. Gate Posts: 3.5 inch diameter.
- D. Top, Bottom, and Brace Rail: 1.66 inch diameter, plain end, sleeve coupled.
- E. Gate Frame: 1.66 inch diameter for welded fabrication.

- F. Fabric: 2 inch diamond mesh interwoven wire, 9 gage thick, knuckle and tied back, top and bottom so there are no protruding edges.
- G. Fabric Height: As shown on the Drawings,
- H. Tension Wire: 6 gage thick steel, single strand.
- I. Tie Wire: 11 ga galv steel
- J. Exit Device Mounting Plate: 12 ga plate steel, galvanized.
- K. Base Plate: 1/4" plate steel, galvanized.

**2.03 ACCESSORIES**

- A. Caps: Cast steel galvanized; sized to post diameter, set screw retainer.
- B. Fittings: Sleeves, bands, clips, rail ends, tension bars, fasteners and fittings; steel.
- C. Hardware for Single Swinging Gates: 180 degree hinges, 2 for gates up to 60 inches high, 3 for taller gates; fork latch with gravity drop and padlock hasp; keeper to hold gate in fully open position.
- D. Hardware for Double Swinging Gates: 180 degree hinges, 2 for gates up to 60 inches high, 3 for taller gates; drop bolt on inactive leaf engaging socket stop set in concrete, active leaf latched to inactive leaf preventing raising of drop bolt, padlock hasp; keepers to hold gate in fully open position.
- E. Privacy Slats: Vinyl strips, sized to fit fabric weave.
  - 1. Provide at gates within CMU structure.

**2.04 ACCESSORIES FOR EXIT DEVICE AT EGRESS GATE**

- A. Exit Device Mounting Plate: 12 ga plate steel, galvanized.
- B. Strike Latch Receiver Bracket: D-6020-S Adjustable Strike Latch Bracket by Hoover Fence Company ([www.hooverfence.com](http://www.hooverfence.com))
  - 1. 1/4" steel
  - 2. Finish: Powder coat
  - 3. Color: Silver
  - 4. Bolts and Nuts to be Stainless Steel. Provide as required to mount to fence and post.
  - 5. Install Strike to be provided by Exit Design provider.
- C. Extent: Provide at Egress Gate D. See 5/A081.
- D. Fence and Gate Provider/Installer to provide and install the Exit Device Mounting Plate, and the Strike Latch Receiver Bracket. The Exit Device Provider/Installer to mount Exit Device to Gate, provide and install the latch, and adjust for complete installation.

**2.05 FINISHES**

- A. Components and Fabric: Vinyl coated over coating of 1.8 oz/sq ft galvanizing.
- B. Tie Wire: Painted
- C. Post, Rails, and other components not scheduled for an applied finish elsewhere: Powder Coat
  - 1. Paint Manufacturer & Brand: Contractor's choice, recommended by manufacturer for exterior application with good weather resistant characteristics.
  - 2. Type: Factory applied Dry TGIC-Polyester powder coating, or equal, Thermoset Fusion Bonded.
  - 3. Quality Assurance:
    - a. Flexibility: Meet or exceed the requirements of ASTM D-522
    - b. Impact: Meet or exceed the requirements of ASTM D-2794
    - c. Abrasion Resistance: Meet or exceed the requirements of ASTM B-117
  - 4. Abrasive blast to an SSPC-SP10 Near white blast, with minimum surface profile of 1 mil. Powder coating shall take place within six hours of sandblasting.
- D. Hardware: Hot-dip galvanized to weight required by ASTM A153/A153M.
- E. Accessories: Same finish as Posts.

F. Color(s): Black.

## **2.06 BALL NETTING POST SLEEVE**

- A. Product: Provide Sleeves for future Ball Stop Net system described below.
  - 1. Future Ball Stop Net posts and netting to be provided by owner.
    - a. Product: Ball Stop, Straight Pole, 20 ft Net, 731190 by Gill Athletics
- B. Dimensions: Sleeves to be 54" long, and sized to receive 4" diameter posts (6061-T6 Aluminum tube, 1/8" thick wall).
- C. Accessories: Provide Ball Sleeve Caps (73119021 by Gill Athletics).
- D. Set Sleeves in concrete per the Drawings. Top of sleeve to align with top of concrete.
- E. Extent: One every 20 ft oc and at beginning and end of future 360 ft long Ball Net location per the Drawings.

## **2.07 FABRICATION**

- A. Swing Gates
  - 1. Fabricate perimeter frames of gates from same material and finish as fence framework. Assemble gate frames by welding. Comply with F900.
  - 2. Fabric of gate to match fence.
  - 3. Hardware
    - a. Gate Hinges: Two 180 degree hinges per gate.
    - b. Provide center gate stop and drop rod at double leaf gate.
    - c. Locks: Provide industrial drop rod latches. Locks OFOI.

## **PART 3 EXECUTION**

### **3.01 INSTALLATION**

- A. Install framework, fabric, accessories and gates in accordance with ASTM F 567.
- B. Place fabric on outside of posts and rails.
- C. Set intermediate posts plumb, in concrete footings with top of footing 2 inches above finish grade. Slope top of concrete for water runoff.
- D. Line Post Footing Depth Below Finish Grade: ASTM F 567.
- E. Corner, Gate and Terminal Post Footing Depth Below Finish Grade: ASTM F 567.
- F. At Gate Posts with CMU structure, weld Post to Base Plate, anchor Base Plate to concrete slab with min (2) 5/8" diameter x 6" embed depth epoxy anchors. Support post to wall at 8" max from bottom and 8" max from top with steel strap anchored to CMU wall with lags and lead shields.
- G. Brace each gate and corner post to adjacent line post with horizontal center brace rail and diagonal truss rods. Install brace rail one bay from end and gate posts.
- H. Provide top rail through line post tops and splice with 6 inch long rail sleeves.
- I. Install center brace rail on corner gate leaves.
- J. Install bottom rail between posts.
- K. Stretch fabric between terminal posts or at intervals of 100 feet maximum, whichever is less.
- L. Position bottom of fabric 2 inches above finished grade.
- M. Fasten fabric to top rail, line posts, braces, and bottom tension wire with tie wire at maximum 15 inches on centers.
- N. Attach fabric to end, corner, and gate posts with tension bars and tension bar clips.
- O. Install bottom tension wire stretched taut between terminal posts.
- P. Install gate with fabric to match fence. Install hardware.
- Q. Provide concrete center drop to footing depth and drop rod retainers at center of double gate openings.

**3.02 EXIT DEVICE COORDINATION**

- A. Weld Exit Device Mounting Plate to Gate Frame. Re-touch galvanizing after welding.
- B. Coordinate installation of gate hardware device specified in Section 08 7100 - Door Hardware.

**3.03 BALL STOP NETTING SLEEVES**

- A. Install per manufacturer's requirements.

**3.04 TOLERANCES**

- A. Maximum Variation From Plumb: 1/4 inch.
- B. Maximum Offset From True Position: 1 inch.
- C. Components shall not infringe adjacent property lines.

**END OF SECTION**



**SECTION 32 8000**  
**IRRIGATION**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Installation of Backflow Prevention Assembly and related appurtenances.
- B. Installation of Central Control system, control wires, shrub and lawn zones.

**1.02 RELATED REQUIREMENTS**

- A. Section 01 5639 - TEMPORARY TREE AND PLANT PROTECTION
- B. Section 01 6000 - Product Requirements
- C. Division 26 - Electrical
- D. Division 31 - Earthwork
- E. Section 32 9000 - Planting

**1.03 REFERENCE STANDARDS**

- A. ASTM D1784: Standard Specification for Rigid Poly(Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds.
- B. ASTM D1785: Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120.
- C. ASTM D2464 - Standard Specification for Threaded Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80.
- D. ASTM D2466 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40.
- E. ASTM D 2564 - Standard Specification for Solvent Cements for Poly(Vinyl Chloride) (PVC) Plastic Piping Systems; 2004 (Reapproved 2009).

**1.04 PROTECTION**

- A. Protect existing improvements and growth in areas to remain undisturbed until completion of project. Leave area in similar condition as found.
- B. Protect utilities and maintain in continuous operation or in operational condition during work. Repair damage to known utilities at Contractor's expense.
- C. Use means necessary to protect materials of this Section before, during, and after installation and to protect installed Work and materials of other trades. In the event of damage immediately make repairs and replacements as directed by Owner's Representative.

**1.05 ADMINISTRATIVE REQUIREMENTS**

- A. Coordination: Coordinate the work with other trades affecting and affected by Work of this Section.
- B. Preinstallation Meeting: Convene one week (minimum) prior to commencing work of this Section to coordinate utility marking procedures.

**1.06 SUBMITTALS**

- A. See Section 01 6000 - Product Requirements, for submittal procedures.
- B. Product Data: Submit manufacturer's printed data covering products and installation instructions.
- C. Quality Assurance Data: Submit license information and project references including name and location of previous projects, date of installation, square footage of areas with irrigation work, description of irrigation system, and Owner's contact information.
- D. Record Documents: Record actual locations of installed irrigation components on a clean set of plans. Use white out and red ink to legibly re-draft as-built information.

1. Produce and keep current throughout the project.
  2. Indicate two dimensions for valves, stub outs, and main line T's, L's, ends, elbow's, and change in direction.
  3. Submit to Owner's Representative for approval.
- E. Operation and Maintenance Data:
1. Provide written instructions at System Demonstration for operation and maintenance of system and controls, seasonal activation and shutdown, and manufacturer's parts catalog.
  2. Submit chart showing actual precipitation rates for each zone.
  3. Prepare a program for the irrigation controller for Spring/Summer; Summer; Summer/Fall using historical weather data and averages. Include start times, watering duration, day of week, repeat cycle mode, program mode, precipitation rates in inches per hour, and application quantities. Coordinate operation and programming with Owner's Representative.
- F. Maintenance Materials: Provide the following for Owner's use in maintenance of project.
1. See Section 01 6000 - Product Requirements, for additional provisions.
  2. Extra Valve Keys for Manual Valves: One.
  3. Extra Valve Box Keys: One.
  4. Wrenches: One for each type head core and for removing and installing each type head.

#### **1.07 QUALITY ASSURANCE**

- A. Installer Qualifications: Company specializing in performing Work of this Section who has successfully completed a minimum of 5 comparable scale projects and have the following licenses:
1. For Irrigation Work:
    - a. Valid Oregon Landscape Contractors license.
    - b. Valid Oregon Landscape Business license.
  2. For Plumbing Work:
    - a. Valid Oregon Plumbing license.
    - b. Valid Oregon Landscape Contractor license.
  3. Successfully completed at least 5 comparable scale projects.
    - a. Submit names, addresses, dates, owners and locations of previous projects if requested by Owner's Representative.

#### **1.08 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver products in original unopened packaging with legible manufacturer's identification.
- B. Comply with manufacturer's recommendations for storage and protection.
1. Store in a cool, dry place out of direct sunlight.
  2. Protect from damage by the elements and construction procedures.
  3. Store plastic pipe on firm, level supports.
  4. Store plastic pipe cement in cool location.

#### **1.09 ENVIRONMENTAL CONDITIONS**

- A. Temperature of mating surfaces of plastic pipe and fittings to be between 40 degrees fahrenheit and 100 degrees fahrenheit. Perform no PVC Solvent welding in rainy weather except under cover.

#### **1.10 REVIEWS**

- A. Request the following reviews by the Owner's Representative two days (min.) in advance:

1. Irrigation Head Layout Review
2. Pressure Test and Mainline Installation
3. System Review
4. System Demonstration to Owner

B. Coordinate Reviews to coincide with regular progress meetings where possible.

#### **1.11 MAINTENANCE**

A. During period between system installation and Final Acceptance provide maintenance to assure proper operation of the irrigation system.

#### **1.12 WARRANTY**

- A. Warranty period shall be one year following Final Completion or one full operating season following Final Completion, whichever is longer.
- B. Contractor guarantees materials furnished under this Contract will be as specified and the Work will be free of defects in compliance with the Contract Documents.
- C. Irrigation system must be in proper working condition at the end of the warranty period. At no additional cost to the Owner replace Work of this Section as necessary to restore system to proper working condition following the Contract Documents.
- D. Visit and inspect Work at least once a month during warranty period and notify Owner's Representative in writing of any observed conditions requiring attention. Failure to provide such notification renders deficiencies the Contractor's responsibility to rectify.
- E. Contractor is not responsible for loss or damage to Work of this Section caused by unusually extreme weather, vandalism, or lack of Owner's maintenance during warranty period.

### **PART 2 PRODUCTS**

#### **2.01 IRRIGATION SYSTEM MATERIALS**

- A. Use only new materials of brands and types shown on Drawings or specified herein.
- B. Similar materials must be products of one manufacturer unless otherwise approved.
- C. Substitutions: See Section 01 60 00 - Product Requirements.

#### **2.02 PIPE MATERIALS**

- A. Mainline Pipe: Schedule 40 PVC Pipe, Type 1, normal impact: IPS, NSF approved conforming to ASTM D1784, ASTM D1785.
- B. Lateral Line Pipe: Schedule 40 PVC Pipe, Type 1, normal impact: IPS, NSF approved conforming to ASTM D1784, ASTM D1785.
- C. Lateral Line Pipe: Class 200 PVC Pipe, Type 1, normal impact: IPS, NSF approved conforming to ASTM D1784, ASTM D2241.
- D. Risers: One piece schedule 80 gray PVC Pipe, Type 1, threaded at both ends conforming to ASTM D1784 and ASTM D2464. No snap-risers.
- E. Fittings: Type and style of connection to match pipe.
- F. Fittings: Polyvinyl chloride type 1, white schedule 40 and gray schedule 80; ASTM D1784, ASTM D2466, or ASTM D2464, as applicable.
- G. Irrigation Sleeves: Schedule 40 PVC Pipe, Type 1, normal impact: IPS, NSF approved conforming to ASTM D1784, ASTM D1785.
- H. Swing Joint Assembly Pipe and Fittings: Double swing joint risers as detailed. Swing-Pipe, snap, and "Funny pipe" risers not acceptable.
- I. Flex Riser Assembly: 18 inch minimum, 3 feet maximum Swing-Pipe with transfer barb 90 degree ells at both ends and a marlex ell below the irrigation head.
- J. Electrical Conduit and Fittings:

1. Underground: Plastic, Class 3, Federal Specification W-C-1094.
  2. Above Ground: Aluminum, Federal Specification WW-G-540.
- K. PVC Solvent Cement: NSF approved solvent for Class 1245-B&C PVC through 4 inches conforming to ASTM D 2564 for PVC pipe and fittings. Ensure that manufacturer's expiration date is not exceeded.
1. IPS Corporation Weld-on #704 or #711.
- L. PVC Cleaner and Primer:
1. IPS Corporation Weld-on P-70 or as recommended by PVC Pipe manufacturer.

### **2.03 VALVES**

- A. Isolation Valves - 3 inch and under: Threaded gate valve with resilient wedge sized to match mainline with brass wheel handle.
1. Approved Products:
    - a. Kennedy model 8057, or approved.
- B. Control Valve Assembly:
1. Automatic Control Valve: Globe type, 200 psi rated, threaded connections with cross type operating handle designed to receive operating key. Size according to Valve Schedule on Drawing.
    - a. Approved Products:
      - 1) Rain Bird PEB Series at zones with rotor heads.
      - 2) Rain Bird PEB-PRS-D Series at zones with spray heads.
  2. Shut Off Valve: USA manufactured gate valve. 135 psi cold water rated constructed of brass or bronze on 2 inch and under valves with bronze wheel handle.
    - a. Approved Products:
      - 1) Nibco T-113
- C. Quick Coupling Valves:
1. Approved Products:
    - a. Rain Bird 44 RC.
- D. Master Valve: 24V AC, normally open and flanged at both ends.
1. Approved Products:
    - a. Size: 2 inch.
    - b. By Superior Manufacture.
- E. Flow Sensor: PVC tee type sensor.
1. Approved Products:
    - a. Model No. FS200P by Rain Bird.
- F. Manual Drain Valve: Globe or angle brass manual valve with non-floating seat disk that allows positive drainage.
1. Approved Products:
    - a. Manufactured by Champion.
- G. Backflow Preventers: Double check valve assembly.
1. Approved Products:
    - a. Size: 2 inch.
    - b. Model # DC4A-118-T2 by Apollo.

### **2.04 VALVE BOXES**

- A. Valve box of suitable size with tee top type lid .

1. Black box and lid in plant bed areas.
  2. Black box and green lid in lawn areas.
  3. Green box and lid.
  4. Black box and green lid at lawn areas.
  5. Black box and brown lid at plant bed areas.
- B. Install valves in the following valve boxes:
1. Control Valve Assembly: (2) Rain Bird VB-STD, T-Lid.
  2. Quick Coupling Valves: Carson 910-10, T-Lid.
  3. Manual Drain Valves: Carson 910-10.
  4. Isolation Valves: Carson 910-10.
  5. Other Valves: Sized as applicable by Carson.

## **2.05 IRRIGATION HEADS**

- A. Makes and models shown on Drawings, or approved.

## **2.06 WIRE**

- A. Zone Control Wire: Install according to manufacturer's wire schedule for valve specifications. 14 gauge minimum, type AVG-UF, bearing U.S. approval.
- B. Wire from Controller to Master Valve: Install according to manufacturer's wire schedule for valve specifications. 12 gauge minimum, type AWG, bearing U.S. approval, yellow in color.
- C. Communication Wire: Install according to manufacturer's central control requirements. Wire from controller to flow sensor must be a single, unspliced length.
1. 19 gauge, PE 39 cable, 6 pair.
  2. Maxicom.
  3. Sentinel.
- D. Wire Connections: Direct bury splice Kit.
1. DBR/Y by 3M.
  2. Scotch Lok 3570.
- E. Utility Locate Wire: 14 gauge minimum, type AVG-UF, bearing U.S. approval, blue in color.

## **2.07 IRRIGATION CONTROL ASSEMBLY**

- A. Control cabinet assembly must include, at a minimum, the following:
1. Strong Box Cabinet; model # SB-24CR w/ PED-24CR (special).
  2. Rain Bird Commercial Series ESP-32SAT-2W irrigation controller.
  3. (2) Rain Bird PT-322 flow monitor.
  4. Rain Bird MSP-1
  5. Leviton 5280-W outlet.
  6. Terminal box with terminal strips.
  7. (2) Rain Bird Pulse Decoder.
  8. Master Valve isolation relay.
  9. Grounding grid.
  10. Necessary conduit and wiring to provide fully functional control assembly.

## **2.08 CLUSTER CONTROL UNIT (CONTRACTOR PROVIDED AND OWNER INSTALLED)**

- A. CCU Series, Model Number CCU-28-W by Rain Bird.

- B. Quantity of two, Two wire secondary communication Maxi Interface Board, Model Number ESP-MIB2 by Rain Bird.

## **2.09 BACKFILL MATERIALS**

- A. Pea Gravel: 3/4 x 1/2 inch washed round rock.
- B. Sand: Clean, fill sand free of clay, rocks, organic matter, or other deleterious material.
- C. Topsoil or Loam: See Section 32 90 00 - Planting.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that required utilities and sleeves are available, in proper location, and ready for use. Verify location, type, size, psi, and GPM of existing water lines, meters, and sleeves.
- B. Verify that surfaces and structures to receive Work are accurately sized and located, sound, secure, true, complete, and otherwise properly prepared.
- C. Verify electrical service and conduit for Irrigation Controller is properly sized and located.

### **3.02 PREPARATION**

- A. System layout is diagrammatic. Route piping to avoid plants, ground cover, and structures. If field measurements differ slightly from Drawings modify work for accurate fit. If measurements differ substantially notify Owner's Representative prior to installation.
- B. Review layout requirements with other affected work. Coordinate locations of sleeves under paving to accommodate system and piping to minimize conflict with other work.
- C. Coordinate connections to existing irrigation system, including system shut down, new connections, system re-start, and scheduling of new irrigation zone run times with Owner's Representative.
- D. Irrigation Head Layout Review: Install flags at locations of irrigation heads and components shown on Drawings. Obtain Owner's Representative's approval and make adjustments to locations as directed. Coordinate marking of pipe trenches and location of valves prior to executing Work.

### **3.03 CUTTING OF PAVEMENT AND REPAIR**

- A. Do no cutting of pavement for installation of Work without Owner Representative's approval.

### **3.04 BACKFLOW PREVENTION DEVICE INSTALLATION**

- A. Install where shown on Drawings. Follow applicable codes and in accordance with manufacturer's directions when making supply and central control component connections. Coordinate with other trades.
- B. Coordinate connection with other trades.

### **3.05 MASTER VALVE AND FLOW SENSOR INSTALLATION**

- A. Install where shown on Drawings in accordance with manufacturer's directions when making supply and central control component connections.

### **3.06 TRENCHING**

- A. Excavate trenches with uniform bottom and remove rocks and sharp objects to provide firm, even, clean base for pipe. Width of trench to be 1.5 times the outside diameter of the pipe.
- B. Trench Depth:
  - 1. Minimum Cover Over Installed Mainline Piping: 18 inches.
  - 2. Minimum Cover Over Installed Lateral Line Piping: 12 inches.
  - 3. Minimum Cover Over Installed Sleeves in Roadway: 24 inches.
  - 4. Minimum Cover Over Installed Sleeves at other paving: 6 inches from bottom of paving.
- C. More than one pipe is permitted in the same trench provided that:

1. Two pipes may be stacked vertically if 4 inches of Sand separates them.
  2. Three or more pipes must be laid 4 inches apart horizontally.
- D. Where excavation is performed to excess levels backfill with Sand to proper levels.
- E. Keep trenches dry and frost free. Provide and operate pumping equipment to keep excavations free from standing water.
- F. Protect existing vegetation to remain. Cut no roots over two inches in diameter without approval of Owner's Representative. Make cuts clean, straight, at right angles to roots. Paint cuts over 1-1/2 inches diameter with approved tree paint. Repair or replace damaged plant material.

### **3.07 SLEEVE INSTALLATION**

- A. Sleeves may be jacked or pulled but cover requirements must be maintained. Jacking of PVC pipe is not permitted in rocky or bar run fills where there is potential for damage to pipes.
- B. Extend sleeves 12 inches beyond pavement edge or curb.
- C. Install level and perpendicular to sidewalks and pavement unless shown otherwise on drawings.
- D. Provide markers where sleeve ends are concealed.

### **3.08 PIPE BEDDING**

- A. Mainline: Provide uniform bearing surface of Sand, 4 inches minimum depth, free of rocks and sharp objects under entire length of pipe.
- B. Lateral Line: Provide uniform bearing surface of clean topsoil, loam, or Sand. If rock or other deleterious materials are encountered bed pipe with 4 inches of Sand on all sides.

### **3.09 PIPE INSTALLATION**

- A. Irrigation lines may be jacked or pulled but cover requirements must be maintained. Jacking of PVC pipe is not permitted in rocky or bar run fill or where there is potential damage to pipes.
- B. Install pipe in accordance with manufacturer's instructions and with the following minimum clearances around pipe:
1. 2 inch diameter and smaller: 2 inches
  2. 2-1/2 inch diameter and larger: 4 inches
  3. Between irrigation and other utilities: 1 foot
- C. Threaded Plastic Pipe Installation:
1. Do not use solvent cement on joints.
  2. Wrap threaded joints with teflon tape. Minimum 4 wraps of tape.
- D. Cemented Plastic Pipe Installation:
1. Cut ends square using approved pipe cutter and bevel cuts with deburring tool.
  2. Clean pipe of scale, sand, dirt, etc. prior to assembling.
  3. Avoid using an excess amount of primer and cement when making joints; particularly on the inside of female pipe ends and fittings.
  4. Wipe off excess cement continuously as it appears on the surface of the pipe after making joints.
  5. Allow fifteen minutes of cure time on joints before moving or handling. Assemble pipe before lowering into trench.
  6. Snake lines to allow for contraction.
  7. Transition pipe sizes at fittings and not bell end of pipes.
  8. Install thrust blocks at 90 degree corners and tees.

### **3.10 THRUST BLOCK INSTALLATION**

- A. Install 2500psi thrust block at pipe corners, tees, ells, and stub outs.
  - 1. Pipe 2 - 3 inches in diameter: 1 cubic foot.
  - 2. Pipe larger than 3 inches in diameter: 2 cubic feet.

### **3.11 VALVE INSTALLATION**

- A. Install plumb and square, as detailed, and according to manufacturer's specifications.
- B. Manual Drain Valves:
  - 1. Install at mainline low points and at outlet of control valves where laterals run uphill.
  - 2. Record locations on as-built drawings.
- C. Install 1 valve in each valve box assembly.
- D. Valve Sump: Install a minimum of 2 cubic feet of Pea Gravel below each valve. Allow for 4 inches clearance between bottom of valve and valve sump.

### **3.12 VALVE BOX INSTALLATION**

- A. Install plumb and square with adjacent construction with one valve in each valve box assembly.
- B. At Control Valve Assemblies bolt two valve boxes together as detailed.
- C. Permanently label valve type and zone number on inside of valve box lid.
- D. Set top of valve boxes flush with lawn or mulch at plant beds unless otherwise noted.
- E. Provide 12 square inches (min.) of support on each side of valve box as detailed.

### **3.13 CONTROL WIRE INSTALLATION**

- A. Install wires below irrigation mainline with multiple wires bundled together at 5 foot maximum intervals in a continuous run. Notify Owner's Representative for approval prior if splices are required and locate in valve box.
- B. Use coded and labeled wires for each valve. Provide a numbered tag at each end of a wire at valve, and at controller. The number at each end of wire to be the same.
- C. Provide 48 inches loop in wires at each valve where controls are connected and at 100 foot maximum intervals between. Coil wire around 1/2 inch rebar dowel inside of valve box.
- D. Make electrical joints waterproof using specified connectors. Enclose joints in valve boxes.
- E. Install wire in continuous runs with no splices unless approved.
- F. Show wire routes and approved splice locations on As-Built drawings.
- G. Install wires above grade or independent of the mainline in conduit.

### **3.14 CENTRAL CONTROL COMMUNICATION WIRE INSTALLATION**

- A. Install continuous run of communication wire from Master Valve to Irrigation Controller. Follow same installation procedures as Control Wire Installation. No splicing of wire is permitted.
- B. Install (2) yellow Control Wires from controller to master valve in a single, unspliced length plus (1) white common wire.

### **3.15 IRRIGATION CONTROL ASSEMBLY INSTALLATION**

- A. Install Irrigation Control Assembly in accordance with manufacturer's specifications and applicable codes. Connect to 120V power supply at location shown on drawings and by Owner's Representative.

### **3.16 MAINLINE PRESSURE TEST AND INSPECTION**

- A. Field inspection and testing will be performed under provisions of Section 01 4000.
- B. Prior to backfilling and installing valves test irrigation mainline for leakage. Establish and maintain 100 psi pressure for 24 hours. Perform test a minimum of 24 hours after set-up of solvent weld. Notify Owner's Representative a minimum of 24 hours for review of pressure



gauge at beginning and end of test period. Mainline will be accepted if pressure loss is less than 2 psi.

- C. Following the pressure test but prior to backfilling, notify Owner's Representative for review of pipe, fittings, joints, thrust blocks, bedding, control wire installation, valves, and other materials for installation and water tightness.
- D. After successful pressure test and mainline inspection begin backfilling and assembly of zones and system components.

### **3.17 BACKFILLING**

- A. Remove debris, sharp rocks, and decayable matter from areas to be back filled before proceeding.
- B. Main Lines: Provide 6 inch Sand cover over piping then place Utility Locate Wire the entire length of pipes where control wires are not present. Backfill remainder of trench with Topsoil or Loam.
- C. Lateral Lines: Backfill trench with Topsoil or Loam. Protect piping from displacement.
- D. At Paved Areas: Backfill trench with Sand under paved areas.
- E. Compact backfill in 6 inch lifts to match density of surrounding material. Install backfill to match adjacent elevations.

### **3.18 FLUSHING**

- A. Mainline: Open valves and thoroughly flush piping system under full water head after piping, risers, and valves are installed. Maintain flushing for three minutes. Close valves and cap risers immediately after flushing.
- B. Second Flushing: Flush a second time after installation of lateral lines and sprinklers prior to nozzle installation. Flush under full water head for three minutes. Install nozzles after flushing.
- C. Drip Line Flushing: Remove flush cap and flush each zone under full water head after all connections have been made. Maintain flushing for three minutes and immediately replace flush cap.

### **3.19 SPRINKLER HEAD INSTALLATION**

- A. Install plumb with top of Topsoil/Loam or Mulch as detailed and at locations shown on drawings. Allow a maximum of 3 inches clearance between sprinkler head and adjacent lawn or planting edge.
- B. Install 1 cubic foot Pea Gravel sump on all low irrigation heads where drainage occurs at zone shutdown.

### **3.20 SYSTEM REVIEW**

- A. Prepare and start system in accordance with manufacturer's instructions. Prior to notifying Owner's Representative for review of the system review zones and make adjustments to ensure full and even coverage.
- B. Notify Owner's Representative for review of system operation to determine if water afforded to all areas is complete, adequate, and uniform.
- C. Adjust system for full water coverage as directed.

### **3.21 SYSTEM DEMONSTRATION TO OWNER**

- A. Instruct Owner's personnel in operation and maintenance of system, including adjusting of sprinkler heads. Use operation and maintenance data as basis for demonstration.

### **3.22 CLEANING**

- A. Remove excess excavation, backfill materials, and other left over materials from the site. Clean improvements soiled by Work of this Section.

**END OF SECTION**



**SECTION 33 4000**  
**STORM DRAINAGE UTILITIES**

**PART 1 GENERAL**

**1.01 CONTRACT CONDITIONS**

- A. Work of this Section is bound by the Contract Conditions and Division 1, bound herewith, in addition to this specification and accompanying drawings.

**1.02 SECTION INCLUDES**

- A. On-site private storm drain system improvements.

**1.03 RELATED SECTIONS**

- A. Section 31 23 33 - Trenching and Backfill
- B. Section 33 49 13 - Storm Drainage Manholes, Frames, and Covers

**1.04 SUBMITTALS**

- A. Comply with Section 01 3300, unless otherwise indicated.
- B. Product Data: Manufacturer's specifications and technical data including performance, construction, fabrication, and installation information.
  - 1. Submit for: Pipe and fittings, area drains, trench drains, and cleanout covers.
- C. Field Quality Control submittals as specified in Part 3 of this Section:
  - 1. Field Tests
  - 2. Special Inspections for Code Compliance
- D. Closeout Requirements: Comply with Section 01 7700.
  - 1. Provide record documents.

**1.05 QUALITY REQUIREMENTS**

- A. Manufacturer's Qualifications: Not less than 5 years experience in the actual production of specified products.
- B. Installer's Qualifications: Firm with not less than 5 years experience in installation of systems similar in complexity to those required for this project.

**1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Packing and Shipping: Deliver products in original, unopened packing with legible manufacturer's identification.
- B. Storage and Protection: Comply with manufacturer's recommendations.
  - 1. Protect from damage by the elements and construction procedures.

**1.07 ADVANCE NOTICES**

- A. Notify Engineer at least 48 hours before starting work of this section.

**1.08 COORDINATION**

- A. Coordinate with other trades affecting or affected by work of this section.

**PART 2 PRODUCTS**

**2.01 STORM DRAIN PIPE AND FITTINGS (UNLESS OTHERWISE NOTED)**

- A. Either of the following pipe materials may be used.
  - 1. PVC Solid Wall: Shall be Polyvinyl chloride plastic pipe with rubber gasket joints. Manufacturing Standard: ASTM D3034 (latest revision) SDR 35 for pipe sizes 4"-15" and ASTM F679 (latest revision) for pipe sizes 18"-24", T-1 wall thickness. Provide with manufactured fittings unless otherwise noted on drawings.
  - 2. Polyethylene Pipe: Corrugated polyethylene meeting the requirements of AASHTO M252 Type S (pipe sizes 3" – 10") and AASHTO M294 Type S (pipe sizes 12" and larger). Joint

shall be water tight according to the requirements of ASTM D3212 (latest revision). Gaskets shall be made of polyisoprene meeting the requirements of ASTM F477 (latest revision) with the addition that the gaskets shall not have any visible cracking when tested according to ASTM D1149 (latest revision) after 72 hour exposure in 50 PPHM ozone at 104° F. Gaskets shall be installed by the pipe manufacturer and covered with a removable wrap to ensure the gasket is free from debris. Joints shall remain watertight when subjected to a 1.5° axial misalignment. A joint lubricant supplied by the manufacturer shall be used on the gasket and bell during assembly. Fittings shall conform to AASHTO M252 or AASHTO M294. Fabricated fittings shall be welded to the interior and exterior at all junctions. Hancor or ADS.

## 2.02 PERFORATED PIPE AND FITTINGS

- A. Shall be smooth interior perforated corrugated polyethylene pipe with AASHTO Type 'S' designation meeting the requirements of AASHTO M252 (pipe sizes 4" – 10") and AASHTO M294 (pipe sizes 12" – 60"). Provide with manufactured fittings unless otherwise noted on drawings.
- B. Provide with machine-knitted polyester drain envelope, 100-135 burst strength. Equivalent opening size of 30 to 40.

## 2.03 AREA DRAINS

- A. Shall be prefabricated steel, 12 inches square by 24 (minimum) inches deep, 10 gauge minimum, asphalt paint inside and out, 6 inch minimum water seal with hinged lid on trap, outlet size as specified on drawings. Cast iron or steel grate with bicycle bars. Lynch or Gibson.

## 2.04 FLEX-TRANSITION COUPLER

- A. Shall be Fernco, 1000 series. Use fittings manufactured for the specific pipe size and material types being connected.

## 2.05 CLEANOUTS

- A. Shall be constructed from solid wall pipe and fittings specified above with traffic grade frame and cover. Frame and cover shall be H20 rated cast iron valve box with flange top as detailed on drawings with "storm" marking. Varicast VB910 Rich Valve Box.

## 2.06 TRENCH DRAIN

- A. Shall be precast polymer concrete pre-sloped channel sections with interlocking joints and horizontal ribs to ensure a positive anchor in the encasement concrete. Trench shall be curved or have a radius coupling allowing the trench drain to be constructed with a radius of 95 to 115 feet radii. Provide with end caps as necessary and properly fitting outlets. Provide bottom outlet.
  - 1. Base: Shall be SportsEdge/ABT channel drain with grates and grate locking devices, as manufactured by Sports Edge/ABT Inc., P.O. Box 837, 259 Murdock Road, Troutman, NC 28166, phone: 800-334-6057, fax: 704-528-0179.
  - 2. Components:
    - a. Channels: Fabricated of polymer concrete, 6 inches wide, 4 inch ID, and with radius bottom meeting the following requirements:
      - 1) Length: 1 meter.
      - 2) Depth: 5.3" minimum.
      - 3) Anchoring ribs: Full length.
      - 4) Grate locking slots: Blind, vibration dampening, thermoplastic.
      - 5) Interlocking ends.
    - b. Grates: Manufactured from galvanized steel.
      - 1) Model #412: Galvanized steel.
      - 2) Meeting ADA requirements.
      - 3) Design load: Vehicle rated.
    - c. In-Line Catch Basins: Model #2900, fabricated of polymer concrete.
      - 1) Width: 6" OD, 4" ID.
      - 2) Depth: 22.1".

- 3) Length: 1/2 meter (19.7").
- 4) Grade: #412.
- 5) Accessories: Grate locking devices.

## **2.07 WATER SEAL GASKET**

- A. Shall be manufactured PVC to concrete adaptor, Romac LCT or Fernco CMA. Field fabricated water stops or improvised adapter not allowed.

## **2.08 CONCRETE**

- A. Concrete shall be ready-mixed conforming to Section 03 3000, CAST-IN-PLACE CONCRETE, and shall have a compressive strength of 3,000 psi at 28 days. Maximum size of aggregate shall be 1½ inches.

## **2.09 OTHER MATERIALS**

- A. Recommended by Manufacturer and subject to Engineer's review and acceptance. Provide all materials required to complete and make drainage system operational.

## **PART 3 EXECUTION**

### **3.01 EXISTING CONDITIONS**

- A. Prior to starting work of this section, carefully inspect trench, excavations, and pipe bedding to verify that all such work is complete to the point where this installation may properly commence.
- B. Do not install work of this section until unsatisfactory conditions have been corrected. Commencing work implies acceptance of existing conditions.
- C. If field measurements differ slightly from drawing dimensions, modify work as required for accurate fit. If measurements differ substantially, notify Engineer prior to starting work of this section.

### **3.02 TRENCHING AND BACKFILL**

- A. Trenching and backfill shall conform to the requirements of Section 31 2333, TRENCHING AND BACKFILL.

### **3.03 PIPE INSTALLATION**

- A. Installation shall be in accordance with the manufacturer's recommendation. All pipe ends and interiors shall be thoroughly cleaned of all foreign matter and shall be kept clean during installation. When work is not in progress, all open ends of pipe and fittings shall be securely closed so that no water, earth, animal life, or other substance may enter.
- B. Cutting pipe shall be done in a neat and workmanlike manner by method which will not damage pipe and as recommended by manufacturer.
- C. Install piping within 0.02 foot of indicated grade and location.
- D. Trim pipe ends flush with manhole and catch basin interior walls.

### **3.04 AREA DRAINS**

- A. Construct on compacted 4" minimum depth, 3/4" - 0 crushed rock base level, plumb, and square with adjacent construction. Set rim flush with adjacent finished surfaces unless otherwise noted.

### **3.05 CLEANOUTS**

- A. Construct on compacted 4" minimum depth 3/4" - 0 crushed rock base level, plumb, and square with adjacent surfaces. Set rim flush with adjacent finished surfaces unless otherwise noted.

### **3.06 TRENCH DRAIN**

- A. Install in accordance with manufacturer's recommendations as detailed on drawings. Utilize manufacturer's approved installation device to assure proper joints, drawn tightly together by device.
- B. Construct on compacted 4" minimum depth 3/4" - 0 crushed rock base level, plumb, and square with adjacent construction. Set trench drain channel completely in place, and test flow from

both directions of flow prior to pouring concrete. Set rim flush with adjacent finished surfaces unless otherwise noted.

### **3.07 FIELD QUALITY CONTROL**

- A. Refer to Section 01 4000 for responsibilities for arranging, supervising, and payment of field quality control requirements.
- B. Field Tests:
  - 1. TV Inspections and Reports:
    - a. Provide for all storm drain pipe 10 inch diameter and larger.
  - 2. Deflection Test:
    - a. Conduct deflection tests of flexible pipe. The testing shall be conducted by pulling an approved mandrel through the completed pipeline. The diameter of the mandrel shall be 95 percent of the pipe initial inside diameter. Conduct testing on a manhole-to-manhole basis after flushing and cleaning.
    - b. The mandrel shall be pulled in front of the camera so the deflection testing is clearly recorded on the video tape unless approved by the Engineer.
    - c. A water depth gauge shall be provided, located on the TV camera side of the mandrel. The gauge shall be graduated with marks at 0.50" increments clearly visible during TV inspection. The gauge shall be capable of measuring depth of water in 0.50" increments from 0.50" to 2.5". The gauge shall be designed so it will remain plumb regardless of the rotation of the mandrel or camera.
    - d. Deflection testing shall be conducted and accepted prior to any paving being done.
- C. Field Inspections: Notify Engineer prior to work of this section.
- D. Special Inspections for Code Compliance: Obtain plumbing inspector approvals.

### **3.08 CLEANING**

- A. Prior to final acceptance, Contractor shall flush and clean all elements of the completed system. All pipe and structures shall be clean and free of all construction debris, rocks, gravel, mud, sand, silt, and other foreign material, and as directed by the Engineer.
- B. Upon completion of work of this section promptly remove from the working area all scraps, debris, and surplus material.

### **3.09 PROTECTION**

- A. Protect all work installed under this section.
- B. Replace, at no additional cost to Owner, any damaged work of this section.

**END OF SECTION**

**SECTION 33 4913**  
**STORM DRAINAGE MANHOLES, FRAMES AND COVERS**

**PART 1 GENERAL**

**1.01 CONTRACT CONDITIONS**

- A. Work of this Section is bound by the Contract Conditions and Division 1, bound herewith, in addition to this specification and accompanying drawings.

**1.02 SECTION INCLUDES**

- A. Manholes for on-site private storm drain system improvements.

**1.03 RELATED SECTIONS**

- A. Section 31 2333 - Trenching and Backfill
- B. Section 33 4000 - Storm Drainage Utilities

**1.04 SUBMITTALS**

- A. Comply with Section 01 3300, unless otherwise indicated.
- B. Product Data: Manufacturer's specifications and technical data including performance, construction and fabrication information.
  - 1. Submit for manholes, frames, and covers.
- C. Field Quality Control submittals as specified in Part 3 of this Section:
  - 1. Field Tests
  - 2. Special Inspections for Code Compliance.
- D. Closeout Requirements: Comply with Section 01 7700.
  - 1. Provide record documents.

**1.05 QUALITY REQUIREMENTS**

- A. Manufacturer's Qualifications: Not less than five years of experience in the actual production of specified products.
- B. Installer's Qualifications: Firm with not less than five years of experience in installation of systems similar in complexity to those required for this Project.

**1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Packing and Shipping: Deliver products in original, unopened packaging with legible manufacturer's identification.
- B. Storage and Protection: Comply with manufacturer's recommendations.
  - 1. Protect from damage by the elements and construction procedures.

**1.07 ADVANCE NOTICES**

- A. Notify Engineer at least 48 hours before starting work of this section.

**1.08 COORDINATION**

- A. Coordinate with other trades affecting or affected by work of this section.

**PART 2 PRODUCTS**

**2.01 MANHOLE BASES, RISERS, AND CONES**

- A. Standard precast manhole sections shall conform to ASTM C478 (latest revision) and consist of circular sections in standard nominal diameters. No more than two lift holes shall be cast into each section. Holes shall be located so as to not damage reinforcing or expose it to corrosion. At the manufacturer's option, steel loops may be provided for handling in lieu of lift holes. Standard precast cones shall be concentric unless otherwise specified and shall conform to ASTM C478 (latest revision).

## 2.02 CONCRETE

- A. Concrete shall be ready-mixed conforming to Section 03 3000, CAST-IN-PLACE CONCRETE, and shall have a compressive strength of 3,000 psi at 28 days. Maximum size of aggregate shall be 1-1/2 inches.

## 2.03 MORTAR

- A. Cement mortar in precast manhole joint shall conform to ASTM C387 (latest revision) and consist of one part portland cement and two parts clean, well graded sand which will pass a 1/8" screen with water as necessary to obtain the consistency such that it will readily adhere to the precast concrete. Mortar shall be used within 30 minutes after it is prepared.

## 2.04 MANHOLE JOINT SEALANT

- A. Preformed plastic gaskets, such as Kent Seal, or approved.

## 2.05 PLASTIC PIPE SEALANT

- A. At PVC pipe penetrations: KOR-N-SEAL Boot or approved.

## 2.06 MANHOLE FRAMES AND COVERS

- A. Manhole frames shall have a 24" clear frame opening. Bearing and wedging surface shall be machined to ensure a tight fit of the cover and to prevent rocking.
- B. Covers, grates, and frames shall be cast iron conforming to ASTM A48 (latest revision), Class 30. Covers shall be locking/water-tight.
- C. Cover shall be marked "storm" or other appropriate marking to indicate storm drain system.

## PART 3 EXECUTION

### 3.01 EXAMINATION

- A. Prior to starting work of this section, carefully inspect trench, excavations, and base to verify that all such work is complete to the point where this installation may properly commence.
- B. Do not install work of this section until unsatisfactory conditions have been corrected. Commencing work implies acceptance of existing conditions.
- C. If field measurements differ slightly from drawing dimensions, modify work as required for accurate fit. If measurements differ substantially, notify Engineer prior to starting work of this section.

### 3.02 EXCAVATION AND BACKFILL

- A. Excavation and backfill shall conform to the requirements of Section 31 2333, TRENCHING AND BACKFILL.

### 3.03 MANHOLE BASES (WITHOUT SUMP)

- A. Manhole bases shall be precast or cast-in-place concrete. Placement of cast-in-place concrete shall conform to Section 03 3000, CAST-IN-PLACE CONCRETE. If a precast manhole is used, the channels shall be poured and shaped after manhole is in place as indicated on drawings. Base sections shall be constructed to form a watertight structure.
- B. Where indicated on drawings, the invert shall be constructed to a section identical with that of the sewer pipe. Where the size of sewer pipe is changed at the manhole, the invert shall be constructed to form a smooth transition without abrupt breaks or unevenness of the invert surfaces. Where a full section of concrete sewer pipe is laid through the manhole, the top shall be broken out to the spring line of the pipe for the full width of the manhole, and the exposed edge of the pipe completely covered with mortar. During construction, the Contractor shall divert existing flows of water or sewage from new concrete or mortar surfaces to prevent damage to the fresh concrete or mortar until the initial set has been achieved.
- C. Construct on 4" minimum depth, 3/4"-0 crushed rock base; level and plumb.

### 3.04 MANHOLE BASES (WITH SUMP)

- A. Manhole bases shall be precast. Base sections shall be constructed to form a watertight structure.



- B. Construct on 4" minimum depth, 3/4"-0 crushed rock base; level and plumb.

### **3.05 PIPE OPENINGS**

- A. Openings to receive pipe shall be circular, tapered in toward the inside of the section and held to the minimum size possible to accommodate the pipe to be inserted and to effectively seal the joints.
- B. For PVC pipe make manhole connections using KOR-N-SEAL Boot.
- C. For corrugated pipe, make manhole connections using cement bender product X or approved.
- D. Trim pipe ends flush with manhole interior wall. Grout between pipe and manhole for a smooth transition.

### **3.06 JOINT SEALING**

- A. Pipe gaskets shall be installed in conformance with the manufacturer's recommendations. All mortar joints shall be clean and wet before setting risers and tops in a full bed of Portland cement mortar. Joints shall be watertight, grouted inside and have a smooth finish. Outside joints shall be grouted before backfilling.

### **3.07 GRADE RINGS**

- A. Grade rings shall be laid in mortar with the sides plumb and the top level. The joints shall be sealed with mortar. The extensions shall be watertight.

### **3.08 MANHOLE FRAMES AND COVERS**

- A. Frames shall be set in a bed of mortar. Frames shall be set so the rim is flush with adjacent surfaces unless otherwise noted on drawings. Frames and covers shall be installed in such a manner as to prevent infiltration of surface or ground water between the frame and the concrete of the manhole section.

### **3.09 FIELD QUALITY CONTROL**

- A. Refer to Section 01 4000 for responsibilities for arranging, supervising, and payment of field quality control requirements.
- B. Field Inspections: Notify Engineer prior to backfilling.
- C. Special Inspections for Code Compliance:
  - 1. Obtain plumbing inspector approvals and submit to Engineer.

### **3.10 CLEANING**

- A. Prior to final acceptance, Contractor shall flush and clean all elements of the completed systems. All manholes shall be clean and free of all construction debris, rocks, gravel, mud, sand, silt, and other foreign material, and as directed by the Engineer.
- B. Upon completion of work of this section, promptly remove from the working area all scraps, debris, and surplus material.

### **3.11 PROTECTION**

- A. Protect all work installed under this section.
- B. Replace, at no additional cost to Owner, any damaged work of this section.

**END OF SECTION**

