MAIN STREET, SECOND TO FIFTH STREET IMPROVEMENTS

VOLUME I OF II

Contract No. E12-167

File No. 1746

ENGINEERING DEPARTMENT

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SECTION 00030 NOTICE INVITING BIDS

OBTAINING CONTRACT DOCUMENTS. The Contract Documents are entitled:

Main Street, Second to Fifth Street Improvements

Contract No. E12-167

The Contract Documents may be obtained at the City & Borough of Juneau (CBJ) Engineering Department, 3rd Floor Marine View Center, upon payment of $40.00 (non-refundable) for each set of Contract Documents (including Technical Specifications and Drawings).

PRE-BID CONFERENCE. Prospective Bidders are encouraged to attend a pre-Bid conference to discuss the proposed WORK, which will be conducted by the OWNER, at 2:00 p.m. on May 15, 2012, in CBJ Engineering Department Conference Room, 3rd Floor, Marine View Center. The object of the conference is to acquaint Bidders with the project and bid documents.

DESCRIPTION OF WORK. This Project consists of replacement of the storm drainage, sanitary sewer and water systems, roadway and sidewalk embankments, curb and gutter, paved street surfacing, and miscellaneous related WORK. New items will include traffic islands, sidewalk pavers, landscaping, a sidewalk canopy, and street lighting.

COMPLETION OF WORK. The WORK must be completed by

Work Description	**Completion Date**
Phase I	• All WORK for Phase I must be completed by October 1, 2012 or 45 days after WORK begins on site, whichever comes first (with the exception of Construction Surveying).
Phase II	• August 15, 2013- All work shall be complete.

DEADLINE FOR BIDS: Sealed bids must be received by the Purchasing Division **prior to 2:00 p.m., Alaska Time on May 25, 2012,** or such later time as may be announced by addendum at any time prior to the deadline. Bids will be time and date stamped by the Purchasing Division, which will establish the official time of receipt of bids. Bids will be opened immediately thereafter in the Assembly Chambers of the Municipal Building, 155 S. Seward Street, unless otherwise specified.

Bid documents delivered in person or by courier service must be delivered to:

PHYSICAL LOCATION:
City and Borough of Juneau, Purchasing Division
105 Municipal Way, Room 300
Juneau, AK 99801

Bid documents delivered by the U.S. Postal Service must be mailed to:

MAILING ADDRESS:
City and Borough of Juneau, Purchasing Division
155 South Seward Street
Juneau, AK 99801

SECTION 00030 NOTICE INVITING BIDS

Please affix the label below to outer envelope in the lower left hand corner.

IMPORTANT NOTICE TO BIDDER

To submit your Bid:

1. Print your company name and address on the upper left corner of your envelope.
2. **Complete this label and place it on the lower left corner of your envelope.**

S **E** **A** **L** **E** **D**	**BID NUMBER:** **E12-167** **SUBJECT:** **MAIN STREET, SECOND TO FIFTH STREET IMPROVEMENTS** **DEADLINE DATE:** _____ **PRIOR TO 2:00PM ALASKA TIME**	**B** **I** **D**

Mailing/delivery times to Alaska may take longer than other areas of the U.S. Late bids will not be accepted and will be returned.

SITE OF WORK. The site of the WORK is on Main Street in downtown Juneau, Alaska.

BIDDING, CONTRACT, or TECHNICAL QUESTIONS. All communications relative to this WORK, prior to opening Bids, shall be directed to the following:

Jennifer Mannix, Contract Administrator
CBJ Engineering Department, 3rd Floor, Marine View Center
Email: jennifer_mannix@ci.juneau.ak.us
Telephone: (907) 586-0873
Fax: (907) 586-4530

BID SECURITY. Each Bid shall be accompanied by a certified or cashier's check or Bid Bond, in the amount of 5% percent of the Bid, payable to the City and Borough of Juneau, Alaska, as a guarantee that the Bidder, if its Bid is accepted, will promptly execute the Agreement. A Bid shall not be considered unless one of the forms of Bidder's security is enclosed with it.

CONTRACTOR'S LICENSE. All contractors are required to have a current Alaska Contractor's License, prior to submitting a Bid, and a current Alaska Business License prior to award.

BID TO REMAIN OPEN. The Bidder shall guarantee the Bid for a period of 90 Days from the date of Bid opening. Any component of the Bid including additive alternates may be awarded anytime during the 90 Days.

SECTION 00030 NOTICE INVITING BIDS

OWNER'S RIGHTS RESERVED. The OWNER reserves the right to reject any or all Bids, to waive any informality in a Bid, and to make award to the lowest responsive, responsible Bidder as it may best serve the interests of the OWNER.

STANDARD SPECIFICATIONS. The Standard Specifications for Civil Engineering Projects and Subdivision Improvements, December 2003 with twelve Errata Sheets, as published by the City and Borough of Juneau, is part of these Contract Documents and shall pertain to all phases of the contract. This document is available for a fee from the City and Borough of Juneau Engineering Contracts Office, (907) 586-0490, or you may view it on line at: www.juneau.org/engineering.

OWNER: City and Borough of Juneau

By: _____ 5/4/12
Jennifer Mannix, Contract Administrator Date

END OF SECTION

SECTION 00100 - INSTRUCTIONS TO BIDDERS

1.0 DEFINED TERMS. Terms used in these Instructions to Bidders and the Notice Inviting Bids, which are defined in the General Conditions, have the meanings assigned to them in the General Conditions. The term "Bidder" means one who submits a Bid directly to the OWNER, as distinct from a sub-bidder, who submits a Bid to a Bidder.

2.0 INTERPRETATIONS AND ADDENDA.

A. INTERPRETATIONS. All questions about the meaning or intent of the Contract Documents are to be directed to the Engineering Contracts Administrator. Interpretations or clarifications considered necessary by the Engineering Contracts Administrator in response to such questions will be issued by Addendum, mailed, faxed, or delivered to all parties recorded by the Engineering Contracts Administrator, or OWNER, as having received the Contract Documents. Questions received less than seven Days prior to the Deadline for Bids may not be answered. Only questions answered by formal written Addendum will be binding. Oral and other interpretations or clarifications will be without legal effect.

B. ADDENDA. Addenda may be issued to modify the Contract Documents as deemed advisable by the OWNER. Addenda may be faxed or, if addendum format warrants, addenda may be posted to the CBJ Engineering Department website. In any event, notification of addendum issuance will be faxed to planholders. Hard copies are available upon request. The OWNER will make all reasonable attempts to ensure that all planholders receive notification of Addenda, however, it is strongly recommended by the OWNER that bidders independently confirm the contents, number, and dates of each Addendum prior to submitting a Bid.

3.0 FAIR COMPETITION. More than one Bid from an individual, firm, partnership, corporation, or association under the same or different names will not be considered. If the OWNER believes that any Bidder is interested in more than one Bid for the WORK contemplated, all Bids in which such Bidder is interested will be rejected. If the OWNER believes that collusion exists among the Bidders, all Bids will be rejected.

4.0 RESPONSIBLE BIDDER. Only responsive Bids from responsible Bidders will be considered. A Bid submitted by a Bidder determined to be not responsible may be rejected. A responsible Bidder is one who is considered to be capable of performing the WORK for the price or prices submitted in their Bid.

1. financial resources
2. ability to meet delivery standards
3. past performance record
    a. References from others on contractor's performance
    b. Record of performance on prior OWNER contracts
4. record of integrity
5. obligations to OWNER
    a. Bidders must be registered as required by law and in good standing for all amounts owed to the OWNER within ten Days of OWNER's Notice of Intent to Award.

b. City and Borough of Juneau (CBJ) Finance Department, Treasury Division administers the registration and assessment of sales, business personal property and business real property taxes.

A. Special standards for responsibility, if applicable, will be specified. These special standards establish minimum standards or experience required for a responsible Bidder on a specific contract.

B. Before a Bid is considered for award, a Bidder may be requested to submit information documenting its ability and competency to perform the WORK, according to general standards of responsibility and any special standards which may apply. It is Bidder's responsibility to submit sufficient, relevant, and adequate information. OWNER will make its determination of responsibility and has no obligation to request clarification or supplementary information.

5.0 NON-RESPONSIVE BIDS. Only responsive Bids will be considered. Bids may be considered non-responsive and may be rejected. Some of the reasons a Bid may be rejected for being non-responsive are:

A. If a Bid is received by the CBJ Purchasing Division after the Deadline for Bids.

B. If the Bid is on a form other than that furnished by the OWNER, or legible copies thereof; or if the form is altered or any part thereof is detached; or if the Bid is improperly signed.

C. If there are unauthorized additions, conditional or alternate Bids, or irregularities of any kind which may tend to make the bid incomplete, indefinite, ambiguous as to its meaning, or in conflict with the OWNER's Bid document.

D. If the Bidder adds any unauthorized conditions, limitations, or provisions reserving the right to accept or reject any award, or to enter into a contract pursuant to an award. This does not exclude a Bid limiting the maximum gross amount of awards acceptable to any one Bidder at any one Bid opening, provided that any selection of awards will be made by the OWNER.

E. If the Bid does not contain a Unit Price for each pay item listed, except in the case of authorized alternate pay items.

F. If the Bidder has not acknowledged receipt of each Addendum.

G. If the Bidder fails to furnish an acceptable Bid guaranty with the Bid.

H. If any of the Unit Prices Bid are excessively unbalanced (either above or below the amount of a reasonable Bid) to the potential detriment of the OWNER.

I. If a Bid modification does not conform to Article 15.0 of this Section.

6.0 BIDDER'S EXAMINATION OF CONTRACT DOCUMENTS AND SITE. It is the responsibility of each Bidder before submitting a Bid:

A. To examine thoroughly the Contract Documents, and other related data identified in the Bidding documents (including "technical data" referred to below):

1. To visit the site to become familiar with and to satisfy the Bidder as to the general and local conditions that may affect cost, progress, or performance, of the WORK,
2. To consider federal, state and local laws and regulations that may affect cost, progress, or performance of the WORK,
3. To study and carefully correlate the Bidder's observations with the Contract Documents, and other related data; and
4. To notify the ENGINEER of all conflicts, errors, or discrepancies in or between the Contract Documents and such other related data.

7.0 REFERENCE IS MADE TO THE SUPPLEMENTARY GENERAL CONDITIONS FOR IDENTIFICATION OF:

A. Those reports of explorations and tests of subsurface conditions at the site which have been utilized by the Engineer of Record in the preparation of the Contract Documents. The Bidder may rely upon the accuracy of the technical data contained in such reports, however, the interpretation of such technical data, including any interpolation or extrapolation thereof, together with non-technical data, interpretations, and opinions contained therein or the completeness thereof is the responsibility of the Bidder.

B. Those Drawings of physical conditions in or relating to existing surface and subsurface conditions (except underground utilities) which are at or contiguous to the site have been utilized by the Engineer of Record in the preparation of the Contract Documents. The Bidder may rely upon the accuracy of the technical data contained in such Drawings, however, the interpretation of such technical data, including any interpolation or extrapolation thereof, together with nontechnical data, interpretations, and opinions contained in such Drawings or the completeness thereof is the responsibility of the Bidder.

C. Copies of such reports and Drawings will be made available by the OWNER to any Bidder on request if said reports and Drawings are not bound herein. Those reports and Drawings are not part of the Contract Documents, but the technical data contained therein upon which the Bidder is entitled to rely, as provided in Paragraph SGC-4.2 of the Supplementary General Conditions, are incorporated herein by reference.

D. Information and data reflected in the Contract Documents with respect to underground utilities at or contiguous to the site is based upon information and data furnished to the OWNER and the Engineer of Record by the owners of such underground utilities or others, and the OWNER does not assume responsibility for the accuracy or completeness thereof unless it is expressly provided otherwise in the Supplementary General Conditions, or in Section 01530 - Protection and Restoration of Existing Facilities of the General Requirements.

E. Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders on subsurface conditions, underground utilities and other physical conditions, and possible changes in the Contract Documents due to differing conditions appear in Paragraphs 4.2, 4.3, and 4.4 of the General Conditions.

F. Before submitting a Bid, each Bidder will, at Bidder's own expense, make or obtain any additional examinations, investigations, explorations, tests, and studies and obtain any additional information and data which pertain to the physical conditions (surface, subsurface,

and underground utilities) at or contiguous to the site or otherwise which may affect cost, progress, or performance of the WORK and which the Bidder deems necessary to determine its Bid for performing the WORK in accordance with the time, price, and other terms and conditions of the Contract Documents.

G. On request in advance, the OWNER will provide each Bidder access to the site to conduct such explorations and tests as each Bidder deems necessary for submission of a Bid. Bidder shall fill all holes and shall clean up and restore the site to its former condition upon completion of such explorations.

H. The lands upon which the WORK is to be performed, rights-of-way and easements for access thereto and other lands designated for use by the CONTRACTOR in performing the WORK are identified in the Contract Documents. All additional lands and access thereto required for temporary construction facilities or storage of materials and equipment are to be provided by the CONTRACTOR. Easements for permanent structures or permanent changes in existing structures are to be obtained and paid for by the OWNER unless otherwise provided in the Contract Documents.

I. The submission of a Bid will constitute an incontrovertible representation by the Bidder that the Bidder has complied with every requirement of Article 6.0, "Bidder's Examination of Contract Documents and Site" herein, that without exception the Bid is premised upon performing the WORK required by the Contract Documents and such means, methods, techniques, sequences, or procedures of construction as may be indicated in or required by the Contract Documents, and that the Contract Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance of the WORK.

8.0 BID FORM.

A. The Bid shall be made on the Bid Schedule(s) bound herein, or on the yellow Bid packet provided, or on legible and complete copies thereof, and shall contain the following: Sections 00300, 00310, the required Bid Security, and any other documents required in Section 00300 – Bid.

B. All blanks on the Bid Form and Bid Schedule must be completed in ink or typed.

C. Bids by corporations must be executed in the corporate name by the president, a vice-president (or other corporate officer). The corporate address and state of incorporation must appear below the signature.

D. Bids by partnerships must be executed in the partnership name and be signed by a managing partner, and the official address of the partnership must appear below the signature.

E. The Bidder’s Bid must be signed. All names must be printed or typed below the signature.

F. The Bid shall contain an acknowledgment of receipt of all Addenda, the numbers of which shall be filled in on the Bid form. Failure to acknowledge Addenda may render Bid non-responsive and may cause its rejection.

G. The address to which communications regarding the Bid are to be directed must be shown.

9.0 QUANTITIES OF WORK. The quantities of WORK, or material, stated in Unit Price items of the Bid are supplied only to give an indication of the general scope of the WORK; the OWNER does not expressly or by implication agree that the actual amount of WORK, or material, will correspond therewith, and reserves the right after award to increase or decrease the amount of any Unit Price item of the WORK by an amount up to and including 25 percent of any Bid item, without a change in the Unit Price, and shall include the right to delete any Bid item in its entirety, or to add additional Bid items up to and including an aggregate total amount not to exceed 25 percent of the Contract Price (see Section 00700 - General Conditions, Article 10 Changes In the WORK).

10.0 SUBSTITUTE OR "OR-EQUAL" ITEMS. The procedure for the submittal of substitute or "or-equal" products is specified in Section 01300 - Submittals.

11.0 SUBMISSION OF BIDS. The Bid shall be delivered by the time and to the place stipulated in Section 00030 - Notice Inviting Bids. It is the Bidder's sole responsibility to see that its Bid is received in proper time. Oral, telegraphic, emailed, or faxed Bids will not be considered. The envelope enclosing the sealed Bids shall be plainly marked in the upper left-hand corner with the name and address of the Bidder and shall also include the label included in Section 00030 – Notice Inviting Bids. The Bid Security shall be enclosed in the same envelope with the Bid

12.0 BID SECURITY, BONDS, AND INSURANCE. Each Bid shall be accompanied by a certified, or cashier's check, or approved Bid Bond in an amount of at least 5 percent of the total Bid price. The "total Bid price" is the amount of the Base Bid, plus the amount of alternate Bids, if any, which total to the maximum amount for which the CONTRACT could be awarded. Said check or Bond shall be made payable to the OWNER and shall be given as a guarantee that the Bidder, if offered the WORK, will enter into an Agreement with the OWNER, and will furnish the necessary insurance certificates, Payment Bond, and Performance Bond; each of said Bonds, if required, and insurance amounts shall be as stated in the Supplementary General Conditions. In case of refusal or failure to enter into said Agreement, the check or Bid Bond, as the case may be, may be forfeited to the OWNER. If the Bidder elects to furnish a Bid Bond as its Bid security, the Bidder shall use the Bid Bond form bound herein, or one conforming substantially to it in form. Bid Bonds must be accompanied by a legible Power of Attorney.

13.0 RETURN OF BID SECURITY. The OWNER will return all Bid security checks (certified or cashier's) accompanying such of the Bids as are not considered in making the award. All other Bid securities will be held until the Agreement has been executed. Following execution of the Agreement, all other Bid security checks will be returned to the respective Bidders whose Bids they accompanied and Bid security bonds will be appropriately discarded.

14.0 DISCREPANCIES IN BIDS. In the event there is more than one Pay Item in a Bid Schedule, the Bidder shall furnish a price for all Pay Items in the schedule, and failure to do so may render the Bid non-responsive and cause its rejection. In the event there are Unit Price Pay Items in a Bid Schedule and the "amount" indicated for a Unit Price Bid Item does not equal the product of the Unit Price and quantity, the Unit Price shall govern and the amount will be corrected accordingly, and the Bidder shall be bound by said correction. In the event there is more than one Pay Item in a Bid Schedule and the total indicated for the schedule does not agree with the sum of the prices Bid on the individual items, the prices Bid on the individual items shall govern and the total for the schedule will be corrected accordingly, and the Bidder shall be bound by said correction.

15.0 BID MODIFICATIONS AND UNAUTHORIZED ALTERNATIVE BIDS.

A. Any bidder may deliver a modification to a bid in person, by mail or fax (907-586-4561), provided that such modification is received by the Purchasing Division no later than the deadline for bids. Modifications will be time and date stamped by the Purchasing Division, which will establish the official time of receipt of the modification. The modification must not reveal the bid price but should be in the form of an addition or subtraction or other modification so that the final prices will not be known until the sealed bid is opened.

The Bid modifications shall be provided on the **Bid Modification Form** located at the end of this Section. Submittal of any other form by the vendor may deem the modification unacceptable by the OWNER **A mail or fax modification should not reveal the Bid price but should provide the addition or subtraction or other modification so that the final prices will not be known by the City and Borough until the sealed Bid is opened.** Submitted Modification forms shall include the modification to the unit price or lump sum amount of each pay item modified.

FAX DISCLAIMER: It is the responsibility of the bidder to submit modifications in a timely manner. Bidders' use of a fax machine to modify their bid shall be at bidders' sole risk. The Purchasing Division will attempt to keep the fax machine in good working order but will not be responsible for bid modifications that are late due to mechanical failure, a busy fax machine, or any other cause arising from bidder's use of a fax machine, even if bidder submits a transmission report or provides other confirmation indicating that the bidder transmitted a bid modification prior to the deadline. The City will not be responsible for its failure to receive the modification whether such failure is caused by equipment or human error, or otherwise. Bidders are therefore strongly encouraged to confirm receipt of their bid modification with the Purchasing Division (907-586-5258) prior to deadline.

B. Conditioned bids, limitations, or provisos attached to the Bid or bid modification will render it unauthorized and cause its rejection as being non-responsive. The completed Bid forms shall be without interlineations, alterations, or erasures in the printed text. All changes shall be initialed by the person signing the Bid. Alternative Bids will not be considered unless called for.

16.0 WITHDRAWAL OF BID. Prior to the Deadline for Bids, the Bid may be withdrawn by the Bidder by means of a written request, signed by the Bidder or its properly authorized representative. Such written request must be delivered to the place stipulated in the Notice Inviting Bids for receipt of Bids.

17.0 AWARD OF CONTRACT.

A. Award of a contract, if it is awarded, will be on the basis of materials and equipment described in the Drawings or specified in the Technical Specifications and will be made to the lowest responsive, responsible Bidder whose Bid complies with all the requirements prescribed. Unless otherwise specified, any such award will be made within the period stated in the Notice Inviting Bids that the Bids are to remain open. Unless otherwise indicated, a single award will be made for all the Bid items in an individual Bid Schedule.

B. If the OWNER has elected to advertise this Project with a Base Bid and Alternates, the OWNER may elect to award the contract for the Base Bid, or the Base Bid in combination with one or more Alternates selected by the OWNER. In either case, award shall be made

to the responsive, responsible bidder offering the lowest total Bid for the WORK to be awarded.

C. Low Bidder will be determined on the basis of the lowest total of the Base Bid plus combinations of Alternates if funding allows, as selected by the Selection Committee through the process described below.

1 Prior to the Deadline for Bids, a Selection Committee will be appointed by the Owner.
2 The Selection Committee will be sequestered in a conference room apart from the bid opening room at the time of bid opening.
3 The CBJ Purchasing staff will open bids. A bid summary sheet will be compiled without bidder identification, so that the Selection Committee will have no knowledge of which bids were made by which bidders.
4 The bid summary sheet will be delivered to the Selection Committee by the Engineering Contract Administrator.
5 The Selection Committee will choose the low bid comprised of the Base Bid and those Alternates deemed to be in the best interest of the project and within the approved construction budget. For award purposes, the CBJ will add any Alternate to the Total Base Bid Amount in Section 00310 – Bid Schedule.
6 The Selection Committee will identify in order from low to high the bids received for the project and the results will be posted.

18.0 EXECUTION OF AGREEMENT.

A. All Bids of value greater than $1,000,000 must be approved by the CBJ Assembly. After the CBJ Assembly has approved the award and after the Bid protest period, the OWNER will issue a Notice of Intent to Award to the approved Bidder. The Bidder to whom award is made shall execute a written Agreement with the OWNER on the Agreement form, Section 00500, collect insurance, and shall furnish all certificates and Bonds required by the Contract Documents within 10 Days (calendar) from the date of the Notice of Intent to Award letter.

B. Failure or refusal to enter into the Agreement as herein provided or to conform to any of the stipulated requirements in connection therewith shall be just cause for annulment of the award and forfeiture of the Bid security. If the lowest responsive, responsible Bidder refuses or fails to execute the Agreement, the OWNER may award the contract to the second lowest responsive, responsible Bidder. If the second lowest responsive, responsible Bidder refuses or fails to execute the Agreement, the OWNER may award the contract to the third lowest responsive, responsible Bidder. On the failure or refusal of such second or third lowest Bidder to execute the Agreement, each such Bidder's Bid securities shall be likewise forfeited to the OWNER.

19.0 LIQUIDATED DAMAGES. Provisions for liquidated damages if any, are set forth in Section 00500 - Agreement.

20.0 FILING A PROTEST.

A. A Bidder may protest the proposed award of a competitive sealed Bid by the City and Borough of Juneau. The protest shall be executed in accordance with CBJ Ordinance 53.50.062 PROTESTS and CBJ Ordinance 53.50.080 ADMINISTRATION OF PROTEST. The entire text of the CBJ Purchasing Ordinance can be accessed at the CBJ website, *http://www.juneau.org/law/code/code.php*, or call the CBJ Purchasing Division at (907) 586-5258 for a copy of the ordinance.

B. Late protests shall not be considered by the CBJ Purchasing Officer.

21.0 CONTRACTOR'S GOOD STANDING WITH CITY FINANCE DEPARTMENT: CONTRACTORs and Subcontractors must be in good standing with the City prior to award, and prior to any contract renewals, and in any event no later than ***ten business days*** following notification by the City of intent to award. **Good standing** means: all amounts owed to the City are paid in full or a Confession of Judgment has been executed and the Contractor or Subcontractor is in compliance with the terms of any stipulation associated with the Confession of Judgment, including being current as to any installment payments due. Failure to meet these requirements may be cause for rejection of your bid. To determine if your business is in good standing, or for further information, contact the City Finance Department's Sales Tax Division at (907) 586-5265 for sales tax issues or Collections Division at (907) 586-5268 for all other accounts.

22.0 PERMITS AND LICENSES. The CONTRACTOR is responsible for all WORK associated with meeting any local, state, and/or federal permit and licensing requirements.

CITY AND BOROUGH OF JUNEAU
PURCHASING DIVISION
FAX NO. 907-586-4561

BID MODIFICATION FORM

Modification Number: _____

Note: All modifications shall be made to the original bid amount(s). If more than one Modification form is submitted by any one bidder, changes from all Modification forms submitted will be combined and applied to the original bid. Changes to the modified Bid amounts will be calculated by the OWNER.

PAY ITEM NO.	PAY ITEM DESCRIPTION	UNIT PRICE CHANGE – Leave Blank For Lump Sum Pay Items (*indicate* +/-)	TOTAL INCREASE OR DECREASE (*indicate* +/-)
		Total Increase or Decrease	$

Name of Bidding Firm

Responsible Party Signature

Printed Name (must be an authorized signatory for Bidding Firm)

END OF SECTION

SECTION 00300 - BID

BID TO: THE CITY AND BOROUGH OF JUNEAU

1. The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with the OWNER on the form included in the Contract Documents (as defined in Article 7 of Section 00500 - Agreement) to perform the WORK as specified or indicated in said Contract Documents entitled

Main Street, Second to Fifth Street Improvements
Contract No. E12-167

2. Bidder accepts all of the terms and conditions of the Contract Documents, including without limitation those in the "Notice Inviting Bids" and "Instructions to Bidders," dealing with the disposition of the Bid Security.

3. This Bid will remain open for the period stated in the "Notice Inviting Bids" unless otherwise required by law. Bidder will enter into an Agreement within the time and in the manner required in the "Notice Inviting Bids" and the "Instructions to Bidders," and will furnish insurance certificates, Payment Bond, Performance Bond, and any other documents as may be required by the Contract Documents.

4. Bidder has familiarized itself with the nature and extent of the Contract Documents, WORK, site, locality where the WORK is to be performed, the legal requirements (federal, state and local laws, ordinances, rules, and regulations), and the conditions affecting cost, progress or performance of the WORK and has made such independent investigations as Bidder deems necessary.

5. This Bid is genuine and not made in the interest of or on behalf of any undisclosed person, firm or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; Bidder has not solicited or induced any person, firm or corporation to refrain from bidding; and Bidder has not sought by collusion to obtain for itself any advantage over any other Bidder or over OWNER.

6. To all the foregoing, and including all Bid Schedule and information required of Bidder contained in this Bid Form, said Bidder further agrees to complete the WORK required under the Contract Documents within the Contract Time stipulated in said Contract Documents, and to accept in full payment therefore the Contract Price based on the total bid price(s) named in the aforementioned Bid Schedule.

7. Bidder has examined copies of all the Contract Documents including the following Addenda (receipt of all of which is hereby acknowledged by the Undersigned):

Addenda No.	Date Issued	Addenda No.	Date Issued

Give number and date of each Addenda above. Failure to acknowledge receipt of all Addenda may cause the Bid to be non-responsive and may cause its rejection.

8. The Bidder has read this Bid and agrees to the conditions as stated herein by signing its signature in

Dated: _____	Bidder: _____ (Company Name)
Alaska CONTRACTOR's Business License No: _____	By: _____ (Signature)
Alaska CONTRACTOR's License No: _____	Printed Name: _____
Telephone No: _____	Title: _____
Fax No: _____	Address: _____ (Street or P.O. Box)
E-mail: _____	_____ (City, State, Zip)

the space provided below.

9. TO BE CONSIDERED, ALL BIDDERS MUST COMPLETE AND INCLUDE THE FOLLOWING AT THE TIME OF THE BID OPENING:

- Bid, Section 00300 (includes Addenda receipt statement)
- Completed Bid Schedule, Section 00310
- Bid Security (Bid Bond, Section 00320, or by a certified or cashier's check as stipulated in the Notice Inviting Bids, Section 00030)

10. The apparent low Bidder is required to complete and submit the following documents by 4:30 p.m. on the ***fifth business day*** following the date of the Posting Notice.

- Subcontractor Report, Section 00360

The apparent low Bidder who fails to submit a completed Subcontractor Report within the time specified in Section 00360 – Subcontractor Report may be found to be not a responsible Bidder and may be required to forfeit the Bid security. The OWNER may then consider the next lowest Bidder for award of the contract.

11. The successful Bidder will be required to submit, ***within ten Days (calendar)*** after the date of the "Notice of Intent to Award" letter, the following executed documents:

- Agreement Forms, Section 00500
- Performance Bond, Section 00610
- Payment Bond, Section 00620
- Certificates of Insurance, (CONTRACTOR) Section 00700 and Section 00800

END OF SECTION

SECTION 00310 - BID SCHEDULE

PAY ITEM NO.	PAY ITEM DESCRIPTION	PAY UNIT	APPROX. QUANTITY	UNIT PRICE		AMOUNT	
				DOLLARS	CENTS	DOLLARS	CENTS
1505.1	Mobilization	Lump Sum	All Req'd	Lump	Sum		
1550.1	Traffic Control	Lump Sum	All Req'd	Lump	Sum		
1570.1	Erosion and Sediment Control	Lump Sum	All Req'd	Lump	Sum		
2202.1	Excavation	CY	2,746				
2202.2	Shot Rock Borrow	CY	1,730				
2202.3	Selected Borrow	CY	300				
2202.4	Mining Area Restoration & Road Cleaning Guarantee	Contingent Sum	All Req'd	Contingent	Sum	$ 5,000	00
2202.5	Individual Mining Plan	Lump Sum	All Req'd	Lump	Sum		
2203.1	Concrete Backfill	Lump Sum	All Req'd	Lump	Sum		
2204.1	2-Inch Minus Shot Rock w/Base Course	CY	684				
2401.1	Sanitary Sewer Pipe - 8-Inch PVC	LF	329.7				
2401.2	Sanitary Sewer Pipe - 12-Inch PVC	LF	403.7				
2401.3	Sanitary Sewer Service Lateral, 6-Inch	EA	10				
2402.1	Sanitary Sewer Manhole, Type 1, With Fiberglass Base Liner	EA	3				
2501.1	4 & 6-Inch Pipe Culvert	LF	500				
2501.2	12-Inch Pipe Culvert	LF	560.4				
2501.3	18-Inch Pipe Culvert	LF	361.9				
2501.4	CPP Saddle Tee	EA	6				
2501.5	6" Underdrain	LF	100				
2502.1	Storm Drain Manhole, Type I	EA	5				
2502.2	Catch Basin, Type III	EA	7				
2502.3	Catch Basin, Type IV	EA	4				
2502.4	Trench Drain and Heated Sidewalk	Lump Sum	All Req'd	Lump	Sum		
2601.1	6-Inch D.I. Water Service	EA	5				
2601.2	8-Inch D.I. Water Pipe	LF	110.3				
2601.3	12-Inch D.I. Water Pipe	LF	637.1				
2602.1	8-Inch Gate Valve	EA	2				
2602.2	12-Inch Gate Valve	EA	3				
2603.1	Fire Hydrant Assembly	EA	2				
2605.1	1" Water Service	EA	5				
2607.1	Pipe Insulation	BD	20				

COMPANY NAME _____

SECTION 00310 - BID SCHEDULE

PAY ITEM NO.	PAY ITEM DESCRIPTION	PAY UNIT	APPROX. QUANTITY	UNIT PRICE		AMOUNT	
				DOLLARS	CENTS	DOLLARS	CENTS
2702.1	Construction Surveying	Lump Sum	All Req'd	Lump	Sum		
2703.1	Remove and Reset Monument w/New Case	EA	2				
2714.1	Stabilization Fabric	SY	1,000				
2716.1	Water, Storm and Sanitary Pipe Removal	Lump Sum	All Req'd	Lump	Sum		
2717.1	Storm and Sanitary Structure Removal	Lump Sum	All Req'd	Lump	Sum		
2718.1	Sign Assemblies	Lump Sum	All Req'd	Lump	Sum		
2718.2	Project Sign Assembly	Lump Sum	All Req'd	Lump	Sum		
2720.1	Painted Traffic Markings	Lump Sum	All Req'd	Lump	Sum		
2801.1	A.C. Pavement, Type II-A, Class B	Ton	562				
2803.1	Fog Seal Coat	Ton	2				
2803.2	Blotting Sand	Ton	10				
2804.1	Asphalt Treated Base	Ton	463				
2806.1	Remove Existing Asphalt Surfacing	SY	3,279				
2870.1	Site Furnishings	Lump Sum	All Req'd	Lump	Sum		
2920.1	Lawns and Grasses	Lump Sum	All Req'd	Lump	Sum		
2930.1	Exterior Plants	Lump Sum	All Req'd	Lump	Sum		
3302.1	Concrete Retaining Walls	Lump Sum	All Req'd	Lump	Sum		
3302.2	Alaska Office Building Canopy Footings	Lump Sum	All Req'd	Lump	Sum		
3303.1	Concrete Sidewalk and Driveway 4 and 6-Inches Thick	SY	432.2				
3303.2	Detectable Tile	SF	180				
3303.3	Curb and Gutter, Type I	LF	1,652.9				
3304.1	Removal of Concrete Sidewalk and Driveway	SY	973.1				
3304.2	Removal of Curb and Gutter	LF	1,440.1				
3305.1	Sidewalk, Granite Pavers	SY	70.7				
3305.2	Sidewalk, Holland Pavers	SY	1,352.5				
16000.1	Utiliwalk Removal and Duct Bank Installation Coordination	Lump Sum	All Req'd	Lump	Sum		
16000.2	Lighting	Lump Sum	All Req'd	Lump	Sum		

TOTAL BASE BID: _____

COMPANY NAME _____

PAY ITEM NO.	PAY ITEM DESCRIPTION	PAY UNIT	APPROX. QUANTITY	UNIT PRICE		AMOUNT	
				DOLLARS	CENTS	DOLLARS	CENTS
Additive Alternate One							
5120.1A	Alaska Office Building Canopy	Lump Sum	All Req'd	Lump	Sum		
16000.3A	Alaska Office Building Canopy Lighting	Lump Sum	All Req'd	Lump	Sum		

TOTAL ADDITIVE ALTERNATE ONE: _____

Additive Alternate Two							
2930.2A	Windfall Fisherman Site Improvements	Lump Sum	All Req'd	Lump	Sum		

TOTAL ADDITIVE ALTERNATE TWO: _____

COMPANY NAME _____

SECTION 00320 - BID BOND

KNOW ALL PERSONS BY THESE PRESENTS, that_____

_____ as Principal, and _____

as Surety, are held and firmly bound unto **THE CITY AND BOROUGH OF JUNEAU** hereinafter called "OWNER," in the sum of _____

_____dollars, (not less than five percent of the total amount of the Bid) for the payment of which sum, well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, said Principal has submitted a Bid to said OWNER to perform the WORK required under the Bid Schedule of the OWNER's Contract Documents entitled

MAIN STREET, SECOND TO FIFTH STREET IMPROVEMENTS

Contract No. E12-167

NOW THEREFORE, if said Principal is awarded a contract by said OWNER and, within the time and in the manner required in the "Notice Inviting Bids" and the "Instructions to Bidders" enters into a written Agreement on the form of Agreement bound with said Contract Documents, furnishes the required certificates of insurance, and furnishes the required Performance Bond and Payment Bond, then this obligation shall be null and void, otherwise it shall remain in full force and effect. In the event suit is brought upon this bond by said OWNER and OWNER prevails, said Surety shall pay all costs incurred by said OWNER in such suit, including a reasonable attorney's fee to be fixed by the court.

SIGNED AND SEALED, this _____ day of _____, 20___

(SEAL)_____
(Principal)

(SEAL)_____
(Surety)

By:_____
(Signature)

By:_____
(Signature)

END OF SECTION

SECTION 00360 - SUBCONTRACTOR REPORT

LIST OF SUBCONTRACTORS (AS 36.30.115)

The apparent low Bidder must submit a list of Subcontractors that the Bidder proposes to use in the performance of this contract ***on the fifth business day*** following the Posting Notice of Bids. If the fifth day falls on a weekend or holiday, the report is due by close of business on the next business Day following the weekend or holiday. The Subcontractor Report list must include each Subcontractor's name, address, location, evidence of valid Alaska Business License, and valid Alaska Contractor's Registration under AS 08.18. ***If no Subcontractors are to be utilized in the performance of the WORK, write in ink or type "NONE" on line (1) below.***

	SUBCONTRACTOR ADDRESS	[1] AK Contractor License No. [2] AK Business License No.	[1] Contact Name [2] Phone No.	Type of Work	Contract Amount	✓ if DBE
1.		[1] [2]			$	☐
2.		[1] [2]			$	☐
3.		[1] [2]			$	☐
4.		[1] [2]			$	☐

I certify that the above listed Alaska Business License(s) and CONTRACTOR Registration(s), if applicable, were valid at the time Bids were opened for this Project.

_____
CONTRACTOR, Authorized Signature

_____
CONTRACTOR, Printed Name

_____
COMPANY

SECTION 00360 - SUBCONTRACTOR REPORT

A. A Bidder may replace a listed Subcontractor if the Subcontractor:

1. fails to comply with AS 08.18;
2. files for bankruptcy or becomes insolvent;
3. fails to execute a contract with the Bidder involving performance of the WORK for which the Subcontractor was listed and the Bidder acted in good faith;
4. fails to obtain bonding;
5. fails to obtain insurance acceptable to the OWNER;
6. fails to perform the contract with the Bidder involving work for which the Subcontractor was listed;
7. must be substituted in order for the CONTRACTOR to satisfy required state and federal affirmative action requirements;
8. refuses to agree or abide with the Bidder's labor agreement; or
9. is determined by the OWNER not to be responsible.

B. If a Bidder fails to list a Subcontractor or lists more than one Subcontractor for the same portion of WORK, the Bidder shall be considered to have agreed to perform that portion of WORK without the use of a Subcontractor and to have represented the Bidder to be qualified to perform that WORK.

C. A Bidder who attempts to circumvent the requirements of this section by listing as a Subcontractor another contractor who, in turn, sublets the majority of the WORK required under the contract violates this section.

D. If a contract is awarded to a Bidder who violates this section, the OWNER may:

1. cancel the contract; or
2. after notice and a hearing, assess a penalty on the Bidder in an amount that does not exceed 10 percent of the value of the subcontract at issue.

E. On the Subcontractor Report, the apparent low Bidder must list any Subcontractors anticipated to perform WORK with a value of greater than one-half of one percent of the intended award amount, or $2,000, whichever is less.

F. An apparent low Bidder who fails to submit a completed Subcontractor Report within the time specified in this section will be found to be not a responsible Bidder and may be required to forfeit the Bid security. The OWNER will then consider the next lowest Bidder for award of the contract.

END OF SECTION

SECTION 00500 - AGREEMENT

THIS AGREEMENT is between THE CITY AND BOROUGH OF JUNEAU (hereinafter called OWNER) and _____ (hereinafter called CONTRACTOR) OWNER and CONTRACTOR, in consideration of the mutual covenants hereinafter set forth, agree as follows:

ARTICLE 1. WORK.

CONTRACTOR shall complete the WORK as specified or as indicated under the Bid Schedule of the OWNER's Bid Documents entitled **Contract No. E12-167, named Main Street, Second to Fifth Street Improvements.**

The WORK is generally described as follows: reconstruction of Main Street from the 2nd to 5th Street intersections. The project will widen pedestrian ways and narrow traffic lanes. Improvements include paver sidewalks, ADA accessible crossings, lighting, signage, canopies, landscaping, replacing utilities and coordinating with AEL&P (or contractor) to remove old utiliwalk and replace with a direct bury system, and miscellaneous related WORK.

The WORK to be paid under this contract shall include the following: Base Bid and Additive Alternates 1 through 3 as shown in Section 00310 - Bid Schedule.

ARTICLE 2. CONTRACT COMPLETION TIME.

The WORK must be completed by:

Work Description	Completion Date
Phase I	• All WORK for Phase I must be completed by October 1, 2012 or 45 days after WORK begins on site, whichever comes first (with the exception of Construction Surveying).
Phase II	• August 15, 2013- All work shall be complete.

ARTICLE 3. DATE OF AGREEMENT

The date of this Agreement will be the date of the last signature on page three of this section.

ARTICLE 4. LIQUIDATED DAMAGES.

OWNER and the CONTRACTOR recognize that time is of the essence of this Agreement and that the OWNER will suffer financial loss if the WORK is not completed within the time specified in Article 2 herein, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. They also recognize the delays, expense, and difficulties involved in proving in a legal proceeding the actual damages suffered by the OWNER if the WORK is not completed on time. The amount of liquidated damages specified is agreed to be a reasonable estimate based on all facts known as of the date of this Agreement.

Work Description	Completion Date	Liquidated Damages
Phase I	October 1, 2012	$500.00
Phase II	August 15, 2013	$500.00

ARTICLE 5. CONTRACT PRICE.

OWNER shall pay CONTRACTOR for completion of the WORK in accordance with the Contract Documents in the amount set forth in the Bid Schedule. The CONTRACTOR agrees to accept as full and complete payment for all WORK to be done in this contract for: **Contract No. E12-167, named Main Street, Second to Fifth Street Improvements**, those Unit Price amounts as set forth in the Bid Schedule in the Contract Documents for this Project.

The total amount of this contract shall be _____ ($ _____), except as adjusted in accordance with the provisions of the Bid Documents.

ARTICLE 6. PAYMENT PROCEDURES.

CONTRACTOR shall submit Applications for Payment in accordance with Article 14 of the General Conditions. Applications for Payment will be processed by the ENGINEER as provided in the General Conditions.

Progress payments will be paid in full in accordance with Article 14 of the General Conditions until ninety (90) percent of the Contract Price has been paid. The remaining ten (10) percent of the Contract Price may be retained, in accordance with applicable Alaska State Statutes, until final inspection, completion, and acceptance of the Project by the OWNER.

ARTICLE 7. CONTRACT DOCUMENTS.

The Contract Documents which comprise the entire Agreement between OWNER and CONTRACTOR concerning the WORK consist of this Agreement (pages 00500-1 to 00500-6, inclusive) and the following sections of the Contract Documents:

- Table of Contents (pages 00005-1 to 00005-3, inclusive)
- Notice Inviting Bids (pages 00030-1 to 00030-3, inclusive).
- Instructions to Bidders (pages 00100-1 to 00100-9, inclusive).
- Bid (pages 00300-1 to 00300-2, inclusive).
- Bid Schedule (pages 00310-1 to 00310-3, inclusive).
- Bid Bond (page 00320-1, inclusive) or Bid Security.
- Subcontractor Report (pages 00360-1 to 00360-2, inclusive).
- Performance Bond (pages 00610-1 to 00610-2, inclusive).
- Payment Bond (pages 00620-1 to 00620-2, inclusive).
- Insurance Certificate(s).
- General Conditions (pages 00700-1 to 00700-48, inclusive).
- Supplementary General Conditions (pages 00800-1 to 00800-7, inclusive).
- Alaska Labor Standards, Reporting, and Prevailing Wage Determination (page 00830-1).
- Standard Details (page 00853-1).
- Special Provisions (pages 1 to 78 inclusive)
- Technical Specifications as listed in the Table of Contents.
- Standard Specifications for Civil Engineering Projects and Subdivision Improvements December 2003 with current Errata Sheets.
- Drawings consisting of 44 sheets, as listed in the Table of Contents.
- Addenda numbers _____ to ____, inclusive.
- Change Orders which may be delivered or issued after the Date of the Agreement and which are not attached hereto.

There are no Contract Documents other than those listed in this Article 7. The Contract Documents may only be amended by Change Order as provided in Paragraph 3.3 of the General Conditions.

ARTICLE 8. MISCELLANEOUS.

Terms used in this Agreement which are defined in Article 1 of the General Conditions will have the meanings indicated in the General Conditions.

No assignment by a party hereto of any rights under or interests in the Contract Documents will be binding on another party hereto without the written consent of the party sought to be bound; and specifically but without limitation monies that may become due and monies that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

OWNER and CONTRACTOR each binds itself, its partners, successors, assigns and legal representatives to the other party hereto, its partners, successors, assigns and legal representatives in respect of all covenants, agreements and obligations contained in the Contract Documents. This Agreement shall be governed by the laws of the State of Alaska. Jurisdiction shall be in the State of Alaska, First Judicial District.

IN WITNESS WHEREOF, OWNER and CONTRACTOR have caused this Agreement to be executed on the date listed below by OWNER.

OWNER:	**CONTRACTOR:**
City and Borough of Juneau	_____ (Company Name)
_____ (Signature)	_____ (Signature)
By: Kimberly A. Kiefer, City & Borough Manager	By:
_____ (Printed Name)	(Printed Name, Authority or Title)
Date: _____	CONTRACTOR Signature Date: _____
OWNER's address for giving notices:	CONTRACTOR's address for giving notices:
155 South Seward Street	_____
Juneau, Alaska 99801	_____
907-586-0873 907-586-4530 (Telephone) (Fax)	_____ (Telephone) (Fax)
	_____ (E-mail address)
	Contractor License No. _____

CERTIFICATE
(if Corporation)

STATE OF)
) SS:
COUNTY OF)

I HEREBY CERTIFY that a meeting of the Board of Directors of the

_____a corporation existing under the laws of

the State of_____, held on _____, 20____, the following resolution was duly passed and adopted:

> "RESOLVED, that _____, as _____ President of the Corporation, be and is hereby authorized to **execute the Agreement** with the CITY AND BOROUGH OF JUNEAU and this corporation and that the execution thereof, attested by the Secretary of the Corporation, and with the Corporate Seal affixed, shall be the official act and deed of this Corporation."
>
> I further certify that said resolution is now in full force and effect.
>
> IN WITNESS WHEREOF, I have hereunto set my hand and affixed the official seal of the

corporation this _____ day of _____, 20____.

_____
Secretary

(SEAL)

CERTIFICATE
(if Partnership)

STATE OF)
) SS:
COUNTY OF)

I HEREBY CERTIFY that a meeting of the Partners of the

_____ a partnership existing under the laws of the State

of _____, held on _____, 20____, the following resolution was duly passed and adopted:

"RESOLVED, that _____, as _____ of the Partnership, be and is hereby authorized to **execute the Agreement** with the CITY AND BOROUGH OF JUNEAU and this partnership and that the execution thereof, attested by the _____shall be the official act and deed of this Partnership."

I further certify that said resolution is now in full force and effect.

IN WITNESS WHEREOF, I have hereunto set my hand this _____, day of _____, 20_____.

_____
Secretary

(SEAL)

CERTIFICATE
(if Joint Venture)

STATE OF)
) SS:
COUNTY OF)

I HEREBY CERTIFY that a meeting of the Principals of the

_____ a joint venture existing under the laws of the

State of _____, held on _____, 20___, the following resolution was duly passed and adopted:

"RESOLVED, that _____, as _____ of the Joint Venture, be and is hereby authorized to **execute the Agreement** with the CITY AND BOROUGH OF JUNEAU and this joint venture and that the execution thereof, attested by the _____ shall be the official act and deed of this Joint Venture."

I further certify that said resolution is now in full force and effect.

IN WITNESS WHEREOF, I have hereunto set my hand this _____, day of _____, 20___.

_____
Secretary

(SEAL)

END OF SECTION

SECTION 00610 - PERFORMANCE BOND

KNOW ALL PERSONS BY THESE PRESENTS: That we _____
(Name of Contractor)
_____ a _____
(Corporation, Partnership, Individual)

hereinafter called "Principal" and _____
(Surety)
of _____, State of _____hereinafter called the "Surety," are held and firmly bound to the CITY AND BOROUGH of JUNEAU, ALASKA hereinafter called "OWNER,"
(Owner) (City and State)
for the penal sum of _____

_____dollars ($_____) in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the CONTRACTOR has entered into a certain contract with the OWNER, the effective date of which is (CBJ Contracts Office to fill in effective date) _____, a copy of which is hereto attached and made a part hereof for the construction of:

Main Street, Second to Fifth Street Improvements

Contract No. E12-167

NOW, THEREFORE, if the Principal shall truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions, and agreements of said contract during the original term thereof, and any extensions thereof, which may be granted by the OWNER, with or without notice to the Surety, and if it shall satisfy all claims and demands incurred under such contract, and shall fully indemnify and save harmless the OWNER from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the OWNER all outlay and expense which the OWNER may incur in making good any default, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the WORK to be performed thereunder or the specifications accompanying the same shall in any wise affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the WORK or to the Specifications.

PROVIDED, FURTHER, that no final settlement between the OWNER and the Principal shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

SECTION 00610 - PERFORMANCE BOND

Main Street, Second to Fifth Street Improvements

Contract No. E12-167

IN WITNESS WHEREOF, this instrument is issued in two (2) identical counterparts, each one of which shall be deemed an original.

CONTRACTOR:

By:_____
(Signature)

_____
(Printed Name)

_____
(Company Name)

_____
(Street or P.0. Box)

_____
(City, State, Zip Code)

SURETY:

By: _____ Date Issued:_____
(Signature of Attorney-in-Fact)

_____
(Printed Name)

_____
(Company Name)

_____
(Street or P.0. Box)

_____
(City, State, Zip Code)

(Affix SURETY'S SEAL)

NOTE: If CONTRACTOR is Partnership, all Partners must execute bond.

END OF SECTION

SECTION 00620 - PAYMENT BOND

KNOW ALL PERSONS BY THESE PRESENTS: That we _____
(Name of Contractor)

_____ a _____
(Corporation, Partnership, Individual)

hereinafter called "Principal" and _____
(Surety)

of _____, State of _____hereinafter called the "Surety," are held and firmly bound to the CITY AND BOROUGH of JUNEAU, ALASKA hereinafter called "OWNER,"
(Owner) (City and State)

for the penal sum of _____

_____dollars ($_____) in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the CONTRACTOR has entered into a certain contract with the OWNER, the effective date of which is (CBJ Contracts Office to fill in effective date) _____, a copy of which is hereto attached and made a part hereof for the construction of:

Main Street, Second to Fifth Street Improvements

Contract No. E12-167

NOW, THEREFORE, if the Principal shall promptly make payment to all persons, firms, Subcontractors, and corporations furnishing materials for, or performing labor in the prosecution of the WORK provided for in such contract, and any authorized extension or modification thereof, including all amounts due for materials, lubricants, oil, gasoline, coal and coke, repairs on machinery, equipment and tools, consumed or used in connection with the construction of such WORK, and all insurance premiums on said work, and for all labor performed in such WORK, whether by Subcontractor or otherwise, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the work to be performed thereunder or the specifications accompanying the same shall in any wise affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the WORK or to the Specifications.

PROVIDED, FURTHER, that no final settlement between the OWNER and the Principal shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is issued in two (2) identical counterparts, each one of which shall be deemed an original.

CONTRACTOR:

By:_____
(Signature)

_____
(Printed Name)

_____
(Company Name)

_____
(Street or P.0. Box)

_____
(City, State, Zip Code)

SURETY:

By: _____ Date Issued:_____
(Signature of Attorney-in-Fact)

_____
(Printed Name)

_____
(Company Name)

_____
(Street or P.0. Box)

_____
(City, State, Zip Code)

(Affix SURETY'S SEAL)

NOTE: If CONTRACTOR is Partnership, <u>all</u> Partners must execute bond.

END OF SECTION

SECTION 00700 - GENERAL CONDITIONS

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(Revised 03-2003)

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ARTICLE 1 DEFINITIONS

Wherever used in these General Conditions or in the Contract Documents the following terms have the meanings indicated which are applicable to both the singular and plural thereof. Where an entire word is capitalized in the definitions and is found not capitalized in the Contract Documents it has the ordinary dictionary definition.

Addenda - Written or graphic instruments issued prior to the opening of Bids which make additions, deletions, or revisions to the Contract Documents.

Agreement - The written contract between the OWNER and the CONTRACTOR covering the WORK to be performed; other documents are attached to the Agreement and made a part thereof as provided therein.

Application for Payment - The form furnished by the ENGINEER which is to be used by the CONTRACTOR to request progress or final payment and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

Asbestos - Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.

Bid - The offer or proposal of the Bidder submitted on the prescribed form setting forth the price or prices for the WORK.

Bonds - Bid, Performance, and Payment Bonds and other instruments which protect against loss due to inability or refusal of the CONTRACTOR to perform its contract.

CBJ Project Manager - The authorized representative of the City and Borough of Juneau Engineering Department, as OWNER, who is responsible for administration of the contract.

Change Order - A document recommended by the ENGINEER, which is signed by the CONTRACTOR and the OWNER and authorizes an addition, deletion, or revision in the WORK, or an adjustment in the Contract Price or the Contract Time, issued on or after the Effective Date of the Agreement.

Contract Documents - The Table of Contents, Notice Inviting Bids, Instructions to Bidders, Bid Forms (including the Bid, Bid Schedule(s), Information Required of Bidder, Bid Bond, and all required certificates and affidavits), Agreement, Performance Bond, Payment Bond, General Conditions, Supplementary General Conditions, Technical Specifications, Drawings, Permits, and all Addenda, and Change Orders executed pursuant to the provisions of the Contract Documents.

Contract Price - The total monies payable by the OWNER to the CONTRACTOR under the terms and conditions of the Contract Documents.

Contract Time - The number of successive calendar Days stated in the Contract Documents for the completion of the WORK.

CONTRACTOR - The individual, partnership, corporation, joint-venture or other legal entity with whom the OWNER has executed the Agreement.

Day - A calendar day of 24 hours measured from midnight to the next midnight.

Defective WORK - WORK that is unsatisfactory, faulty, or deficient; or that does not conform to the Contract Documents; or that does not meet the requirements of any inspection, reference standard, test, or approval referred to in the Contract Documents; or WORK that has been damaged prior to the ENGINEER's recommendation of final payment.

Drawings - The Drawings, plans, maps, profiles, diagrams, and other graphic representations which indicate the character, location, nature, extent, and scope of the WORK and which have been prepared by the ENGINEER and are referred to in the Contract Documents. Shop Drawings are not within the meaning of this paragraph.

Effective Date of the Agreement - The date indicated in the Agreement on which it becomes effective, but if no such date is indicated it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.

Engineer of Record - The individual, partnership, corporation, joint-venture or other legal entity named as such in the Contract Documents.

ENGINEER - The ENGINEER is the firm or person(s) selected by the City and Borough of Juneau (CBJ) to perform the duties of project inspection and management. CBJ will inform the CONTRACTOR of the identity of the ENGINEER at or before the Notice to Proceed.

Field Order - A written order issued by the ENGINEER which may or may not involve a change in the WORK.

General Requirements - Division 1 of the Technical Specifications.

Hazardous Waste - The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 9603) as amended from time to time.

Holidays - The CBJ legal holidays occur on:

1. New Year's Day - January 1
2. Martin Luther King's Birthday - Third Monday in January
3. President's Day - Third Monday in February
4. Seward's Day - Last Monday in March
5. Memorial Day - Last Monday in May
6. Independence Day - July 4
7. Labor Day - First Monday in September
8. Alaska Day - October 18
9. Veteran's Day - November 11
10. Thanksgiving Day - Fourth Thursday and the following Friday in November
11. Christmas Day – December 25

If any holiday listed above falls on a Saturday, Saturday and the preceding Friday are both legal holidays. If the holiday should fall on a Sunday, Sunday and the following Monday are both legal holidays.

Inspector - The authorized representative of the ENGINEER assigned to make detailed inspections for conformance to the Contract Documents. Any reference to the Resident Project Representative in this document shall mean the Inspector.

Laws and Regulations; Laws or Regulations - Any and all applicable laws, rules, regulations, ordinances, codes, and/or orders of any and all governmental bodies, agencies, authorities and courts having jurisdiction.

Mechanic's Lien - A form of security, an interest in real property, which is held to secure the payment of an obligation. When referred to in these Contract Documents, "Mechanic's Lien" or "lien" means "Stop Notice".

Milestone - A principal event specified in the Contract Documents relating to an intermediate completion date of a portion of the WORK, or a period of time within which the portion of the WORK should be performed prior to Substantial Completion of all the WORK.

Notice of Award - The written notice by the OWNER to the apparent successful bidder stating that the apparent successful bidder has complied with all conditions for award of the contract.

Notice of Completion - A form signed by the ENGINEER and the CONTRACTOR recommending to the OWNER that the WORK is Substantially Complete and fixing the date of Substantial Completion. After acceptance of the WORK by the OWNER's governing body, the form is signed by the OWNER and filed with the County Recorder. This filing starts the 30-day lien filing period on the WORK.

Notice to Proceed - The written notice issued by the OWNER to the CONTRACTOR authorizing the CONTRACTOR to proceed with the WORK and establishing the date of commencement of the Contract Time.

Notice of Intent to Award - The written notice by the OWNER to the apparent successful bidder stating that upon compliance by the apparent successful bidder with the requirements listed therein, within the time specified, the OWNER will enter into an Agreement.

OWNER - The City and Borough of Juneau (CBJ), acting through its legally designated officials, officers, or employees.

Partial Utilization - Use by the OWNER or a substantially completed part of the WORK for the purpose for which it is intended prior to Substantial Completion of all the WORK.

PCB's - Polychlorinated biphenyls.

PERMITTEE – See definition for CONTRACTOR.

Petroleum - Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Wastes and crude oils.

Project - The total construction of which the WORK to be provided under the Contract Documents may be the whole, or a part as indicated elsewhere in the Contract Documents.

Radioactive Material - Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.

Shop Drawings - All Drawings, diagrams, illustrations, schedules and other data which are specifically prepared by or for the CONTRACTOR and submitted by the CONTRACTOR, to the ENGINEER, to illustrate some portion of WORK.

Specifications - Same definition as "Technical Specifications" hereinafter.

Stop Notice - A legal remedy for Subcontractors and suppliers who contribute to public works, but who are not paid for their WORK, which secures payment from construction funds possessed by the OWNER. For public property, the Stop Notice remedy is designed to substitute for mechanic's lien rights.

Sub-Consultant - The individual, partnership, corporation, joint-venture or other legal entity having a direct contract with ENGINEER, or with any of its Consultants to furnish services with respect to the Project.

Subcontractor - An individual, partnership, corporation, joint-venture or other legal entity having a direct contract with the CONTRACTOR, or with any of its Subcontractors, for the performance of a part of the WORK at the site.

Substantial Completion - Refers to when the WORK has progressed to the point where, in the opinion of the ENGINEER as evidenced by Notice of Completion as applicable, it is sufficiently complete, in accordance with the Contract Documents, so that the WORK can be utilized for the purposes for which it is intended; or if no such notice is issued, when final payment is due in accordance with Paragraph 14.8. The terms "substantially complete" and "substantially completed" as applied to any WORK refer to substantial completion thereof.

Supplementary General Conditions (SGC) - The part of the Contract Documents which make additions, deletions, or revisions to these General Conditions.

Supplier - A manufacturer, fabricator, supplier, distributor, materialman, or vendor.

Technical Specifications - Divisions 1 through 16 of the Contract Documents consisting of the General Requirements and written technical descriptions of products and execution of the WORK.

Underground Utilities - All pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities which have been installed underground to furnish any of the following services or materials: water, sewage and drainage removal, electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, traffic, or other control systems.

WORK, Work - The entire completed construction or the various separately identifiable parts thereof required to be furnished under the Contract Documents. WORK is the result of performing, or furnishing labor and furnishing and incorporating materials and equipment into the construction, and performing or furnishing services and furnishing documents, all as required by the Contract Documents.

ARTICLE 2 PRELIMINARY MATTERS

2.1 DELIVERY OF BONDS/INSURANCE CERTIFICATES. When the CONTRACTOR delivers the signed Agreements to the OWNER, the CONTRACTOR shall also deliver to the OWNER such Bonds and Insurance Policies and Certificates as the CONTRACTOR may be required to furnish in accordance with the Contract Documents.

2.2 COPIES OF DOCUMENTS. The OWNER shall furnish to the CONTRACTOR the required number of copies of the Contract Documents specified in the Supplementary General Conditions.

2.3 COMMENCEMENT OF CONTRACT TIME; NOTICE TO PROCEED. The Contract Time will start to run on the commencement date stated in the Notice to Proceed.

2.4 STARTING THE WORK

A. The CONTRACTOR shall begin to perform the WORK within 10 days after the commencement date stated in the Notice to Proceed, but no WORK shall be done at the site prior to said commencement date.

B. Before undertaking each part of the WORK, the CONTRACTOR shall carefully study and compare the Contract Documents and check and verify pertinent figures shown thereon and all applicable field measurements. The CONTRACTOR shall promptly report in writing to the ENGINEER any conflict, error, or discrepancy which the CONTRACTOR may discover and shall obtain a written interpretation or clarification from the ENGINEER before proceeding with any WORK affected thereby.

C. The CONTRACTOR shall submit to the ENGINEER for review those documents called for under Section 01300 - CONTRACTOR Submittals in the General Requirements.

2.5 PRE-CONSTRUCTION CONFERENCE. The CONTRACTOR is required to attend a Pre-Construction Conference. This conference will be attended by the ENGINEER and others as appropriate in order to discuss the WORK in accordance with the applicable procedures specified in the General Requirements, Section 01010 - Summary of WORK in the General Requirements.

2.6 FINALIZING CONTRACTOR SUBMITTALS. At least 7 days before submittal of the first Application for Payment a conference attended by the CONTRACTOR, the ENGINEER and others as appropriate will be held to finalize the initial CONTRACTOR submittals in accordance with the General Requirements. As a minimum the CONTRACTOR's representatives should include the project manager and schedule expert. The CONTRACTOR should plan on this meeting taking no less than 8 hours. If the submittals are not finalized at the end of the meeting, additional meetings will be held so that the submittals can be finalized prior to the submittal of the first application for payment. No application for payment will be processed until CONTRACTOR submittals are finalized.

ARTICLE 3 CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.1 INTENT

A. The Contract Documents comprise the entire Agreement between the OWNER and the CONTRACTOR concerning the WORK. The Contract Documents shall be construed as a whole in accordance with Alaska Law.

B. It is the intent of the Contract Documents to describe the WORK, functionally complete, to be constructed in accordance with the Contract Documents. Any work, materials, or equipment that may reasonably be inferred from the Contract Documents as being required to produce the intended result shall be supplied whether or not specifically called for. When words or phrases which have a well-known technical or construction industry or trade meaning are used to describe work, materials, or equipment such words or phrases shall be interpreted in accordance with that meaning, unless a definition has been provided in Article 1 of the General Conditions. Reference to standard specifications, manuals, or codes of any technical society, organization, or association, or to the Laws or Regulations of any governmental authority, whether such reference be specific or by implication, shall mean the latest standard specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids, except as may be otherwise specifically stated. However, no provision of any referenced standard specification, manual, or code (whether or not specifically incorporated by reference in the Contract Documents) shall be effective to change the duties and responsibilities of the OWNER, the CONTRACTOR, or the ENGINEER or any of their consultants, agents, or employees from those set forth in the Contract Documents.

C. If, during the performance of the WORK, CONTRACTOR discovers any conflict, error, ambiguity or discrepancy within the Contract Documents or between the Contract Documents and any provision of any such Law or Regulation applicable to the performance of the WORK or of any such standard, specification, manual or code or of any instruction of any Supplier referred to in paragraph 6.5, the CONTRACTOR shall report it to the ENGINEER in writing at once, and the CONTRACTOR shall not proceed with the WORK affected thereby (except in an emergency as authorized by the ENGINEER) until a clarification field order, or Change Order to the Contract Documents has been issued.

3.2 ORDER OF PRECEDENCE OF CONTRACT DOCUMENTS

A. In resolving conflicts resulting from, errors, or discrepancies in any of the Contract Documents, the order of precedence shall be as follows:

1. Permits from other agencies as may be required by law, excepting the definition of “PERMITEE” in these permits.
2. Field Orders
3. Change Orders
4. ENGINEER’s written interpretations and clarifications.
5. Agreement
6. Addenda
7. CONTRACTOR's Bid (Bid Form)
8. Supplementary General Conditions
9. Notice Inviting Bids

10. Instructions to Bidders
11. General Conditions
12. Technical Specifications
13. Drawings

B. With reference to the Drawings the order of precedence is as follows:

1. Figures govern over scaled dimensions
2. Detail Drawings govern over general Drawings
3. Addenda/ Change Order drawings govern over Contract Drawings
4. Contract Drawings govern over standard drawings

3.3 AMENDING AND SUPPLEMENTING CONTRACT DOCUMENTS. The Contract Documents may be amended to provide for additions, deletions, and revisions in the WORK or to modify the terms and conditions thereof by a Change Order (pursuant to Article 10 CHANGES IN THE WORK).

3.4 REUSE OF DOCUMENTS. Neither the CONTRACTOR, nor any Subcontractor or Supplier, nor any other person or organization performing any of the WORK under a contract with the OWNER shall have or acquire any title to or ownership rights in any of the Drawings, Technical Specifications, or other documents used on the WORK, and they shall not reuse any of them on the extensions of the Project or any other project without written consent of the OWNER.

ARTICLE 4 AVAILABILITY OF LANDS; PHYSICAL CONDITIONS; REFERENCE POINTS

4.1 AVAILABILITY OF LANDS. The OWNER shall furnish, as indicated in the Contract Documents, the lands upon which the WORK is to be performed, rights-of-way and easements for access thereto, and such other lands which are designated for the use of the CONTRACTOR. Easements for permanent structures or permanent changes in existing facilities will be obtained and paid for by the OWNER, unless otherwise provided in the Contract Documents. Nothing contained in the Contract Documents shall be interpreted as giving the CONTRACTOR exclusive occupancy of the lands or rights-of-way provided. The CONTRACTOR shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment; provided, that the CONTRACTOR shall not enter upon nor use any property not under the control of the OWNER until a written temporary construction easement, lease or other appropriate agreement has been executed by the CONTRACTOR and the property owner, and a copy of said agreement furnished to the ENGINEER prior to said use; and, neither the OWNER nor the ENGINEER shall be liable for any claims or damages resulting from the CONTRACTOR's unauthorized trespass or use of any such properties.

4.2 PHYSICAL CONDITIONS - SUBSURFACE AND EXISTING STRUCTURES

A. Explorations and Reports. Reference is made to SGC 4.2 Physical Conditions of the Supplementary General Conditions for identification of those reports of explorations and tests of sub-surface conditions at the site that have been utilized by the ENGINEER in the preparation of the Contract Documents. The CONTRACTOR may rely upon the accuracy of the technical data contained in such reports, however, reports are not to be considered complete or comprehensive and nontechnical data, interpretations, and opinions contained in

such reports are not to be relied on by the CONTRACTOR. The CONTRACTOR is responsible for any further explorations or tests that may be necessary and any interpretation, interpolation, or extrapolation that it makes of any information shown in such reports.

B. Existing Structures. Reference is made to SGC 4.2 Physical Conditions of the Supplementary General Conditions for identification of those drawings of physical conditions in or relating to existing surface and subsurface structures (except Underground Utilities referred to in Paragraph 4.4 herein) which are at or contiguous to the site that have been utilized by the ENGINEER in the preparation of the Contract Documents. The CONTRACTOR may rely upon the accuracy of the technical data contained in such drawings, however, nontechnical data, interpretations, and opinions contained in such drawings are not to be relied on by the CONTRACTOR. The CONTRACTOR is also responsible for any interpretation, interpolation, or extrapolation that it makes of any information shown in such drawings.

4.3 DIFFERING SITE CONDITIONS

A. The CONTRACTOR shall promptly upon discovery (but in no event later than 14 days thereafter) and before the following conditions are disturbed, notify the ENGINEER, in writing of any:

1. Material that the CONTRACTOR believes may be material that is hazardous waste, as defined in Article 1 of these General Conditions, or asbestos, PCB's, petroleum or any other substance or material posing a threat to human or to the environment.
2. Subsurface or latent physical conditions at the site differing from those indicated.
3. Unknown physical conditions at the site of any unusual nature, different materially from those ordinarily encountered and generally recognized as inherent in WORK of the character provided for in the contract.

B. The OWNER shall promptly investigate the conditions, and if it finds that the conditions do materially so differ, or do involve hazardous waste, and cause a decrease or increase in the CONTRACTOR's cost of, or the time required for, performance of any part of the WORK shall issue a Change Order under the procedures described in the contract.

C. In the event that a dispute arises between the OWNER and the CONTRACTOR whether the conditions materially differ, or involved hazardous waste or other materials listed above, or cause a decrease or increase in the CONTRACTOR's cost of, or time required for, performance of any part of the WORK, the CONTRACTOR shall not be excused from any scheduled completion date provided for by the contract, but shall proceed with all WORK to be performed under the contract. The CONTRACTOR shall retain any and all rights provided either by contract or by Law which pertain to the resolution of disputes and protests between the contracting parties.

4.4 PHYSICAL CONDITIONS - UNDERGROUND UTILITIES

A. Indicated. The information and data indicated in the Contract Documents with respect to existing Underground Utilities at or contiguous to the site are based on information and data furnished to the OWNER or the ENGINEER by the owners of such Underground Utilities or by others. Unless it is expressly provided in the Supplementary General Conditions and/or Section 01530 - Protection and Restoration of Existing Facilities of the General

Requirements, the OWNER and the ENGINEER shall not be responsible for the accuracy or completeness of any such information or data, and the CONTRACTOR shall have full responsibility for reviewing and checking all such information and data, for locating all Underground Utilities indicated in the Contract Documents, for coordination of the WORK with the owners of such Underground Utilities during construction, for the safety and protection thereof and repairing any damage thereto resulting from the WORK, the cost of which will be considered as having been included in the Contract Price.

B. Not Indicated. If an Underground Utility is uncovered or revealed at or contiguous to the site which was not indicated in the Contract Documents and which the CONTRACTOR could not reasonably have been expected to be aware of, the CONTRACTOR shall identify the owner of such Underground Utility and give written notice thereof to that owner and shall notify the ENGINEER in accordance with the requirements of the Supplementary General Conditions and Section 01530 - Protection and Restoration of Existing Facilities of the General Requirements.

4.5 REFERENCE POINTS

A. The ENGINEER will provide one bench mark, near or on the site of the WORK, and will provide two points near or on the site to establish a base line for use by the CONTRACTOR for alignment control. Unless otherwise specified in the General Requirements, the CONTRACTOR shall furnish all other lines, grades, and bench marks required for proper execution of the WORK.

B. The CONTRACTOR shall preserve all bench marks, stakes, and other survey marks, and in case of their removal or destruction by its own employees or by its Subcontractor's employees, the CONTRACTOR shall be responsible for the accurate replacement of such reference points by personnel qualified under the Alaska Statute governing the licensing of Architects, Engineers, and Land Surveyors.

4.6 USE OF THE CBJ/STATE LEMON CREEK GRAVEL PIT

A. On City and Borough of Juneau (CBJ) construction projects, the CBJ may make unclassified material available to CONTRACTORs, from the CBJ/State Lemon Creek gravel pit, at a rate less than charged other customers. CONTRACTORs are not required to use material from the CBJ/State pit and the CBJ makes no guarantee as to the quantity or quality of the available material. For this Project, the price shall be $1.90 per ton.

B. CONTRACTORs proposing to use gravel from the CBJ/State pit are required to be in good standing for all amounts owed to the CBJ, for previous gravel operations, prior to submitting a mining plan for approval. CONTRACTORs using the pit must comply with Allowable Use Permit USE 98-00047. Failure to meet these requirements, if so subject, shall be sufficient reason to deny use of the CBJ/State pit as a gravel source. To determine if your company is subject to these requirements, contact the CBJ Engineering Department, Gravel Pit Management, at (907) 586-0800.

C. CONTRACTORs deciding to use material from the CBJ/State pit shall provide an Individual Mining Plan prepared by a professional engineer registered in the State of Alaska. The Individual Mining Plan must be reviewed and approved by the CBJ, prior to commencing

operations within the pit. CONTRACTORs shall also secure a Performance Bond to ensure compliance with contract provisions, including any Individual Mining Plan stipulations. The bond shall remain in full force and effect until a release is obtained from the CBJ.

D. If CONTRACTOR operations for a project do not exceed 500 tons of material, the CONTRACTOR will not be required to provide an Individual Mining Plan prepared by an engineer. However, the CONTRACTOR must submit an Individual Mining Plan that is in compliance with Allowable Use Permit USE 98-00047 for gravel extraction within the CBJ/State pit. The CONTRACTOR must contact the CBJ Engineering Department for conditions for the extraction.

E. CONTRACTORs using the CBJ material may do primary dry separation (screening) of materials within the pit. Crushing and washing of material will not be allowed. CONTRACTORs shall account for placement of materials removed from the pit. The CBJ may require CONTRACTORs to cross-check weight tickets, submit to an audit, or participate in other measures required by the CBJ to ensure accountability. Unprocessed overburden removed from the pit will not be weighed. All other material mined will be weighed at the CBJ scale. CONTRACTORs will be responsible for loading and/or screening their own material. If asphalt pavement is removed as part of the WORK, CONTRACTORs shall dispose of the material at a to-be-specified location within the pit area, as directed by the CBJ Project Manager.

F. The gravel pit overhead charge shall be paid to the CBJ by the CONTRACTOR within 60 days after removal of all materials from the pit and prior to requesting and/or receiving final payment. Upon completion of each excavation CONTRACTORs shall notify the CBJ, in writing, in sufficient time to perform a field-compliance examination prior to vacating the pit. Any significant deviation from the stipulations of the Individual Mining Plan identified during the field inspection shall be corrected by the CONTRACTOR prior to release of the bond. A signed release from CBJ will be required prior to releasing the CONTRACTOR's bond.

G. If asphalt pavement is removed as part of this WORK, the CONTRACTOR shall dispose of the material at the location designated as the Asphalt Storage Facility, or as directed by the ENGINEER.

H. The CBJ/State pit is a seasonal operation. The hours of operation are from 7:00 a.m. to 6:00 p.m., Monday through Friday, from April 1 through October 15 of the year. CONTRACTORS may obtain gravel on weekends, or during the off-season, by applying for a separate agreement with the City and Borough of Juneau Engineering Department. The CONTRACTOR will be responsible for any additional costs incurred during weekend or off-season operations at the gravel pit.

I. All Contractors/Equipment Operators using the CBJ/State Pit shall be in compliance with Federal Mine Safety and Health Administration regulations for quarry and gravel operations.

ARTICLE 5 BONDS AND INSURANCE

5.1 PERFORMANCE, PAYMENT, AND OTHER BONDS

A. The CONTRACTOR shall furnish, when required, Performance and Payment Bonds on forms provided by the CBJ for the penal sums of 100% of the amount of the Bid award. The surety on each bond may be any corporation or partnership authorized to do business in the State of Alaska as an insurer under AS 21.09. These bonds shall remain in effect for 12 months after the date of final payment and until all obligations and liens under this contract have been satisfied. The CONTRACTOR shall also furnish such other Bonds as are required by the Supplementary General Conditions. All Bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Audit Staff, Bureau of Government Financial Operations, U.S. Treasury Department. All Bonds signed by an agent must be accompanied by a certified copy of such agent's authority to act.

B. If the surety on any Bond furnished by the CONTRACTOR is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the WORK is located, the CONTRACTOR shall within 7 days thereafter substitute another Bond and Surety, which must be acceptable to the OWNER.

C. All Bonds required by the Contract Documents to be purchased and maintained by CONTRACTOR shall be obtained from surety companies that are duly licensed or authorized in the State of Alaska to issue Bonds for the limits so required. Such surety companies shall also meet such additional requirements and qualifications as may be provided in the Supplementary General Conditions. The City Engineer may, on behalf of the OWNER, notify the surety of any potential default or liability.

5.2 INSURANCE

A. The CONTRACTOR shall purchase and maintain the insurance required under this paragraph. Such insurance shall include the specific coverages set out herein and be written for not less than the limits of liability and coverages provided in the Supplementary General Conditions, or required by law, whichever are greater. All insurance shall be maintained continuously during the life of the Agreement up to the date of Final Completion and at all times thereafter when the CONTRACTOR may be correcting, removing, or replacing Defective WORK in accordance with Paragraph 13.6, but the CONTRACTOR's liabilities under this Agreement shall not be deemed limited in any way to the insurance coverage required.

B. All insurance required by the Contract Documents to be purchased and maintained by the CONTRACTOR shall be obtained from insurance companies that are duly licensed or authorized in the State of Alaska to issue insurance policies for the limits and coverages so required. Such insurance companies shall have a current Best's Rating of at least an "A" (Excellent) general policy holder's rating and a Class VII financial size category and shall also meet such additional requirements and qualifications as may be provided in the Supplementary General Conditions.

C. The CONTRACTOR shall furnish the OWNER with certificates showing the type, amount, class of operations covered, effective dates and dates of expiration of policies. All of the policies of insurance so required to be purchased and maintained (or the certificates or other

evidence thereof) shall contain a provision or endorsement that the coverage afforded will not be cancelled, reduced in coverage, or renewal refused until at least 30 days' prior written notice has been given to the OWNER by certified mail. All such insurance required herein (except for Workers' Compensation and Employer's Liability) shall name the OWNER, its Consultants and subconsultants and their officers, directors, agents, and employees as "additional insureds" under the policies. The CONTRACTOR shall purchase and maintain the following insurance:

1. Workers' Compensation and Employer's Liability. This insurance shall protect the CONTRACTOR against all claims under applicable state workers' compensation laws. The CONTRACTOR shall also be protected against claims for injury, disease, or death of employees which, for any reason, may not fall within the provisions of a Workers' Compensation law. This policy shall include an "all states" endorsement. The CONTRACTOR shall require each Subcontractor similarly to provide Workers' Compensation Insurance for all of the latter's employees to be engaged in such WORK unless such employees are covered by the protection afforded by the CONTRACTOR's Workers' Compensation Insurance. In case any class of employees is not protected, under the Workers' Compensation Statute, the CONTRACTOR shall provide and shall cause each Subcontractor to provide adequate employer's liability insurance for the protection of such of its employees as are not otherwise protected.
2. Commercial General Liability. This insurance shall be written in comprehensive form and shall protect the CONTRACTOR against all claims arising from injuries to persons other than its employees or damage to property of the OWNER or others arising out of any act or omission of the CONTRACTOR or its agents, employees, or Subcontractors. The policy shall contain no exclusions for any operations within the scope of this contract.
3. Comprehensive Automobile Liability. This insurance shall be written in comprehensive form and shall protect the CONTRACTOR against all claims for injuries to members of the public and damage to property of others arising from the use of motor vehicles, and shall cover operation on or off the site of all motor vehicles licensed for highway use, whether they are owned, non-owned, or hired. Coverage for hired motor vehicles should include endorsement covering liability assumed under this Agreement.
4. Subcontractor's Commercial General Liability Insurance and Commercial Automobile Liability Insurance. The CONTRACTOR shall either require each of its Subcontractors to procure and to maintain Subcontractor's Commercial General Liability and Property Damage Insurance and Vehicle Liability Insurance of the type and in the amounts specified in the Supplementary General Conditions or insure the activities of its Subcontractors in the CONTRACTOR's own policy, in like amount.
5. Builder's Risk. This insurance shall be of the "all risks" type, shall be written in completed value form, and shall protect the CONTRACTOR, the OWNER, and the ENGINEER, against risks of damage to buildings, structures, and materials and equipment. The amount of such insurance shall be not less than the insurable value of the WORK at completion. Builder's risk insurance shall provide for losses to be payable to the CONTRACTOR and the OWNER, as their interests may appear. The policy shall contain a provision that in the event of payment for any loss under the

coverage provided, the insurance company shall have no rights of recovery against the CONTRACTOR, the OWNER, and the ENGINEER. The Builder's Risk policy shall insure against all risks of direct physical loss or damage to property from any external cause including flood and earthquake. Allowable exclusions, if any, shall be as specified in the Supplementary General Conditions.

ARTICLE 6 CONTRACTOR'S RESPONSIBILITIES

6.1 SUPERVISION AND SUPERINTENDENCE

A. The CONTRACTOR shall supervise, inspect, and direct the WORK competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the WORK in accordance with the Contract Documents. The CONTRACTOR shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction and safety precautions and programs incidental thereto. The CONTRACTOR shall be responsible to see that the completed WORK complies accurately with the Contract Documents.

B. The CONTRACTOR shall designate in writing and keep on the WORK site at all times during its progress a technically qualified, English-speaking superintendent, who is an employee of the CONTRACTOR and who shall not be replaced without written notice to the OWNER and the ENGINEER. The superintendent will be the CONTRACTOR's representative at the site and shall have authority to act on behalf of the CONTRACTOR. All communications given to the superintendent shall be as binding as if given to the CONTRACTOR. The CONTRACTOR shall issue all its communications to the OWNER through the ENGINEER and the ENGINEER only.

C. The CONTRACTOR's superintendent shall be present at the site of the WORK at all times while WORK is in progress. Failure to observe this requirement shall be considered suspension of the WORK by the CONTRACTOR until such time as such superintendent is again present at the site.

6.2 LABOR, MATERIALS, AND EQUIPMENT

A. The CONTRACTOR shall provide competent, suitably qualified personnel to survey and lay out the WORK and perform construction as required by the Contract Documents. The CONTRACTOR shall furnish, erect, maintain, and remove the construction plant and any temporary works as may be required. The CONTRACTOR shall at all times maintain good discipline and order at the site. Except in connection with the safety or protection of persons or the WORK or property at the site or adjacent thereto, and except as otherwise indicated in the Contract Documents, all WORK at the site shall be performed during regular working hours, and the CONTRACTOR will not permit overtime work or the performance of work on Saturday, Sunday, or any legal holiday without the OWNER's written consent. The CONTRACTOR shall apply for this consent through the ENGINEER.

B. Except as otherwise provided in this Paragraph, the CONTRACTOR shall receive no additional compensation for overtime work, i.e., work in excess of 8 hours in any one calendar day or 40 hours in any one calendar week, even though such overtime work may be required under emergency conditions and may be ordered by the ENGINEER in writing.

Additional compensation will be paid the CONTRACTOR for overtime work only in the event extra work is ordered by the ENGINEER and the Change Order specifically authorizes the use of overtime work and then only to such extent as overtime wages are regularly being paid by the CONTRACTOR for overtime work of a similar nature in the same locality.

C. All costs of inspection and testing performed during overtime work by the CONTRACTOR which is allowed solely for the convenience of the CONTRACTOR shall be borne by the CONTRACTOR. The OWNER shall have the authority to deduct the cost of all such inspection and testing from any partial payments otherwise due to the CONTRACTOR.

D. Unless otherwise specified in the Contract Documents, the CONTRACTOR shall furnish and assume full responsibility for all materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, and all other facilities and incidentals necessary for the furnishing, performance, testing, start-up, and completion of the WORK.

E. All materials and equipment to be incorporated into the WORK shall be of good quality and new, except as otherwise provided in the Contract Documents. All warranties and guarantees specifically called for by the Specifications shall expressly run to the benefit of the OWNER. If required by the ENGINEER, the CONTRACTOR shall furnish satisfactory evidence (including reports of required tests) as to the kind and quality of materials and equipment. All materials and equipment shall be applied, installed, connected, erected, used, cleaned, and conditioned in accordance with the instructions of the applicable Supplier except as otherwise provided in the Contract Documents; but no provisions of any such instructions will be effective to assign to the ENGINEER, or any of the ENGINEER 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 provisions of Paragraphs 9.9C and 9.9D.

F. The CONTRACTOR shall at all times employ sufficient labor and equipment for prosecuting the several classes of WORK to full completion in the manner and time set forth in and required by these specifications. All workers shall have sufficient skill and experience to perform property the WORK assigned to them. Workers engaged in special WORK, or skilled WORK, shall have sufficient experience in such WORK and in the operation of the equipment required to perform all WORK, properly and satisfactorily.

G. Any person employed by the CONTRACTOR or by any Subcontractor who, in the opinion of the ENGINEER, does not perform the WORK in a proper and skillful manner, or is intemperate or disorderly shall, at the written request of the ENGINEER, be removed forthwith by the CONTRACTOR or Subcontractor employing such person, and shall not be employed again in any portion of the WORK without the approval of the ENGINEER. Should the CONTRACTOR fail to remove such person or persons as required above, or fail to furnish suitable and sufficient personnel for the proper prosecution of the WORK, the ENGINEER may suspend the WORK by written notice until such orders are complied with.

6.3 ADJUSTING PROGRESS SCHEDULE. The CONTRACTOR shall submit monthly updates of the progress schedule to the ENGINEER for acceptance in accordance with the provisions in Section 01300 - CONTRACTOR Submittals in the General Requirements.

6.4 SUBSTITUTES OR "OR-EQUAL" ITEMS. The CONTRACTOR shall submit proposed substitutes or "or-equal" items in accordance with the provisions in Section 01300 - CONTRACTOR Submittals in the General Requirements.

6.5 CONCERNING SUBCONTRACTORS, SUPPLIERS, AND OTHERS.

A. The CONTRACTOR shall be responsible to the OWNER and the ENGINEER for the acts and omissions of its Subcontractors and their employees to the same extent as CONTRACTOR is responsible for the acts and omissions of its own employees. Nothing contained in this Paragraph shall create any contractual relationship between any Subcontractor and the OWNER or the ENGINEER nor relieve the CONTRACTOR of any liability or obligation under the prime contract.

B. The CONTRACTOR shall perform not less than 40% of the WORK with its own forces (i.e., without subcontracting). The 40% requirement shall be understood to mean that the CONTRACTOR shall perform, with its own organization, WORK amounting to at least 40% of the awarded contract amount. The 40% requirement will be calculated based upon the total of the subcontract amounts submitted for contract award, and any other information requested by the OWNER from the apparent low bidder.

6.6 PERMITS

A. Unless otherwise provided in the Supplementary General Conditions, the CONTRACTOR shall obtain and pay for all construction permits and licenses from the agencies having jurisdiction, including the furnishing of insurance and bonds if required by such agencies. The enforcement of such requirements under this contract shall not be made the basis for claims for additional compensation. The OWNER shall assist the CONTRACTOR, when necessary, in obtaining such permits and licenses. The CONTRACTOR shall pay all governmental charges and inspection fees necessary for the prosecution of the WORK, which are applicable at the time of opening of Bids. The CONTRACTOR shall pay all charges of utility owners for connections to the WORK.

B. These Contract Documents may require that the WORK be performed within the conditions and/or requirements of local, state and/or federal permits. These permits may be bound within the Contract Documents, included within the Contract Documents by reference, or included as part of the WORK, as designated in this Section. The CONTRACTOR is responsible for completing the WORK required for compliance with all permit requirements; this WORK is incidental to other items in the Contract Documents. Any reference to the PERMITTEE in the permits shall mean the CONTRACTOR. If any permits were acquired by the OWNER, this action was done to expedite the start of construction. If the CONTRACTOR does not complete the WORK within the specified permit window, the CONTRACTOR shall be responsible for the permit extension, and for completing any additional requirements placed upon the permit.

C. The OWNER shall apply for, and obtain, the necessary building permit for this Project, however, the CONTRACTOR is responsible for scheduling and coordinating all necessary inspections. The CBJ Inspection number is 586-1703. All other provisions of this Section remain in effect.

6.7 PATENT FEES AND ROYALTIES. The CONTRACTOR shall pay all license fees and royalties and assume all costs incident to the use in the performance of the WORK or the incorporation in the WORK of any invention, design, process, product, software or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the WORK and if to the actual knowledge of the OWNER or the ENGINEER its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by the OWNER in the Contract Documents. The CONTRACTOR shall indemnify, defend and hold harmless the OWNER and the ENGINEER and anyone directly or indirectly employed by either of them from and against all claims, damages, losses, and expenses (including attorneys' fees and court costs) arising out of any infringement of patent rights or copyrights incident to the use in the performance of the WORK or resulting from the incorporation in the WORK of any invention, design, process, product, or device not specified in the Contract Documents, and shall defend all such claims in connection with any alleged infringement of such rights.

6.8 LAWS AND REGULATIONS. The CONTRACTOR shall observe and comply with all federal, state, and local laws, ordinances, codes, orders, and regulations which in any manner affect those engaged or employed on the WORK, the materials used in the WORK, or the conduct of the WORK. If any discrepancy or inconsistency should be discovered in this contract in relation to any such law, ordinance, code, order, or regulation, the CONTRACTOR shall report the same in writing to the ENGINEER. The CONTRACTOR shall indemnify, defend, and hold harmless the OWNER, the ENGINEER, and their officers, agents, and employees against all claims or liability arising from violation of any such law, ordinance, code, order, or regulation, whether by CONTRACTOR or by its employees, Subcontractors, or third parties. Any particular law or regulation specified or referred to elsewhere in the Contract Documents shall not in any way limit the obligation of the CONTRACTOR to comply with all other provisions of federal, state, and local laws and regulations.
The OWNER may, per AS 36.30, audit the CONTRACTOR's or Subcontractor(s) records that are related to the cost or pricing data for this contract, all related Change Orders, and/or contract modifications.

6.9 TAXES. The CONTRACTOR shall pay all sales, consumer, use, and other similar taxes required to be paid by the CONTRACTOR in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the WORK.

6.10 USE OF PREMISES. The CONTRACTOR shall confine construction equipment, the storage of materials and equipment, and the operations of workers to (1) the Project site, (2) the land and areas identified in and permitted by the Contract Documents, and (3) the other land and areas permitted by Laws and Regulations, rights-of-way, permits, leases and easements. The CONTRACTOR shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof or of any land or areas contiguous thereto, resulting from the performance of the WORK. Should any claim be made against the OWNER or the ENGINEER by any such owner or occupant because of the performance of the WORK, the CONTRACTOR shall promptly attempt to settle with such other party by agreement or otherwise resolve the claim through litigation. The CONTRACTOR shall, to the fullest extent permitted by Laws and Regulations, indemnify, defend, and hold the OWNER and the ENGINEER harmless from and against all claims, damages, losses, and expenses (including, but not limited to, fees of engineers attorneys, and other professionals and court costs) arising directly, indirectly, or consequentially out of any action, legal or equitable, brought by any such owner or occupant against the OWNER, the ENGINEER, their Consultants, Sub-consultants,

and the officers, directors, employees and agents of each and any of them to the extent caused by or based upon the CONTRACTOR's performance of the WORK.

6.11 SAFETY AND PROTECTION

A. The CONTRACTOR shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the WORK. The CONTRACTOR shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

1. all employees on the WORK and other persons and organizations who may be affected thereby;
2. all the WORK and materials and equipment to be incorporated therein, whether in storage on or off the site; and
3. other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.

B. The CONTRACTOR shall comply with all applicable Laws and Regulations whether referred to herein or not) of any public body having jurisdiction for the safety of persons or property or to protect them from damage, injury, or loss and shall erect and maintain all necessary safeguards for such safety and protection. The CONTRACTOR shall notify owners of adjacent property and utilities when prosecution of the WORK may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.

C. The CONTRACTOR shall designate a qualified and experienced safety representative at the site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and program.

D. Materials that contain hazardous substances or mixtures may be required on the WORK. A Material Safety Data Sheet shall be requested by the CONTRACTOR from the manufacturer of any hazardous product used.

E. Material usage shall be accomplished with strict adherence to all safety requirements and all manufacturer's warnings and application instructions listed on the Material Safety Data Sheet and on the product container label.

F. The CONTRACTOR shall be responsible for coordinating communications on any exchange of Material Safety Data Sheets or other hazardous material information that is required to be made available to, or exchanged between, or among, employers at the site in accordance with Laws or Regulations.

G. The CONTRACTOR shall notify the ENGINEER if it considers a specified product or its intended usage to be unsafe. This notification must be given to the ENGINEER prior to the product being ordered, or if provided by some other party, prior to the product being incorporated in the WORK.

6.12 SHOP DRAWINGS AND SAMPLES

A. After checking and verifying all field measurements and after complying with applicable procedures specified in the General Requirements, the CONTRACTOR shall submit to the ENGINEER for review, all Shop Drawings in accordance with Section 01300 - CONTRACTOR Submittals in the General Requirements.

B. The CONTRACTOR shall also submit to the ENGINEER for review all samples in accordance with Section 01300 - CONTRACTOR Submittals in the General Requirements.

C. Before submittal of each shop drawing or sample, the CONTRACTOR shall have determined and verified all quantities, dimensions, specified performance criteria, installation requirements, materials, catalog numbers, and similar data with respect thereto and reviewed or coordinated each Shop Drawing or sample with other Shop Drawings and samples and with the requirements of the WORK and the Contract Documents.

6.13 CONTINUING THE WORK. The CONTRACTOR shall carry on the WORK and adhere to the progress schedule during all disputes or disagreements with the OWNER. No work shall be delayed or postponed pending resolution of any disputes or disagreements, except as the CONTRACTOR and the OWNER may otherwise agree in writing.

6.14 INDEMNIFICATION

A. To the fullest extent permitted by Laws and Regulations, the CONTRACTOR shall indemnify, defend, and hold harmless the OWNER, the ENGINEER, their Consultants, Sub-consultants and the officers, directors, employees, and agents of each and any of them, against and from all claims and liability arising under, by reason of or incidentally to the contract or any performance of the WORK, but not from the sole negligence or willful misconduct of the OWNER, and the ENGINEER. Such indemnification by the CONTRACTOR shall include but not be limited to the following:

1. Liability or claims resulting directly or indirectly from the negligence or carelessness of the CONTRACTOR, its employees, or agents in the performance of the WORK, or in guarding or maintaining the same, or from any improper materials, implements, or appliances used in its construction, or by or on account of any act or omission of the CONTRACTOR, its employees, agents, or third parties;
2. Liability or claims arising directly or indirectly from bodily injury, occupational sickness or disease, or death of the CONTRACTOR's or Subcontractor's own employees engaged in the WORK resulting in actions brought by or on behalf of such employees against the OWNER, and the ENGINEER;
3. Liability or claims arising directly or indirectly from or based on the violation of any law, ordinance, regulation, order, or decree, whether by the CONTRACTOR, its employees, or agents;
4. Liability or claims arising directly or indirectly from the use or manufacture by the CONTRACTOR, its employees, or agents in the performance of this contract of any copyrighted or non-copyrighted composition, secret process, patented or non-patented invention, computer software, article, or appliance, unless otherwise specifically stipulated in this contract.

5. Liability or claims arising directly or indirectly from the breach of any warranties, whether express or implied, made to the OWNER or any other parties by the CONTRACTOR, its employees, or agents;
6. Liabilities or claims arising directly or indirectly from the willful or criminal misconduct of the CONTRACTOR, its employees, or agents; and,
7. Liabilities or claims arising directly or indirectly from any breach of the obligations assumed herein by the CONTRACTOR.

B. The CONTRACTOR shall reimburse the ENGINEER and the OWNER for all costs and expenses, (including but not limited to fees and charges of engineers, attorneys, and other professionals and court costs including all costs of appeals) incurred by said OWNER, and the ENGINEER in enforcing the provisions of this Paragraph 6.14.

C. The indemnification obligation under this Paragraph 6.14 shall not be limited in any way by any limitation of the amount or type of damages, compensation, or benefits payable by or for the CONTRACTOR or any such Subcontractor or other person or organization under workers' compensation acts, disability benefit acts, or other employee benefit acts.

6.15 CONTRACTOR'S DAILY REPORTS. The CONTRACTOR shall complete a daily report indicating total manpower for each construction trade, major equipment on site, each Subcontractor's manpower, weather conditions, etc., involved in the performance of the WORK. The daily report shall be completed on forms provided by the ENGINEER and shall be submitted to the ENGINEER at the conclusion of each workday. The report should comment on the daily progress and status of the WORK within each major component of the WORK. These components will be decided by the ENGINEER. CONTRACTOR shall record the name, affiliation, time of arrival and departure, and reason for visit for all visitors to the location of the WORK.

6.16 ASSIGNMENT OF CONTRACT. The CONTRACTOR shall not assign, sublet, sell, transfer, or otherwise dispose of the contract or any portion thereof, or its right, title, or interest therein, or obligations thereunder, without the written consent of the OWNER except as imposed by law. If the CONTRACTOR violates this provision, the contract may be terminated at the option of the OWNER. In such event, the OWNER shall be relieved of all liability and obligations to the CONTRACTOR and to its assignee or transferee, growing out of such termination.

6.17 CONTRACTOR'S RESPONSIBILITY FOR UTILITY PROPERTY AND SERVICES. It is understood that any turn-on or turn-off, line locates and any other work or assistance necessary by the CBJ Water Utilities Division, will be at the CONTRACTOR's expense unless otherwise stated in the bid documents. All cost must be agreed to prior to any related actions, and will be considered incidental to the project cost. Billing to the CONTRACTOR will be direct from the CBJ Water Utilities Division.

6.18 OPERATING WATER SYSTEM VALVES

A. The CONTRACTOR shall submit a written request, to the ENGINEER, for approval to operate any valve on any in-service section of the CBJ water system. The request must be submitted at least 24-hours prior to operating any valves. The CBJ Water Utilities Division reserves the right to approve or deny the request. The request shall specifically identify each valve to be operated, the time of operation, and the operation to be performed. The

CONTRACTOR shall obtain the written approval of the ENGINEER for any scheduled operation before operating any valve.

B. The CONTRACTOR shall be responsible for all damages, both direct and consequential, to the City or any other party, caused by unauthorized operation of any valve of the CBJ water system.

6.19 CONTRACTOR'S WORK SCHEDULE LIMITATIONS. Construction of Buildings and Projects. It is unlawful to operate any pile driver, power shovel, pneumatic hammer, derrick, power hoist, or similar heavy construction equipment before 7:00 a.m. or after 10:00 p.m., Monday through Friday, or before 9:00 a.m. or after 10:00 p.m., Saturday and Sunday, unless a permit shall first be obtained from the City and Borough Building Official. Such permit shall be issued by the Building Official only upon a determination that such operation during hours not otherwise permitted hereunder is necessary and will not result in unreasonable disturbance to surrounding residents.

ARTICLE 7 OTHER WORK

7.1 RELATED WORK AT SITE

A. The OWNER may perform other work related to the Project at the site by the OWNER's own forces, have other work performed by utility owners, or let other direct contracts therefor which may contain General Conditions similar to these. If the fact that such other work is to be performed was not noted in the Contract Documents, written notice thereof will be given to the CONTRACTOR prior to starting any such other work.

B. The CONTRACTOR shall afford each other contractor who is a party to such a direct contract and each utility owner (or the OWNER, if the OWNER is performing the additional work with the OWNER's employees) proper and safe access to the site and a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such work, and shall properly connect and coordinate the WORK with theirs. The CONTRACTOR shall do all cutting, fitting, and patching of the WORK that may be required to make its several parts come together properly and integrate with such other work. The CONTRACTOR shall not endanger any work of others by cutting, excavating, or otherwise altering their work and will only cut or alter their work with the written consent of the ENGINEER and the others whose work will be affected.

C. If the proper execution or results of any part of the CONTRACTOR's work depends upon the work of any such other contractor or utility owner (or OWNER), the CONTRACTOR shall inspect and report to the ENGINEER in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for such proper execution and results. The CONTRACTOR's failure to report such delays, defects, or deficiencies will constitute an acceptance of the other work as fit and proper for integration with the CONTRACTOR's work except for latent or nonapparent defects and deficiencies in the other work.

7.2 COORDINATION. If the OWNER contracts with others for the performance of other work on the Project at the site, the person or organization who will have authority and responsibility for coordination of the activities among the various prime contractors will be identified in the Supplementary General Conditions, and the specific matters to be covered by such authority and

responsibility will be itemized and the extent of such authority and responsibilities will be provided in the Supplementary General Conditions.

ARTICLE 8 OWNER'S RESPONSIBILITIES

8.1 COMMUNICATIONS

A. The OWNER shall issue all its communications to the CONTRACTOR through the ENGINEER.

B. The CONTRACTOR shall issue all its communications to the OWNER through the ENGINEER.

8.2 PAYMENTS. The OWNER shall make payments to the CONTRACTOR as provided in Paragraphs 14.5, 14.8, 14.9 and 14.10.

8.3 LANDS, EASEMENTS, AND SURVEYS. The OWNER's duties in respect of providing lands and easements and providing surveys to establish reference points are set forth in Paragraphs 4.1 and 4.5.

8.4 CHANGE ORDERS. The OWNER shall execute Change Orders as indicated in Paragraph 10.1F.

8.5 INSPECTIONS AND TESTS. The OWNER's responsibility in respect of inspections, tests, and approvals is set forth in Paragraph 13.3.

8.6 SUSPENSION OF WORK. In connection with the OWNER's right to stop WORK or suspend WORK, see Paragraphs 13.4 and 15.1.

8.7 TERMINATION OF AGREEMENT. Paragraphs 15.2 and 15.3 deal with the OWNER's right to terminate services of the CONTRACTOR.

ARTICLE 9 ENGINEER'S STATUS DURING CONSTRUCTION

9.1 OWNER'S REPRESENTATIVE. The ENGINEER will be the OWNER's representative during the construction period. The duties and responsibilities and the limitations of authority of the ENGINEER as the OWNER's representative during construction are set forth in the Contract Documents.

9.2 VISITS TO SITE. The ENGINEER will make visits to the site during construction to observe the progress and quality of the WORK and to determine, in general, if the WORK is proceeding in accordance with the Contract Documents. Exhaustive or continuous on-site inspections to check the quality or quantity of the WORK will not be required of the ENGINEER. The ENGINEER will not, during such visits, or as a result of such observations of the CONTRACTOR's WORK in progress, supervise, direct, or have control over the CONTRACTOR's WORK.

9.3 PROJECT REPRESENTATION. The ENGINEER may furnish an Inspector to assist in observing the performance of the WORK. The duties, responsibilities, and limitations of authority are as follows:

A. Duties, Responsibilities and Limitations of Authority of Inspector

General. The Inspector, who is the ENGINEER's Agent, will act as directed by and under the supervision of the ENGINEER and will confer with the ENGINEER regarding its actions. The Inspector's dealings in matters pertaining to the on-site WORK shall, in general, be only with the ENGINEER and the CONTRACTOR, and dealings with Subcontractors shall only be through or with the full knowledge of the CONTRACTOR. Written communication with the OWNER will be only through or as directed by the ENGINEER.

Duties and Responsibilities. The Inspector may:

1. Review the progress schedule, list of Shop Drawing submittals and schedule of values prepared by the CONTRACTOR and consult with the ENGINEER concerning their acceptability.
2. Attend pre-construction conferences. Arrange a schedule of progress meetings and other job conferences as required in consultation with the ENGINEER and notify those expected to attend in advance. Attend meetings and maintain and circulate copies of minutes thereof.
3. Serve as the ENGINEER's liaison with the CONTRACTOR, working principally through the CONTRACTOR's superintendent and assist said superintendent in understanding the intent of the Contract Documents. Assist the ENGINEER in serving as the OWNER's liaison with the CONTRACTOR when the CONTRACTOR's operations affect the OWNER's on-site operations.
4. As requested by the ENGINEER, assist in obtaining from the OWNER additional details or information, when required at the site for proper execution of the WORK.
5. Receive and record date of receipt of Shop Drawings and samples, receive samples which are furnished at the site by the CONTRACTOR and notify the ENGINEER of their availability for examination.
6. Conduct on-site observations of the WORK in progress to assist the ENGINEER in determining if the WORK is proceeding in accordance with the Contract Documents.
7. Report to the ENGINEER whenever the Inspector believes that any WORK is unsatisfactory, faulty, or defective or does not conform to the Contract Documents, or does not meet the requirements of any inspection, tests or approval required to be made or has been damaged prior to final payment; and advise the ENGINEER when the Inspector believes WORK should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection, or approval.
8. Verify that the tests, equipment, and systems startups and operating and maintenance instruction are conducted as required by the Contract Documents and in presence of the required personnel, and that the CONTRACTOR maintains adequate records thereof; observe, record and report to the ENGINEER appropriate details relative to the test procedures and start-ups.
9. Accompany visiting inspectors representing public or other agencies having jurisdiction over the WORK, record the outcome of these inspections, and report to the ENGINEER.
10. Transmit to the CONTRACTOR the ENGINEER's clarifications and interpretations of the Contract Documents.
11. Consider and evaluate the CONTRACTOR's suggestions for modifications in the Contract Documents and report them with recommendations to the ENGINEER.
12. Maintain at the job site orderly files for correspondence, reports of job conferences, Shop Drawings and sample submittals, reproductions of original Contract Documents

including all addenda, Change Orders, field orders, additional Drawings issued subsequent to the execution of the contract, the ENGINEER's clarifications and interpretations of the Contract Documents, progress reports, and other related documents.

13. Keep a diary or log book, recording hours on the job site, weather conditions, data relative to questions of extras or deductions, list all project visitors, daily activities, decisions, observations in general, and specific observations in more detail as in the case of performing and observing test procedures. Send copies to the ENGINEER.
14. Record names, addresses, and telephone numbers of the CONTRACTOR, Subcontractors, and major suppliers of materials and equipment.
15. Furnish the ENGINEER with periodic reports as required of progress of the WORK and the CONTRACTOR's compliance with the accepted progress schedule and schedule of CONTRACTOR submittals.
16. Consult with the ENGINEER in advance of scheduled major tests, inspections, or start of important phases of the WORK.
17. Report immediately to the ENGINEER upon the occurrence of any accident.
18. Review applications for payment with the CONTRACTOR for compliance with the established procedure for their submittal and forward them with recommendations to the ENGINEER, noting particularly their relation to the schedule of values, WORK completed, and materials and equipment delivered at the site but not incorporated in the WORK.
19. During the course of the WORK, verify that certificates, maintenance and operation manuals, and other data required to be assembled and furnished by the CONTRACTOR are applicable to the items actually installed; and deliver this material to the ENGINEER for its review and forwarding to the OWNER prior to final acceptance of the WORK.
20. Before the ENGINEER prepares a Certificate of Substantial Completion/Notice of Completion, as applicable, review the CONTRACTOR's punch list items requiring completion or correction and add any items that CONTRACTOR has omitted.
21. Conduct final inspection in the company of the ENGINEER, the OWNER, and the CONTRACTOR, and prepare a final punch list of items to be completed or corrected.
22. Verify that all items on the punch list have been completed or corrected and make recommendations to the ENGINEER concerning acceptance.

Limitations of Authority. Except upon written instruction of the ENGINEER, the Inspector:

1. Shall not authorize any deviation from the Contract Documents or approve any substitute material or equipment.
2. Shall not exceed limitations on the ENGINEER's authority as set forth in the Contract Documents.
3. Shall not undertake any of the responsibilities of the CONTRACTOR, Subcontractors or CONTRACTOR's superintendent, or expedite the WORK.
4. Shall not advise on or issue directions relative to any aspect of the means, methods, techniques, sequences, or procedures of construction unless such is specifically called for in the Contract Documents.
5. Shall not advise on or issue directions as to safety precautions and programs in connection with the WORK.

9.4 CLARIFICATIONS AND INTERPRETATIONS. The ENGINEER will issue with reasonable promptness such written clarifications or interpretations of the requirements of the Contract Documents (in the form of Drawings or otherwise) as the ENGINEER may determine necessary, which shall be consistent with, or reasonably inferred from, the overall intent of the Contract Documents.

9.5 AUTHORIZED VARIATIONS IN WORK. The ENGINEER may authorize variations in the WORK from the requirements of the Contract Documents. These may be accomplished by a Field Order and will require the CONTRACTOR to perform the WORK involved in a manner that minimizes the impact to the WORK and the contract completion date. If the CONTRACTOR believes that a Field Order justifies an increase in the Contract Price or an extension of the Contract Time, the CONTRACTOR may make a claim therefor as provided in Article 11 or 12.

9.6 REJECTING DEFECTIVE WORK. The ENGINEER will have authority to reject WORK which the ENGINEER believes to be defective and will also have authority to require special inspection or testing of the WORK as provided in Paragraph 13.3G, whether or not the WORK is fabricated, installed, or completed.

9.7 CONTRACTOR SUBMITTALS, CHANGE ORDERS, AND PAYMENTS

A. In accordance with the procedures set forth in the General Requirements, the ENGINEER will review all CONTRACTOR submittals, including Shop Drawings, samples, substitutes, or "or equal" items, etc., in order to determine if the items covered by the submittals will, after installation or incorporation in the WORK, conform to the requirements of the Contract Documents and be compatible with the design concept of the completed project as a functioning whole as indicated by the Contract Documents. The ENGINEER's review will not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions or programs incident thereto.

B. In connection with the ENGINEER's responsibilities as to Change Orders, see Articles 10, 11, and 12.

C. In connection with the ENGINEER's responsibilities in respect of Applications for Payment, see Article 14.

9.8 DECISIONS ON DISPUTES

A. The ENGINEER will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the WORK thereunder. Claims, disputes, and other matters relating to the acceptability of the WORK; the interpretation of the requirements of the Contract Documents pertaining to the performance of the WORK; and those claims under Articles 11 and 12 in respect to changes in the Contract Price or Contract Time will be referred initially to the ENGINEER in writing with a request for formal decision in accordance with this paragraph, which the ENGINEER will render in writing within 30 days of receipt of the request. Written notice of each such claim, dispute, and other matter will be delivered by the CONTRACTOR to the ENGINEER promptly (but in no event later than 30 days) after the occurrence of the event giving rise thereto. Written supporting data will be submitted to the ENGINEER within 60 days after such occurrence unless the ENGINEER allows an additional period of time to ascertain more accurate data in support of the claim.

B. The rendering of a decision by the ENGINEER with respect to any such claim, dispute, or other matter (except any which have been waived by the making or acceptance of final payment as provided in Paragraph 14.12) will be a condition precedent to any exercise by the OWNER or the CONTRACTOR of such rights or remedies as either may otherwise have under the Contract Documents or by Law or Regulations in respect of any such claim, dispute, or other matter.

9.9 LIMITATION ON ENGINEER'S RESPONSIBILITIES

A. Neither the ENGINEER's authority to act under this Article or other provisions of the Contract Documents nor any decision made by the ENGINEER in good faith either to exercise or not exercise such authority shall give rise to any duty or responsibility of the ENGINEER to the CONTRACTOR, any Subcontractor, any Supplier, any surety for any of them, or any other person or organization performing any of the WORK.

B. Whenever in the Contract Documents the terms "as ordered," "as directed," "as required," "as allowed," "as reviewed," "as approved," or terms of like effect or import are used, or the adjectives "reasonable," "suitable," "acceptable," "proper," or "satisfactory" or adjectives of like effect or import are used to describe a requirement, direction, review, or judgment of the ENGINEER as to the WORK, it is intended that such requirement, direction, review, or judgment will be solely to evaluate the WORK for compliance with the requirements of the Contract Documents, and conformance with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents, unless there is a specific statement indicating otherwise. The use of any such term or adjective shall not be effective to assign to the ENGINEER any duty or authority to supervise or direct the performance of the WORK or any duty or authority to undertake responsibility contrary to the provisions of Paragraph 9.9C or 9.9D.

C. The ENGINEER will not supervise, direct, control, or have authority over or be responsible for the CONTRACTOR's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of the CONTRACTOR to comply with Laws and Regulations, applicable to the performance of the WORK. The ENGINEER will not be responsible for the CONTRACTOR's failure to perform the WORK in accordance with the Contract Documents.

D. The ENGINEER will not be responsible for the acts or omissions of the CONTRACTOR nor of any Subcontractor, supplier, or any other person or organization performing any of the WORK.

ARTICLE 10 CHANGES IN THE WORK

10.1 GENERAL

A. Without invalidating the Agreement and without notice to any surety, the OWNER may at any time or from time to time, order additions, deletions, or revisions in the WORK; these will be authorized by a written Field Order and/or a Change Order issued by the ENGINEER.

B. If the CONTRACTOR believes that it is entitled to an increase or decrease in the Contract Price, or an extension or shortening in the Contract Time as the result of a Field Order, a claim may be made as provided in Articles 11 and 12.

C. If the OWNER and CONTRACTOR agree on the value of any work, or the amount of Contract Time that should be allowed as a result of a Field Order, upon receiving written notice from the ENGINEER, the CONTRACTOR shall proceed so as to minimize the impact on and delays to the work pending the issuance of a Change Order.

D. If the OWNER and the CONTRACTOR are unable to agree as to the extent, if any, of an increase or decrease in the Contract Price or an extension or shortening of the Contract Time that should be allowed as a result of a Field Order, the ENGINEER can direct the CONTRACTOR to proceed on the basis of Time and Materials so as to minimize the impact on and delays to WORK, and a claim may be made therefor as provided in Articles 11 and 12.

E. The CONTRACTOR shall not be entitled to an increase in the Contract Price nor an extension of the Contract Time with respect to any work performed that is not required by the Contract Documents as amended, modified, supplemented by Change Order, except in the case of an emergency and except in the case of uncovering work as provided in Paragraph 13.3G.

F. The OWNER and the CONTRACTOR shall execute appropriate Change Orders covering:

1. changes in the WORK which are ordered by the OWNER pursuant to Paragraph 10.1A;
2. changes required because of acceptance of Defective WORK under Paragraph 13.7;
3. changes in the Contract Price or Contract Time which are agreed to by the parties; or
4. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by the ENGINEER pursuant to Paragraph 9.8.

G. If notice of any change is required by the provisions of any Bond to be given to a surety, the giving of any such notice will be the CONTRACTOR's responsibility, and the amount of each applicable Bond shall be adjusted accordingly.

10.2 ALLOWABLE QUANTITY VARIATIONS

A. In the event of an increase or decrease in Bid item quantity of a unit price contract, the total amount of WORK actually done or materials or equipment furnished shall be paid for according to the unit price established for such WORK under the Contract Documents, wherever such unit price has been established; provided, that an adjustment in the Contract Price may be made for changes which result in an increase or decrease in excess of 25% of the estimated quantity of any major item of the WORK. Major Item is defined as any bid item amount that is ten percent (10%) or more of the total contract amount.

B. In the event a part of the WORK is to be entirely eliminated and no lump sum or unit price is named in the Contract Documents to cover such eliminated work, the price of the eliminated work shall be agreed upon in writing by the OWNER and the CONTRACTOR. If the

OWNER and the CONTRACTOR fail to agree upon the price of the eliminated work, said price shall be determined in accordance with the provisions of Article 11.

ARTICLE 11 CHANGE OF CONTRACT PRICE

11.1 GENERAL

A. The Contract Price constitutes the total compensation payable to the CONTRACTOR for performing the WORK. All duties, responsibilities, and obligations assigned to or undertaken by the CONTRACTOR to complete the WORK shall be at its expense without change in the Contract Price.

B. The Contract Price may only be changed by a Change Order. Any claim for an increase in the Contract Price shall be based on written notice delivered by the CONTRACTOR to the ENGINEER promptly (but in no event later than 7 days) after the start of the occurrence or the event giving rise to the claim and stating the general nature of the claim. Notice of the amount of the claim with supporting data shall be delivered within 14 days after such occurrence (unless the ENGINEER allows an additional period of time to ascertain more accurate data in support of the claim) and shall be accompanied by the CONTRACTOR's written statement that the amount claimed covers all known amounts (direct, indirect, and consequential) to which the CONTRACTOR is entitled as a result of said occurrence or event. All claims for adjustment in the Contract Price shall be determined by the ENGINEER in accordance with Paragraph 9.8A if the OWNER and the CONTRACTOR cannot otherwise agree on the amount involved. No claim for an adjustment in the Contract Price will be valid if not submitted in accordance with this Paragraph 11.1B.

C. The value of any WORK covered by a Change Order or of any claim for an increase or decrease in the Contract Price shall be determined in one of the following ways:

1. Where the WORK involved is covered by unit prices contained in the Contract Documents, by application of unit prices to the quantities of the items involved.
2. By mutual acceptance of a lump sum, which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.4.
3. On the basis of the cost of WORK (determined as provided in Paragraphs 11.3) plus a CONTRACTOR's fee for overhead and profit (determined as provided in Paragraph 11.4).

11.2 COSTS RELATING TO WEATHER. The CONTRACTOR shall have no claims against the OWNER for damages for any injury to WORK, materials, or equipment, resulting from the action of the elements. If, however, in the opinion of the ENGINEER, the CONTRACTOR has made all reasonable efforts to protect the materials, equipment and work, the CONTRACTOR may be granted a reasonable extension of Contract Time to make proper repairs, renewals, and replacements of the work, materials, or equipment.

11.3 COST OF WORK (BASED ON TIME AND MATERIALS)

A. General. The term "cost of work" means the sum of all costs necessarily incurred and paid by the CONTRACTOR for labor, materials, and equipment in the proper performance of extra work. Except as otherwise may be agreed to in writing by the OWNER, such costs shall be

in amounts no higher than those prevailing in the locality of the Project; shall include only the following items, and shall not include any of the costs itemized in Paragraph 11.5 EXCLUDED COSTS.

B. Labor. The costs of labor will be the actual cost for wages prevailing for each craft or type of workers performing the extra work at the time the extra work is done, plus employer payments of payroll taxes, worker's compensation insurance, liability insurance, health and welfare, pension, vacation, apprenticeship funds, and other direct costs resulting from Federal, State or local laws, as well as assessments or benefits required by lawful collective bargaining agreements. Labor costs for equipment operators and helpers shall be paid only when such costs are not included in the invoice for equipment rental. The labor costs for forepersons shall be proportioned to all of their assigned work and only that applicable to extra work shall be paid. Non-direct labor costs including superintendence shall be considered part of the mark-up set out in paragraph 11.4.

C. Materials. The cost of materials reported shall be at invoice or lowest current price at which materials are locally available and delivered to the job in the quantities involved, plus the cost of freight, delivery and storage, subject to the following:

1. Trade discounts available to the purchaser shall be credited to the OWNER notwithstanding the fact that such discounts may not have been taken by the CONTRACTOR.
2. For materials secured by other than a direct purchase and direct billing to the purchaser, the cost shall be deemed to be the price paid to the actual supplier as determined by the ENGINEER. Mark-up except for actual costs incurred in the handling of such materials will not be allowed.
3. Payment for materials from sources owned wholly or in part by the purchaser shall not exceed the price paid by the purchaser for similar materials from said sources on extra work items or the current wholesale price for such materials delivered to the work site, whichever price is lower.
4. If in the opinion of the ENGINEER the cost of material is excessive, or the CONTRACTOR does not furnish satisfactory evidence of the cost of such material, then the cost shall be deemed to be the lowest current wholesale price for the quantity concerned delivered to the work site less trade discount. The OWNER reserves the right to furnish materials for the extra work and no claim shall be allowed by the CONTRACTOR for costs and profit on such materials.

D. Equipment. The CONTRACTOR will be paid for the use of equipment at the rental rate listed for such equipment specified in the Supplementary General Conditions. Such rental rate will be used to compute payments for equipment whether the equipment is under the CONTRACTOR's control through direct ownership, leasing, renting, or another method of acquisition. The rental rate to be applied for use of each item of equipment shall be the rate resulting in the least total cost to the OWNER for the total period of use. If it is deemed necessary by the CONTRACTOR to use equipment not listed in the publication specified in the Supplementary General Conditions, an equitable rental rate for the equipment will be established by the ENGINEER. The CONTRACTOR may furnish cost data which might assist the ENGINEER in the establishment of the rental rate.

1. All equipment shall, in the opinion of the ENGINEER, be in good working condition and suitable for the purpose for which the equipment is to be used.
2. Before construction equipment is used on the extra work, the CONTRACTOR shall plainly stencil or stamp an identifying number thereon at a conspicuous location, and shall furnish to the ENGINEER, in duplicate, a description of the equipment and its identifying number.
3. Unless otherwise specified, manufacturer's ratings and manufacturer approved modifications shall be used to classify equipment for the determination of applicable rental rates. Equipment which has no direct power unit shall be powered by a unit of at least the minimum rating recommended by the manufacturer.
4. Individual pieces of equipment or tools having a replacement value of $200 or less, whether or not consumed by use, shall be considered to be small tools and no payment will be made therefor.
5. Rental time will not be allowed while equipment is inoperative due to breakdowns.
6. Equipment Rental Rates. Unless otherwise agreed in writing, the CONTRACTOR will be paid for the use of equipment at the rental rate listed for such equipment specified in the current edition of the following reference publication: "Rental Rate Blue Book" as published by Dataquest (a company of the Dunn and Bradstreet Corporation), 1290 Ridder Park Drive, San Jose, CA 95131, telephone number (800) 227-8444.

E. Equipment on the Work Site. The rental time to be paid for equipment on the work site shall be the time the equipment is in productive operation on the extra work being performed and, in addition, shall include the time required to move the equipment to the location of the extra work and return it to the original location or to another location requiring no more time than that required to return it to its original location; except, that moving time will not be paid if the equipment is used on other than the extra work, even though located at the site of the extra work. Loading and transporting costs will be allowed, in lieu of moving time, when the equipment is moved by means other than its own power, except that no payment will be made for loading and transporting costs when the equipment is used at the site of the extra work on other than the extra work. The following shall be used in computing the rental time of equipment on the work site.

1. When hourly rates are listed, any part of an hour less than 30 minutes of operation shall be considered to be 1/2-hour of operation, and any part of an hour in excess of 30 minutes will be considered one hour of operation.
2. When daily rates are listed, any part of a day less than 4 hours operation shall be considered to be 1/2-day of operation. When owner-operated equipment is used to perform extra work to be paid for on a time and materials basis, the CONTRACTOR will be paid for the equipment and operator, as set forth in Paragraphs (3), (4), and (5), following.
3. Payment for the equipment will be made in accordance with the provisions in Paragraph 11.3D, herein.
4. Payment for the cost of labor and subsistence or travel allowance will be made at the rates paid by the CONTRACTOR to other workers operating similar equipment already on the work site, or in the absence of such labor, established by collective bargaining agreements for the type of worker and location of the extra work, whether or not the operator is actually covered by such an agreement. A labor surcharge will be added to the cost of labor described herein in accordance with the provisions of Paragraph 11.3B, herein, which surcharge shall constitute full compensation for

payments imposed by state and federal laws and all other payments made to or on behalf of workers other than actual wages.

5. To the direct cost of equipment rental and labor, computed as provided herein, will be added the allowances for equipment rental and labor as provided in Paragraph 11.4, herein.

F. Specialty Work. Specialty work is defined as that work characterized by extraordinary complexity, sophistication, or innovation or a combination of the foregoing attributes which are unique to the construction industry. The following shall apply in making estimates for payment for specialty work:

1. Any bid item of WORK to be classified as Specialty Work shall be listed as such in the Supplementary General Conditions. Specialty work shall be performed by an entity especially skilled in the work to be performed. After validation of invoices and determination of market values by the ENGINEER, invoices for specialty work based upon the current fair market value thereof may be accepted without complete itemization of labor, material, and equipment rental costs.
2. When the CONTRACTOR is required to perform work necessitating special fabrication or machining process in a fabrication or a machine shop facility away from the job site, the charges for that portion of the work performed at the off-site facility may, by agreement, be accepted as specialty work and accordingly, the invoices for the work may be accepted without detailed itemization.
3. All invoices for specialty work will be adjusted by deducting all trade discounts offered or available, whether the discounts were taken or not. In lieu of the allowances for overhead and profit specified in Paragraph 11.4, herein, an allowance of 5 percent will be added to invoices for specialty work.

G. Sureties. All work performed hereunder shall be subject to all of the provisions of the Contract Documents and the CONTRACTOR's sureties shall be bound with reference thereto as under the original Agreement. Copies of all amendments to surety bonds or supplemental surety bonds shall be submitted to the OWNER for review prior to the performance of any work hereunder.

11.4 CONTRACTOR'S FEE

A. Extra work ordered on the basis of time and materials will be paid for at the actual necessary cost as determined by the ENGINEER, plus allowances for overhead and profit. The allowance for overhead and profit shall include full compensation for superintendence, bond and insurance premiums, taxes, field office expense, extended overhead, home office overhead, and all other items of expense or cost not included in the cost of labor, materials, or equipment provided for under Paragraph 11.3. The allowance for overhead and profit will be made in accordance with the following schedule:

Actual Overhead and Profit Allowance	
Labor	15 percent
Materials	10 percent
Equipment	10 percent

To the sum of the costs and mark-ups provided for in this Article, one percent shall be added as compensation for bonding.

B. It is understood that labor, materials, and equipment may be furnished by the CONTRACTOR or by the Subcontractor on behalf of the CONTRACTOR. When all or any part of the extra work is performed by a Subcontractor, the allowance specified herein shall be applied to the labor, materials, and equipment costs of the Subcontractor, to which the CONTRACTOR may add 5 percent of the Subcontractor's total cost for the extra work. Regardless of the number of hierarchical tiers of Subcontractors, the 5 percent increase above the Subcontractor's total cost which includes the allowances for overhead and profit specified herein may be applied one time only.

11.5 EXCLUDED COSTS. The term "Cost of the Work" shall not include any of the following:

A. Payroll costs and other compensation of CONTRACTOR's officers, executives, principals (of partnership and sole proprietorships), general managers, engineers, estimators, attorneys' auditors, accountants, purchasing and contracting agents, expenditures, timekeepers, clerks and other personnel employed by CONTRACTOR whether at the site or in CONTRACTOR's principal or a branch office for general administration of the work, or not specifically covered by paragraph 11.3, all of which are to be considered administrative costs covered by the CONTRACTOR's fee.

B. Expenses of CONTRACTOR's principal and branch offices other than CONTRACTOR's office at the site.

C. Any part of CONTRACTOR's capital expenses, including interest on CONTRACTOR's capital employed for the WORK and charges against CONTRACTOR for delinquent payments.

D. Cost of premiums for all bonds and for all insurance whether or not CONTRACTOR is required by the Contract Documents to purchase and maintain the same (except for the cost of premiums covered by paragraph 11.4 above).

E. Costs due to the negligence of CONTRACTOR , any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of Defective WORK, disposal of materials or equipment wrongly supplied and making good any damage to property.

F. Other overhead or general expense costs of any kind and the cost of any item not specifically and expressly included in paragraph 11.4.

ARTICLE 12 CHANGE OF CONTRACT TIME

12.1 GENERAL

A. The Contract Time may only be changed by a Change Order. Any claim for an extension of the Contract Time (or Milestones) shall be based on written notice delivered by the CONTRACTOR to the ENGINEER promptly (but in no event later than 30 days) after the occurrence of the event giving rise to the claim and stating the general nature of the claim. Notice of the extent of the claim with supporting data shall be delivered within 60 days after such occurrence (unless the ENGINEER allows an additional period of time to ascertain more accurate data in support of the claim) and shall be accompanied by the

CONTRACTOR's written statement that the adjustment claimed is the entire adjustment to which the CONTRACTOR has reason to believe it is entitled as a result of the occurrence of said event. All claims for adjustment in the Contract Time shall be determined by the ENGINEER in accordance with Paragraph 9.8 if the OWNER and the CONTRACTOR cannot otherwise agree. No claim for an adjustment in the Contract Time will be valid if not submitted in accordance with the requirements of this Paragraph 12.1A. An increase in Contract Time does not mean that the Contractor is due an increase in Contract Price. Only compensable time extensions will result in an increase in Contract Price.

B. All time limits stated in the Contract Documents are of the essence of the Agreement.

C. Where CONTRACTOR is prevented from completing any part of the WORK within the Contract Times (or Milestones) due to delay beyond the control of CONTRACTOR, the Contract Times (or Milestones) will be extended in an amount equal to the time lost on the critical path of the project due to such delay if a claim is made therefor as provided in paragraph 12.1. Delays beyond the control of CONTRACTOR shall include, but not be limited to, acts or neglect by OWNER, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, unprecedented weather conditions or acts of God. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of CONTRACTOR.

D. Where CONTRACTOR is prevented from completing any part of the WORK within the Contract Times (or Milestones) due to delay beyond the control of both OWNER and CONTRACTOR, an extension of the Contract Times (or Milestones) in an amount equal to the time lost on the critical path of the project due to such delay shall be CONTRACTOR's sole and exclusive remedy for such delay. In no event shall the OWNER be liable to CONTRACTOR, any Subcontractor, any Supplier, or any other person or organization, or to any surety for or employee or agent of any of them, for damages arising out of or resulting from (i) delays caused by or within the control of CONTRACTOR, or (ii) delays beyond the control of both parties including but not limited to fires, floods, epidemics abnormal weather conditions, acts of God or acts or neglect by utility owners or other contractors performing other work as contemplated by Article 7.

12.2 EXTENSIONS OF TIME FOR DELAY DUE TO WEATHER. Contract Time may be extended by the ENGINEER because of delays in completion of the WORK due to unusually severe weather, provided that the CONTRACTOR shall, within 10 days of the beginning of any such delay, notify the ENGINEER in writing of the cause of delay and request an extension of Contract Time. The ENGINEER will ascertain the facts and the extent of the delay and extend the time for completing the work when, in the ENGINEER’s judgment, the findings of fact justify such an extension. Unprecedented, abnormal, or unusually severe weather will be defined as an event, or events, with a greater than 50-year recurrence interval, as determined by the National Weather Service, or equivalent State or Federal agency

ARTICLE 13 WARRANTY AND GUARANTEE; TESTS AND INSPECTIONS; CORRECTION, REMOVAL, OR ACCEPTANCE OF DEFECTIVE WORK

13.1 WARRANTY AND GUARANTEE. The CONTRACTOR warrants and guarantees to the OWNER and the ENGINEER that all work will be in accordance with the Contract Documents and will not be

defective. Prompt notice of defects known to the OWNER or ENGINEER shall be given to the CONTRACTOR. All defective work, whether or not in place, may be rejected, corrected, or accepted as provided in this Article 13.

13.2 ACCESS TO WORK. OWNER, ENGINEER, their Consultants, sub-consultants, other representatives and personnel of OWNER, independent testing laboratories and governmental agencies with jurisdictional interests will have access to the WORK at reasonable times for their observation, inspecting and testing. CONTRACTOR shall provide them proper and safe conditions for such access and advise them of CONTRACTOR's site safety procedures and programs so that they may comply therewith as applicable.

13.3 TESTS AND INSPECTIONS

A. The CONTRACTOR shall give the ENGINEER timely notice of readiness of the WORK for all required inspections, tests, or approvals, and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.

B. If Laws or Regulations of any public body having jurisdiction other than the OWNER require any WORK to specifically be inspected, tested, or approved, the CONTRACTOR shall pay all costs in connection therewith. The CONTRACTOR shall also be responsible for and shall pay all costs in connection with any inspection or testing required in connection with the OWNER's or the ENGINEER's acceptance of a Supplier of materials or equipment proposed as a substitution or (or-equal) to be incorporated in the WORK, or of materials or equipment submitted for review prior to the CONTRACTOR's purchase thereof for incorporation in the WORK. The cost of all inspections, tests, and approvals in addition to the above which are required by the Contract Documents shall be paid by the OWNER (unless otherwise specified).

C. The ENGINEER will make, or have made, such inspections and tests as the ENGINEER deems necessary to see that the WORK is being accomplished in accordance with the requirements of the Contract Documents. Unless otherwise specified in the Supplementary General Conditions, the cost of such inspection and testing will be borne by the OWNER. In the event such inspections or tests reveal non-compliance with the requirements of the Contract Documents, the CONTRACTOR shall bear the cost of corrective measures deemed necessary by the ENGINEER, as well as the cost of subsequent reinspection and retesting. Neither observations by the ENGINEER nor inspections, tests, or approvals by others shall relieve the CONTRACTOR from the CONTRACTOR's obligation to perform the WORK in accordance with the Contract Documents.

D. All inspections, tests, or approvals other than those required by Laws or Regulations of any public body having jurisdiction shall be performed by organizations acceptable to the ENGINEER and the CONTRACTOR.

E. If any WORK (including the work of others) that is to be inspected, tested, or approved is covered without written concurrence of the ENGINEER, it must, if requested by the ENGINEER, be uncovered for observation. Such uncovering shall be at the CONTRACTOR's expense unless the CONTRACTOR has given the ENGINEER timely notice of the CONTRACTOR's intention to perform such test or to cover the same and the ENGINEER has not acted with reasonable promptness in response to such notice.

F. If any WORK is covered contrary to the written request of the ENGINEER, it must, if requested by the ENGINEER, be uncovered for the ENGINEER's observation and recovered at the CONTRACTOR's expense.

G. If the ENGINEER considers it necessary or advisable that covered WORK be observed by the ENGINEER or inspected or tested by others, the CONTRACTOR, at the ENGINEER's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as the ENGINEER may require, that portion of the WORK in question, furnishing all necessary labor, material, and equipment. If it is found that such WORK is defective, the CONTRACTOR shall bear all direct, indirect, and consequential costs and damages of such uncovering, exposure, observation, inspection, and testing and of satisfactory reconstruction, including but not limited to fees and charges of engineers, attorneys, and other professionals. However, if such WORK is not found to be defective, the CONTRACTOR shall be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, and reconstruction; and, if the parties are unable to agree as to the amount or extent thereof, the CONTRACTOR may make a claim therefor as provided in Articles 11 and 12.

13.4 OWNER MAY STOP THE WORK. If the WORK is defective, or the CONTRACTOR fails to perform work in such a way that the completed WORK will conform to the Contract Documents, the OWNER may order the CONTRACTOR to stop the WORK, or any portion thereof, until the cause for such order has been eliminated; however, this right of the OWNER to stop the WORK shall not give rise to any duty on the part of the OWNER to exercise this right for the benefit of the CONTRACTOR or any other party.

13.5 CORRECTION OR REMOVAL OF DEFECTIVE WORK. If required by the ENGINEER, the CONTRACTOR shall promptly, either correct all defective work, whether or not fabricated, installed, or completed, or, if the WORK has been rejected by the ENGINEER, remove it from the site and replace it with non-defective work. The CONTRACTOR shall bear all direct, indirect and consequential costs and damages of such correction or removal, including but not limited to fees and charges of engineers, attorneys, and other professionals made necessary thereby.

13.6 ONE YEAR CORRECTION PERIOD

A. If within one year after the date of Substantial Completion or such longer period of time as may be prescribed by Laws or Regulations or by the terms of any applicable special guarantee required by the Contract Documents or by any specific provision of the Contract Documents, any work is found to be defective, the CONTRACTOR shall promptly, without cost to the OWNER and in accordance with OWNER's written notification, (i) correct such Defective WORK, or, if it has been rejected by the OWNER, remove it from the site and replace it with non-defective work, and (ii) satisfactorily correct or remove and replace any damage to other work of others resulting therefrom. If the CONTRACTOR does not promptly comply with such notification, or in an emergency where delay would cause serious risk of loss or damage, the OWNER may have the Defective WORK corrected or the rejected WORK removed and replaced, and all direct, indirect, and consequential costs and damages of such removal and replacement including but not limited to fees and charges of engineers, attorneys and other professionals will be paid by the CONTRACTOR.

B. Where Defective WORK (and damage to other WORK resulting therefrom) has been corrected, removed or replaced under this paragraph 13.6, the correction period hereunder with respect to such WORK will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

13.7 ACCEPTANCE OF DEFECTIVE WORK. If, instead of requiring correction or removal and replacement of defective work, the OWNER prefers to accept the WORK, the OWNER may do so. The CONTRACTOR shall bear all direct, indirect, and consequential costs attributable to the OWNER's evaluation of and determination to accept such defective work. If any such acceptance occurs prior to final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the WORK, and the OWNER shall be entitled to an appropriate decrease in the Contract Price.

ARTICLE 14 PAYMENTS TO CONTRACTOR AND COMPLETION

14.1 SCHEDULE OF VALUES (LUMP SUM PRICE BREAKDOWN). The schedule of values or lump sum price breakdown established as provided in the General Requirements shall serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to the ENGINEER.

14.2 UNIT PRICE BID SCHEDULE. Progress payments on account of Unit Price work will be based on the number of units completed.

14.3 APPLICATION FOR PROGRESS PAYMENT

A. Unless otherwise prescribed by law, on the 25th of each month, the CONTRACTOR shall submit to the ENGINEER for review, an Application for Payment filled out and signed by the CONTRACTOR covering the WORK completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents.

B. The Application for Payment shall identify, as a sub-total, the amount of the CONTRACTOR'S Total Earnings to Date, plus the Value of Materials Stored at the Site which have not yet been incorporated in the WORK, and less a deductive adjustment for materials installed which were not previously incorporated in the WORK, but for which payment was allowed under the provisions for payment for Materials Stored at the Site, but not yet incorporated in the WORK.

C. The Net Payment Due the CONTRACTOR shall be the above-mentioned subtotal from which shall be deducted the total amount of all previous payments made to the CONTRACTOR. Progress payments will be paid in full in accordance with Article 14 of the General Conditions until 90% of the Contract Price has been paid. The remaining 10% of the Contract Price amount may be withheld until:

1. final inspection has been made;
2. completion of the Project; and
3. acceptance of the Project by the OWNER.

D. The Value of Materials Stored at the Site shall be an amount equal to the specified percent of the value of such materials as set forth in the Supplementary General Conditions. Said

amount shall be based upon the value of all acceptable materials and equipment not incorporated in the WORK but delivered and suitably stored at the site or at another location agreed to in writing; provided, each such individual item has a value of more than $5,000.00 and will become a permanent part of the WORK. The Application for Payment shall also be accompanied by an invoice (including shipping), a certification that the materials meet the applicable contract specifications, and any evidence required by the OWNER that the materials and equipment are covered by appropriate property insurance and other arrangements to protect the OWNER's interest therein, all of which will be satisfactory to the OWNER. Payment for materials will not constitute final acceptance. It shall be the CONTRACTOR's responsibility to protect the material from damage, theft, loss, or peril while in storage. Unless otherwise prescribed by law, the Value of Materials Stored at the Site shall be paid at the invoice amount up to a maximum of 85% of the Contract Price for those items.

14.4 CONTRACTOR'S WARRANTY OF TITLE. The CONTRACTOR warrants and guarantees that title to all work, materials, and equipment covered by an Application for Payment, whether incorporated in the WORK or not, will pass to the OWNER no later than the time of payment free and clear of all liens.

14.5 REVIEW OF APPLICATIONS FOR PROGRESS PAYMENT

A. The ENGINEER will, within 7 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to the OWNER, or return the Application to the CONTRACTOR indicating in writing the ENGINEER's reasons for refusing to recommend payment. In the later case, the CONTRACTOR may make the necessary corrections and resubmit the Application. If the ENGINEER still disagrees with a portion of the Application, it will submit the Application recommending the undisputed portion of the Application to the OWNER for payment and provide reasons for recommending non-payment of the disputed amount. Thirty days after presentation of the Application for Payment with the ENGINEER's recommendation, the amount recommended will (subject to the provisions of Paragraph 14.5B) become due and when due will be paid by the OWNER to the CONTRACTOR.

B. The OWNER may refuse to make payment of the full amount recommended by the ENGINEER because claims have been made against the OWNER on account of the CONTRACTOR's performance of the WORK or Liens have been filed in connection with the WORK or there are other items entitling the OWNER to a credit against the amount recommended, but the OWNER must give the CONTRACTOR written notice within 7 days (with a copy to the ENGINEER) stating the reasons for such action.

14.6 PARTIAL UTILIZATION

A. The OWNER shall have the right to utilize or place into service any item of equipment or other usable portion of the WORK prior to completion of the WORK. Whenever the OWNER plans to exercise said right, the CONTRACTOR will be notified in writing by the OWNER, identifying the specific portion or portions of the WORK to be so utilized or otherwise placed into service.

B. It shall be understood by the CONTRACTOR that until such written notification is issued, all responsibility for care and maintenance of all of the WORK shall be borne by the CONTRACTOR. Upon issuance of said written notice of partial utilization, the OWNER will accept responsibility for the protection and maintenance of all such items or portions of the WORK described in the written notice.

C. The CONTRACTOR shall retain full responsibility for satisfactory completion of the WORK, regardless of whether a portion thereof has been partially utilized by the OWNER and the CONTRACTOR's one year correction period shall commence only after the date of Substantial Completion for the WORK.

14.7 SUBSTANTIAL COMPLETION. When the CONTRACTOR considers the WORK ready for its intended use the CONTRACTOR shall notify the OWNER and the ENGINEER in writing that the WORK is substantially complete. The CONTRACTOR will attach to this request a list of all work items that remain to be completed and a request that the ENGINEER prepare a Notice of Completion. Within a reasonable time thereafter, the OWNER, the CONTRACTOR, and the ENGINEER shall make an inspection of the WORK to determine the status of completion. If the ENGINEER does not consider the WORK substantially complete, or the list of remaining work items to be comprehensive, the ENGINEER will notify the CONTRACTOR in writing giving the reasons therefor. If the ENGINEER considers the WORK substantially complete, the ENGINEER will prepare and deliver to the OWNER, for its execution and recording, the Notice of Completion signed by the ENGINEER and CONTRACTOR, which shall fix the date of Substantial Completion.

14.8 FINAL APPLICATION FOR PAYMENT. After the CONTRACTOR has completed all of the remaining work items referred to in Paragraph 14.7 and delivered all maintenance and operating instructions, schedules, guarantees, Bonds, certificates of inspection, record as-built documents (as provided in the General Requirements) and other documents, all as required by the Contract Documents, and after the ENGINEER has indicated that the WORK is acceptable, the CONTRACTOR may make application for final payment following the procedure for progress payments. The final Application for Payment shall be accompanied by all documentation called for in the Contract Documents, together with complete and legally effective releases or waivers (satisfactory to the OWNER) of all liens arising out of or filed in connection with the WORK.

14.9 FINAL PAYMENT AND ACCEPTANCE

A. If, on the basis of the ENGINEER's observation of the WORK during construction and final inspection, and the ENGINEER's review of the final Application for Payment and accompanying documentation, all as required by the Contract Documents, the ENGINEER is satisfied that the WORK has been completed and the CONTRACTOR's other obligations under the Contract Documents have been fulfilled, the ENGINEER will, within 14 days after receipt of the final Application for Payment, indicate in writing the ENGINEER's recommendation of payment and present the Application to the OWNER for payment.

B. After acceptance of the WORK by the OWNER's governing body, the OWNER will make final payment to the CONTRACTOR of the amount remaining after deducting all prior payments and all amounts to be kept or retained under the provisions of the Contract Documents, including the following items:

1. Liquidated damages, as applicable.

2. Two times the value of outstanding items of correction work or punch list items yet uncompleted or uncorrected, as applicable. All such work shall be completed or corrected to the satisfaction of the OWNER within the time stated on the Notice of Completion, otherwise the CONTRACTOR does hereby waive any and all claims to all monies withheld by the OWNER to cover the value of all such uncompleted or uncorrected items.

14.10 RELEASE OF RETAINAGE AND OTHER DEDUCTIONS

A. After executing the necessary documents to initiate the lien period, and not more than 45 days thereafter (based on a 30-day lien filing period and 15-day processing time), the OWNER will release to the CONTRACTOR the retainage funds withheld pursuant to the Agreement, less any deductions to cover pending claims against the OWNER pursuant to Paragraph 14.5B.

B. After filing of the necessary documents to initiate the lien period, the CONTRACTOR shall have 30 days to complete any outstanding items of correction work remaining to be completed or corrected as listed on a final punch list made a part of the Notice of Completion. Upon expiration of the 45 days, referred to in Paragraph 14.10A, the amounts withheld pursuant to the provisions of Paragraph 14.9B herein, for all remaining work items will be returned to the CONTRACTOR; provided, that said work has been completed or corrected to the satisfaction of the OWNER within said 30 days. Otherwise, the CONTRACTOR does hereby waive any and all claims for all monies withheld by the OWNER under the Contract to cover 2 times the value of such remaining uncompleted or uncorrected items.

14.11 CONTRACTOR'S CONTINUING OBLIGATION. The CONTRACTOR's obligation to perform and complete the WORK in accordance with the Contract Documents shall be absolute. Neither recommendation of any progress or final payment by the ENGINEER, nor the issuance of a Notice of Completion, nor any payment by the OWNER to the CONTRACTOR under the Contract Documents, nor any use or occupancy of the WORK or any part thereof by the OWNER, nor any act of acceptance by the OWNER nor any failure to do so, nor any review of a Shop Drawing or sample submittal, will constitute an acceptance of work not in accordance with the Contract Documents or a release of the CONTRACTOR's obligation to perform the WORK in accordance with the Contract Documents.

14.12 FINAL PAYMENT TERMINATES LIABILITY OF OWNER. Final payment is defined as the last progress payment made to the CONTRACTOR for earned funds, less monies withheld as applicable, pursuant to Paragraph 14.10A. The acceptance by the CONTRACTOR of the final payment referred to in Paragraph 14.9 herein, shall be a release of the OWNER and its agents from all claims of liability to the CONTRACTOR for anything done or furnished for, or relating to, the WORK or for any act of neglect of the OWNER or of any person relating to or affecting the WORK, except demands against the OWNER for the remainder, if any, of the amounts kept or retained under the provisions of Paragraph 14.9 herein; and excepting pending, unresolved claims filed prior to the date of the Notice of Completion.

ARTICLE 15 SUSPENSION OF WORK AND TERMINATION

15.1 SUSPENSION OF WORK BY OWNER. The OWNER, acting through the ENGINEER, may, at any time and without cause, suspend the WORK or any portion thereof for a period of not more than 90 days by notice in writing to the CONTRACTOR. The CONTRACTOR shall resume the WORK on receipt from the ENGINEER of a notice of resumption of work. The CONTRACTOR shall be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly attributable to any suspension if the CONTRACTOR makes an approved claim therefor as provided in Articles 11 and 12.

15.2 TERMINATION OF AGREEMENT BY OWNER (CONTRACTOR DEFAULT)

A. In the event of default by the CONTRACTOR, the OWNER may give 10 days written notice to the CONTRACTOR of OWNER's intent to terminate the Agreement and provide the CONTRACTOR an opportunity to remedy the conditions constituting the default. It shall be considered a default by the CONTRACTOR whenever CONTRACTOR shall: (1) declare bankruptcy, become insolvent, or assign its assets for the benefit of its creditors; (2) fail to provide materials or quality of work meeting the requirements of the Contract Documents; (3) disregard or violate provisions of the Contract Documents or ENGINEER's instructions; (4) fail to prosecute the WORK according to the approved progress schedule; or, (5) fail to provide a qualified superintendent, competent workers, or materials or equipment meeting the requirements of the Contract Documents. If the CONTRACTOR fails to remedy the conditions constituting default within the time allowed, the OWNER may then issue the Notice of Termination.

B. In the event the Agreement is terminated in accordance with Paragraph 15.2A, herein, the OWNER may take possession of the WORK and may complete the WORK by whatever method or means the OWNER may select. The cost of completing the WORK shall be deducted from the balance which would have been due the CONTRACTOR had the Agreement not been terminated and the WORK completed in accordance with the Contract Documents. If such cost exceeds the balance which would have been due, the CONTRACTOR shall pay the excess amount to the OWNER. If such cost is less than the balance which would have been due, the CONTRACTOR shall not have claim to the difference.

15.3 TERMINATION OF AGREEMENT BY OWNER (FOR CONVENIENCE). The OWNER may terminate the Agreement at any time if it is found that reasons beyond the control of either the OWNER or CONTRACTOR make it impossible or against the OWNER's interests to complete the WORK. In such a case, the CONTRACTOR shall have no claims against the OWNER except: (1) for the value of work performed up to the date the Agreement is terminated; and, (2) for the cost of materials and equipment on hand, in transit, or on definite commitment, as of the date the Agreement is terminated which would be needed in the WORK and which meet the requirements of the Contract Documents. The value of work performed and the cost of materials and equipment delivered to the site, as mentioned above, shall be determined by the ENGINEER in accordance with the procedure prescribed for the making of the final application for payment and payment under Paragraphs 14.8 and 14.9.

15.4 TERMINATION OF AGREEMENT BY CONTRACTOR. The CONTRACTOR may terminate the Agreement upon 10 days written notice to the OWNER, whenever: 1) the WORK has been suspended under the provisions of Paragraph 15.1, herein, for more than 90 consecutive days through no fault or negligence of the CONTRACTOR, and notice to resume work or to terminate the

Agreement has not been received from the OWNER within this time period; or, 2) the OWNER should fail to pay the CONTRACTOR any monies due him in accordance with the terms of the Contract Documents and within 60 days after presentation to the OWNER by the CONTRACTOR of a request therefor, unless within said 10-day period the OWNER shall have remedied the condition upon which the payment delay was based. In the event of such termination, the CONTRACTOR shall have no claims against the OWNER except for those claims specifically enumerated in Paragraph 15.3, herein, and as determined in accordance with the requirements of said paragraph.

ARTICLE 16 MISCELLANEOUS

16.1 GIVING NOTICE. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or if delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

16.2 RIGHTS IN AND USE OF MATERIALS FOUND ON THE WORK

A. The CONTRACTOR may use on the Project, with ENGINEER's approval, such stone, gravel, sand, or other material determined suitable by the ENGINEER, as may be found in the excavation. The CONTRACTOR will be paid for the excavation of such material at the corresponding contract unit price. No additional payment will be made for utilizing the material from excavation as borrow, or select borrow.

B. The CONTRACTOR shall replace, at its own expense, with other acceptable material, all of that portion of the excavated material so removed and used which was needed for use on the project. No charge for the materials so used will be made against the CONTRACTOR except that the CONTRACTOR shall be responsible for payment of any royalties required.

C. The CONTRACTOR shall not excavate or remove any material from within the Project location which is not within the grading limits, as indicated by the slope and grade lines, without written authorization from the ENGINEER.

D. In the event the CONTRACTOR has processed materials from OWNER-furnished sources in excess of the quantities required for performance of this contract, including any waste material produced as a by-product, the CBJ may retain possession of such materials without obligation to reimburse the CONTRACTOR for the cost of their production. When such materials are in a stockpile, the ENGINEER may require: That it remain in stockpile; the CONTRACTOR level such stockpile(s); or that the CONTRACTOR remove such materials and restore the premises to a satisfactory condition at the CONTRACTOR's expense. This provision shall not preclude the CBJ from arranging with the CONTRACTOR to produce material over and above the contract needs, payment for which shall be by written agreement between the CBJ and the CONTRACTOR.

E. Unless otherwise provided, the material from any existing old structure may be used temporarily by the CONTRACTOR in the erection of the new structure. Such material shall not be cut or otherwise damaged except with the approval of the ENGINEER.

16.3 RIGHT TO AUDIT. If the CONTRACTOR submits a claim to the OWNER for additional compensation, the OWNER shall have the right, as a condition to considering the claim, and as a basis for evaluation of the claim, and until the claim has been settled, to audit the CONTRACTOR's books to the extent they are relevant. This right shall include the right to examine books, records, documents, and other evidence and accounting procedures and practices, sufficient to discover and verify all direct and indirect costs of whatever nature claimed to have been incurred or anticipated to be incurred and for which the claim has been submitted. The right to audit shall include the right to inspect the CONTRACTOR's plants, or such parts thereof, as may be or have been engaged in the performance of the WORK. The CONTRACTOR further agrees that the right to audit encompasses all subcontracts and is binding upon Subcontractors. The rights to examine and inspect herein provided for shall be exercisable through such representatives as the OWNER deems desirable during the CONTRACTOR's normal business hours at the office of the CONTRACTOR. The CONTRACTOR shall make available to the OWNER for auditing, all relevant accounting records and documents, and other financial data, and upon request, shall submit true copies of requested records to the OWNER.

16.4 ARCHEOLOGICAL OR HISTORICAL DISCOVERIES. When the CONTRACTOR's operation encounters prehistoric artifacts, burials, remains of dwelling sites, paleontological remains, such as shell heaps, land or sea mammal bones or tusks, or other items of historical significance, the CONTRACTOR shall cease operations immediately and notify the ENGINEER. No artifacts or specimens shall be further disturbed or removed from the ground and no further operations shall be performed at the site until so directed. Should the ENGINEER order suspension of the CONTRACTOR's operations in order to protect an archaeological or historical finding, or order the CONTRACTOR to perform extra work, such order(s) shall be covered by an appropriate contract change document.

16.5 CONSTRUCTION OVER OR ADJACENT TO NAVIGABLE WATERS. All work over, on, or adjacent to navigable waters shall be so conducted that free navigation of the waterways will not be interfered with and the existing navigable depths will not be impaired, except as allowed by permit issued the U.S. Coast Guard and/or the U.S. Army Corps of Engineers, as applicable.

16.6 GRATUITY AND CONFLICT OF INTEREST. The CONTRACTOR agrees to not extend any loan, gratuity or gift of money of any form whatsoever to any employee or elected official of the OWNER, nor will the CONTRACTOR rent or purchase any equipment or materials from any employee or elected official of the OWNER, or to the best of the CONTRACTOR’s knowledge, from any agent of any employee or elected official of the OWNER. Before final payment, the CONTRACTOR shall execute and furnish the OWNER an affidavit certifying that the CONTRACTOR has complied with the above provisions of the contract.

16.7 SUITS OF LAW CONCERNING THE WORK

A. Should a suit of law be entered into, either by the CONTRACTOR (or the CONTRACTOR's surety) against the OWNER, or by the OWNER against the CONTRACTOR (or the CONTRACTOR's surety), the suit of law shall be tried in the First Judicial District of Alaska.

B. If one of the questions at issue is the satisfactory performance of the work by the CONTRACTOR and should the appropriate court of law judge the work of the CONTRACTOR to be unsatisfactory, then the CONTRACTOR (or the CONTRACTOR's

surety) shall reimburse the OWNER for all legal and all other expenses (as may be allowed and set by the court) incurred by the OWNER because of the suit of the law and, further, it is agreed that the OWNER may deduct such expense from any sum or sums then, or any that become due the CONTRACTOR under the contract.

16.8 CERTIFIED PAYROLLS

A. All CONTRACTORs or Subcontractor who perform work on a public construction contract for the OWNER shall file a certified payroll with the Alaska Department of Labor before Friday of each week that covers the preceding week (Section 14-2-4 ACLA 1949; am Section 4 ch 142 SLA 1972).

B. In lieu of submitting the State payroll form, the CONTRACTOR's standard payroll form may be submitted, provided it contains the information required by AS 36.05.040 and a statement that the CONTRACTOR is complying with AS 36.10.010.

C. A contractor or subcontractor, who performs work on public construction in the State, as defined by AS 36.95.010(3), shall pay not less than the current prevailing rate of wages as issued by the Alaska Department of Labor before the end of the pay period. (AS 36.05.010).

16.9 PREVAILING WAGE RATES

A. Wage rates for Laborers and Mechanics on Public Contracts, AS 36.05.070. The CONTRACTOR, or Subcontractors, shall pay all employees unconditionally and not less than once a week. Wages may not be less than those stated in Paragraph 16.8C, regardless of the contractual relationship between the CONTRACTOR or Subcontractors and laborers, mechanics, or field surveyors. The scale of wages to be paid shall be posted by the CONTRACTOR in a prominent, easily accessible place at the site of the WORK.

B. Failure to Pay Agreed Wages, AS 36.05.080. If it is found that a laborer, mechanic, or field surveyor employed by the CONTRACTOR or Subcontractor has been, or is being, paid a rate or wages less than the established rate, the OWNER may, by written notice, terminate the CONTRACTOR or Subcontractors right to proceed with the work. The OWNER may prosecute the work to completion by contract or otherwise, and the CONTRACTOR and sureties will be held liable to the OWNER for excess costs for completing the WORK. (Section 2 ch 52 SLA 1959).

C. Listing Contractor's Who Violate Contracts, AS 36.05.090. In addition, a list giving the names of persons who have disregarded the rights of their employees shall be distributed to all departments of State government and all political subdivisions. No person appearing on this list, and no firm, corporation, partnership or association in which the person has an interest, may work as a CONTRACTOR or Subcontractor on a public construction contract for the State, or a political subdivision of the state, until three years after the date of publication of the list. (Section 3 ch 52 SLA 1959; am Section 9 ch 142 SLA).

16.10 EMPLOYMENT REFERENCE. Workers employed in the execution of the contract by the CONTRACTOR or by any Subcontractor under this contract shall not be required or permitted to labor more than 8 hours a day or 40 hours per week in violation of the provisions of the Alaska Wage and Hour Act, Section 23.10.060.

16.11 COST REDUCTION INCENTIVE

A. At any time within 45 days after the date of the Notice of Award, the CONTRACTOR may submit to the ENGINEER in writing, proposals for modifying the plans, specifications, or

other requirements of this contract for the sole purpose of reducing the total cost of construction. The cost reduction proposal shall not impair in any manner the essential functions or characteristics of the project, including but not limited to, service life, economy of operation, ease of maintenance, desired appearance or design and safety standards.

B. The cost reduction proposal shall contain the following information:

1. Description of both the existing contract requirements for performing the WORK and the proposed changes.
2. An itemization of the contract requirements that must be changed if the proposal is adopted.
3. A detailed estimate of the time required and the cost of performing the WORK under both the existing contract and the proposed change.
4. A statement of the date by which the CONTRACTOR must receive the decision from the OWNER on the cost reduction proposal.
5. The contract items of WORK effected by the proposed changes including any quantity variations.
6. A description and estimate of costs the OWNER may incur in implementing the proposed changes, such as test and evaluation and operating and support costs.
7. A prediction of any effects the proposed change would have on future operations and maintenance costs to the OWNER.

C. The provisions of this section shall not be construed to require the OWNER to consider any cost reduction proposal which may be submitted; nor will the OWNER be liable to the CONTRACTOR for failure to accept or act upon any cost reduction proposal submitted, or for delays to the work attributable to the consideration or implementation of any such proposal.

D. If a cost reduction proposal is similar to a change in the plans or specifications for the project under consideration by the OWNER at the time the proposal is submitted, the OWNER will not accept such proposal and reserves the right to make such changes without compensation to the CONTRACTOR under the provisions of this section.

E. The CONTRACTOR shall continue to perform the work in accordance with the requirements of the contract until an executed Change Order incorporating the cost reduction proposal has been issued. If any executed Change Order has not been issued by the date upon which the CONTRACTOR's cost reduction proposal specifies that a decision should be made by the OWNER, in writing, the cost reduction proposal shall be considered rejected.

F. The OWNER, shall be the sole judge of the acceptability of a cost reduction proposal and of the estimated net savings in Contract Time and construction costs resulting from the adoption of all or any part of such proposal. Should the CONTRACTOR disagree with OWNER's decision on the cost reduction proposal, there is no further consideration. The OWNER reserves the right to make final determination.

G. If the CONTRACTOR's cost reduction proposal is accepted in whole or in part, such acceptance will be made by a contract Change Order, which specifically states that the change is executed pursuant to this cost reduction proposal section. Such Change Order shall incorporate the changes in the plans and specifications which are necessary to permit

the cost reduction proposal or such part of it as has been accepted to be put into effect and shall include any conditions upon which the OWNER's approval is based, if such approval is conditional. The Change Order shall also describe the estimated net savings in the cost of performing the work attributable to the cost reduction proposal, and shall further provide that the contract cost be adjusted by crediting the OWNER with the estimated net savings amount.

H. Acceptance of the cost reduction proposal and performance of the work does not extend the time of completion of the contract, unless specifically provided in the Change Order authorizing the use of the submitted proposal. Should the adoption of the cost reduction proposal result in a Contract Time savings, the total Contract Time shall be reduced by an amount equal to the time savings realized.

I. The amount specified to the CONTRACTOR in the Change Order accepted in the cost reduction proposal shall constitute full compensation for the performance of WORK. No claims for additional costs as a result of the changes specified in the cost reduction proposal shall be allowed.

J. The OWNER reserves the right to adopt and utilize any approved cost reduction proposal for general use on any contract administered when it is determined suitable for such application. Cost reduction proposals identical, similar, or previously submitted will not be accepted for consideration if acceptance and compensation has previously been approved. The OWNER reserves the right to use all or part of any cost reduction proposal without obligation or compensation of any kind to the CONTRACTOR.

K. The CONTRACTOR shall bear the costs, if any, to revise all bonds and insurance requirements for the project, to include the cost reduction WORK.

END OF SECTION

SECTION 00800 - SUPPLEMENTARY GENERAL CONDITIONS

GENERAL. These Supplementary General Conditions make additions, deletions, or revisions to the General Conditions as indicated herein. All provisions which are not so added, deleted, or revised remain in full force and effect. Terms used in these Supplementary General Conditions which are defined in the General Conditions have the meanings assigned to them in the General Conditions.

SGC 1 DEFINITIONS. ***Remove*** the definition for Contract Documents and ***replace*** with the following:

Contract Documents – The Table of Contents, Notice Inviting Bids, Instructions to Bidders, Bid Forms (including the Bid, Bid Schedule(s), Subcontractor Report, Bid Bond, and all required certificates and affidavits), Agreement, Performance Bond, Payment Bond, General Conditions, Supplementary General Conditions, Alaska Labor Standards, Reporting, and Prevailing Wage Rate Determination, Special Provisions, Standard Specifications, Technical Specifications, Drawings, Permits, and all Addenda, and Change Orders executed pursuant to the provisions of the Contract Documents.

SGC 2.2 COPIES OF DOCUMENTS. ***Add*** the following:

The OWNER shall furnish to the CONTRACTOR up to ten (10) copies of the Contract Documents which will include bound reduced Drawings, together with up to five (5) sets of full-scale Drawings. The CBJ Contracts Office shall contact the CONTRACTOR after issuance of Notice of Intent to Award to determine how many copies are needed. Additional quantities of the Contract Documents and full-scale Drawings will be furnished at reproduction cost.

SGC 3.2 ORDER OF PRECEDENCE OF CONTRACT DOCUMENTS. ***Remove*** No. 12. Technical Specifications and No. 13. Drawings, and ***add*** the following:

12. Special Provisions Section
13. Standard Specifications for Civil Engineering Projects and Subdivision Improvements December 2003 Edition with current Errata Sheets.
14. Drawings.

SGC 4.2 PHYSICAL CONDITIONS - SUBSURFACE AND EXISTING STRUCTURES. ***Add*** the following:

C. In the preparation of the Contract Documents, the Engineer of Record has relied upon field measurements and visual inspection of the existing structures and surface conditions.

Add the following SGC 4.6**:**

SGC - 4.6 USE OF THE CBJ/STATE LEMON CREEK GRAVEL PIT. ***Add*** the following.

The CBJ/State Lemon Creek Gravel Pit is available for this Project.

SGC - 4.6 USE OF THE CBJ/STATE LEMON CREEK GRAVEL PIT. ***Delete*** paragraph C., and ***replace*** with the following paragraph C.

Wherever the land use permits are referenced, ***delete*** and ***replace with*** the permit number USE2008-00061.

C. CONTRACTORs deciding to use material from the CBJ/State pit shall provide an Individual

Mining Plan prepared by a professional engineer registered in the State of Alaska. The Individual Mining Plan must be reviewed and approved by the CBJ, prior to commencing operations within the pit. CONTRACTORs shall also secure a Performance Bond to ensure compliance with contract provisions, including any Individual Mining Plan stipulations. The bond shall remain in full force and effect until a release is obtained from the CBJ. A $10,000 cash processing restoration bond is required prior to screening or primary crushing operations.

Add the following paragraph:

J. Contractors choosing to mine material from CBJ material sources are also subject to the conditions contained in each site's Multi Sector General Permit for Stormwater Discharges associated with industrial activities (MSGP) and the Storm Water Pollution Prevention Plan (SWPPP).

Add the following SGC 4.7**:**

SGC 4.7 USE OF CITY/STATE STABLER'S POINT ROCK QUARRY. ***Add*** the following:

The CBJ/State Stabler's Point Rock Quarry is available for this Project.

Add the following SGC 4.7**:**

SGC 4.7 USE OF CITY/STATE STABLER'S POINT ROCK QUARRY.

A. On City and Borough of Juneau construction projects, the CBJ may make unclassified material available to the CONTRACTOR, from the City/State Stabler's Point rock quarry, at a rate less than charged other customers. The CONTRACTOR is not required to use material from the CBJ/State quarry and the CBJ makes no guarantee as to the quantity or quality of material. For this Project, the price shall be $1.60 per ton.

B. The CONTRACTOR proposing to use material from the City/State quarry is required to be in good standing for all amounts owed to the CBJ, for previous gravel operations, prior to submitting a mining plan for approval. The CONTRACTOR using the quarry must comply with Conditional Use Permit USE2011-00017. Failure to meet these requirements, if so subject, shall be sufficient reason to deny use of the City/State Stabler's Point rock quarry as a rock source. To determine if your company is subject to these requirements, contact the CBJ Engineering Department, Rock Quarry Management, at 907-586-0883.

C. The CONTRACTOR deciding to use material from the CBJ/State Stabler's Point rock quarry shall provide an Individual Mining Plan prepared by a professional engineer registered in the State of Alaska. The Individual Mining Plan must be reviewed and approved by the CBJ, prior to commencing operations with the pit. The CONTRACTOR shall also secure a Performance Bond to ensure compliance with contract provisions, including any Individual Mining Plan stipulations. The bond shall remain in full force and effect until a release is obtained from the CBJ. A $10,000.00 cash processing restoration bond is required prior to screening or primary crushing operations.

D. The CONTRACTOR must submit an Individual Mining Plan that is in compliance with Conditional Use Permit No. USE 2011-00017 for rock extraction with the City/State Stabler's Point rock quarry. The CONTRACTOR must contact the CBJ Engineering Department for conditions for the extraction.

E. The CONTRACTOR shall account for placement of materials removed from the quarry. The CBJ

may require the CONTRACTOR to cross-check weight tickets, submit to an audit, or participate in other measures required by the CBJ to ensure accountability. Unprocessed overburden removed from the quarry will not be weighed. All other material mined will be measured by truck load or survey. The CONTRACTOR will be responsible for loading, screening and sorting their own material. Primary screening may be allowed in the quarry. Primary crushing may be allowed according to the conditions of the Conditional Use Permit No USE2011-00017.

F. The rock quarry overhead charge shall be paid to the CBJ within 60 days after removing material from the quarry and prior to requesting and/or receiving final payment. Upon completion of the excavation the CONTRACTOR shall notify the CBJ, in writing, in sufficient time to perform a field-compliance examination prior to vacating the quarry. Any significant deviation from the stipulations of the Individual Mining Plan identified during the field inspection shall be corrected by the CONTRACTOR prior to release of the bond. A signed release from CBJ will be required prior to releasing the CONTRACTOR's bond.

G. The City/State Stabler's Point rock quarry is a by-project operation. The hours of operation are stipulated in Conditional Use Permit No. USE2011-00017.

H. All Contractors/Equipment Operators using the CBJ/State Stabler's Point rock quarry shall be in compliance with Federal Mine Safety and Health Administration regulations for quarry and gravel operations.

I. Contractors choosing to mine material from CBJ material sources are also subject to the conditions contained in each site's Multi Sector General Permit for Stormwater Discharges associated with industrial activities (MSGP) and the Storm Water Pollution Prevention Plan (SWPPP).

SGC 5.1 PERFORMANCE, PAYMENT, AND OTHER BONDS. The Contractor shall furnish Performance and Payment Bonds in the amount of 100% of the Bid.

SGC 5.2 INSURANCE AMOUNTS. The limits of liability for the insurance required by Paragraph 5.2 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations**.** All certificates of insurance supplied to the OWNER shall state that the OWNER is named as **"Additional Insured for any and all work performed for the City & Borough of Juneau."** The Additional Insured requirement does not apply to Workers Compensation insurance. NOTE: This requirement has changed. The OWNER no longer requires certificates of insurance referencing project names and contract numbers.

A. Workers' Compensation: (under Paragraph 5.2C.1 of the General Conditions) as in accordance with AS 23.30.045: (Additional Insured requirements not necessary for Workers' Compensation coverage.)

1. State: Statutory
2. Applicable Federal (e.g., Longshore): Statutory

Note: If the WORK called for in the Contract Documents involves work in or on any navigable waters, the CONTRACTOR shall provide Workers' Compensation coverage which shall include coverage under the Longshore and Harbor Workers' Compensation Act, the Jones Act, and any other coverage required under Federal or State laws pertaining to workers in or on navigable waters.

3. Employers Liability

Bodily Injury by Accident:	$100,000.00	Each Accident
Bodily Injury by Disease:	$100,000.00	Each Employee
Bodily Injury by Disease:	$500,000.00	Policy Limit

a. CONTRACTOR agrees to waive all rights of subrogation against the OWNER for WORK performed under contract.

b. If CONTRACTOR directly utilizes labor outside of the State of Alaska in the prosecution of the WORK, "Other States" endorsement shall be required as a condition of the contract.

B. Commercial General Liability: (under Paragraph 5.2C.2 of the General Conditions):

1.	General Policy	$1,000,000.00	Each Occurrence
		$2,000,000.00	Annual Aggregate
2.	Products/Completed Operations	$1,000,000.00	Each Occurrence
		$2,000,000.00	Annual Aggregate
3.	Personal Injury	$1,000,000.00	Each Occurrence

C. Commercial Automobile Liability: (under Paragraph 5.2C.3 of the General Conditions) including Owned, Hired, and Non-Owned Vehicles:

Combined Single Limit, Bodily Injury and Property Damage $1,000,000.00

The CONTRACTOR shall require each Subcontractor similarly to provide Commercial Automobile Liability Insurance for all of the latter's employees to be engaged in such WORK unless such employees are covered by the protection afforded by the CONTRACTOR's Commercial Automobile Liability Insurance.

D. BUILDERS RISK is not required for this project.

E. Policies shall also specify insurance provided by CONTRACTOR will be considered primary and not contributory to any other insurance available to the OWNER.

F. Should any of the policies described above be cancelled before the expiration date thereof, notice will be delivered in accordance with the policy provisions.

SGC 6.5 CONCERNING SUBCONTRACTORS, SUPPLIERS, AND OTHERS. ***Add*** the following:

The CONTRACTOR shall perform not less than 40% of the WORK with its own forces (i.e., without subcontracting). The 40% requirement shall be understood to mean that the CONTRACTOR shall perform, with its own organization, WORK amounting to at least 40% of the original contract amount. The 40% requirement will be calculated based upon the total of the subcontract amounts submitted for Contract Award, and any other information requested by the OWNER from the apparent low Bidder.

SGC 6.5 CONCERNING SUBCONTRACTORS, SUPPLIERS, AND OTHERS, *Add* the following paragraph:

C. CONTRACTOR must pay Subcontractors and/or Suppliers within 30 days of receiving payment from the OWNER, if that payment was made for Work performed by the Subcontractor and/or materials received. Failure to pay Subcontractors within 30 days of receiving payment from which Subcontractor and/or Supplier is to be paid may result in the OWNER initiating debarment proceedings as prescribed in the City and Borough of Juneau Purchasing Code.

SGC 6.6 PERMITS *Add* the following paragraph:

D. Contractor is responsible for obtaining a Hot Works permit from the CBJ Permit Center, if performing work which requires such a permit. Work requiring a Hot Works Permit includes but is not limited to the following: cutting, welding, Thermit welding, brazing, soldering, grinding, thermal spraying, thawing pipe, installation of torch-applied roof systems or any other similar activity.

SGC 14.3 APPLICATION FOR PROGRESS PAYMENT. Paragraph D.

D. The Value of Materials Stored at the site shall be an amount equal to 85%.

SGC 14.9 FINAL PAYMENT AND ACCEPTANCE. ***Add*** the following paragraph:

C. Prior to the final payment the CONTRACTOR shall contact the Alaska Department of Labor and Workforce Development (ADOL) and provide the OWNER with clearance from the ADOL for the CONTRACTOR and all Subcontractors that have worked on the Project. This clearance shall indicate that all Employment Security Taxes have been paid. A sample form for this purpose is at the end of this section. The CONTRACTOR shall also submit a "NOTICE OF COMPLETION OF PUBLIC WORKS" signed by ADOL.

SGC 16.8 CERTIFIED PAYROLLS. *Change* paragraph A. to read:

A. All CONTRACTORs or Subcontractors who perform work on a public construction contract for the OWNER shall file a certified payroll with Alaska Department of Labor. See Section 00830 - Alaska Labor Standards, Reporting, and Prevailing Wage Rate Determination.

Add the following SGC 16.12.

SGC 16.12 EQUAL EMPLOYMENT OPPORTUNITY (EEO)

The CONTRACTOR may not discriminate against any employee or applicant for employment because of race, religion, color, national origin, age, disability, sex, marital status, changes in marital status, pregnancy or parenthood. The CONTRACTOR shall post a notice setting out the provisions of this paragraph in a conspicuous place available to employees and applicants for employment.

The CONTRACTOR and each Subcontractor shall state in all solicitations and advertisements for employees to work on this Project, that it is an Equal Opportunity Employer and that all qualified applicants will receive consideration for employment without regard to race, religion, color, national origin, age, disability, sex, marital status, changes in marital status, pregnancy or parenthood.

The CONTRACTOR shall include the provisions of this EEO article in every contract relating to this Project and shall require the inclusion of these provisions in every agreement entered into for this Project, so that those provisions will be binding upon the CONTRACTOR and each Subcontractor.

Add the following SGC 17**:**

SGC 17 GENERAL INFORMATION. This Project is currently funded by the City and Borough of Juneau, Alaska Water Fund, CIP Bond Interest, Area Wide Sales Tax, Water Extension Fund, and Temporary Sales Tax.

Employment Security Tax Clearance

Date: _____

To: Alaska Department of Labor
Juneau Field Tax Office
PH 907-465-2787
FAX 907-465-2374

From: _____

Subject: Main Street, Second to Fifth Street Improvements
Contract No. E12-167

Timeframe of Contract _____

Please advise whether or not clearance is granted for the following CONTRACTOR or Subcontractor:
(List only one CONTRACTOR or Subcontractor per page.)

_____ _____
Name Address

Per AS 23.20.265 of the Alaska Employment Security Act, this request is for tax liability clearance and release to make final payment for WORK performed under the subject contract. Please send your response to:

Jennifer Mannix, Contract Administrator
Engineering Department
155 S. Seward Street
Juneau, Alaska 99801
FAX 907-586-4530

( ) Tax Clearance is granted.
( ) Tax Clearance is NOT granted.

Remarks: _____

_____ _____
Signature Date

_____
Title

END OF SECTION

SECTION 00830 - ALASKA LABOR STANDARDS, REPORTING, AND PREVAILING WAGE RATE DETERMINATION

State of Alaska, Department of Labor, Laborers' and Mechanics' Minimum Rates of Pay, AS 36.05.010 and AS 36.05.050, Wage and Hour Administration Pamphlet No. 600, the latest edition published by the State of Alaska, Department of Labor inclusive, are made a part of this contract by reference.

The CONTRACTOR is responsible for contacting the Alaska Department of Labor to determine compliance with current regulations.

Correspondence regarding Title 36 requirements may be submitted electronically or paper copies can be submitted by mail. To submit Title 36 documents electronically, go to https://myalaska.state.ak.us/home/app. If filing electronically, submit certified payrolls to ADOL at the website above and email a copy of all certified payrolls to Jennifer Mannix at the email address below. If Contractor elects to submit paper copies, they should be submitted to the physical addresses below.

Within 10 Days of "Notice of Award/Notice to Proceed" make a list of **all** Subcontractors. Include their name, address, phone, estimated subcontract amount, and estimated start and finish dates. Send this list to the Wage and Hour Section (contact information below).

Certified Payrolls must be submitted every two weeks. Before the second Friday, each CONTRACTOR and Subcontractor must file Certified Payrolls with Statements of Compliance for the previous two weeks. Indicate ***"Start"*** on your first payroll, and ***"Final"*** on your last payroll for this Project.

As part of the **final payment request package,** CONTRACTOR must submit a "NOTICE OF COMPLETION OF PUBLIC WORKS" form signed by ADOL personnel.

Contact Information:

Wage and Hour Section
State of Alaska
Department of Labor and Workforce Development
Labor Standards and Safety Division
Wage and Hour Administration
P.O. Box 11149
Juneau, AK 99811-1149
907-465-4842
http://labor.state.ak.us/lss/home.htm

and

Jennifer Mannix, Contract Administrator
City and Borough of Juneau
155 S. Seward Street
Juneau, AK 99801
(907) 586-0873
jennifer_mannix@ci.juneau.ak.us

END OF SECTION

SECTION 00853 - STANDARD DETAILS

PART 1 - GENERAL

1.1 STANDARD DETAILS

A. Whenever references are made to the Standard Drawings or Standard Details in these plans or Specifications the intent is to refer to the current City and Borough of Juneau Standard Details (currently the 3rd Edition dated April 2000), copies of which may be purchased from the CBJ Engineering Department.

B. City and Borough of Juneau Standard Details which specifically apply to this Project include but are not limited to the following:

LIST OF DETAILS

STANDARD DETAIL NO.	NAME OF DETAIL
105	DRIVEWAY CURBCUT
106	ACCESSIBLE SIDEWALK RAMP
111A	CONCRETE SIDEWALK, TYPE I CURB & GUTTER
111B	CURB & GUTTER TYPES II & III
113	UNDERDRAIN
125	PAVEMENT RESURFACING AND TRENCH DETAIL
127A	SIGN ASSEMBLY SINGLE-POST
127B	SIGN ASSEMBLY DOUBLE-POST
203	SANITARY SEWER MANHOLE TYPES I & II
205	MANHOLE HEIGHTS
206A	STANDARD MANHOLE COVER & FRAME
209	MANHOLE CONNECTION DETAILS
213	SANITARY SEWER SERVICE LATERAL
218	COUPLING FOR DISSIMILAR SANITARY SEWER PIPES
303	STORM DRAIN MANHOLE TYPES I & II
304A	TYPE III CATCH BASIN
304B	TYPE IV CATCH BASIN
306	STORM DRAIN MANHOLE COVER & FRAME
307	STORM DRAIN SERVICE LATERAL
403	FIRE HYDRANT
406A	WATER SERVICE
406B	DUCTILE IRON WATER SERVICE
407	MAINLINE VALVE
412	RIGID INSULATION
414A	DOWNWARD CONCAVE THRUST BLOCK
414B	HORIZONTAL AND CONCAVE UPWARD THRUST BLOCKS

PART 2 - PRODUCTS (Not Used)

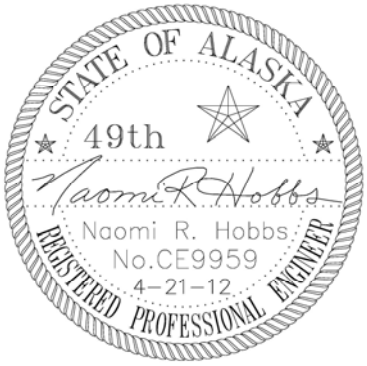
PART 3 - EXECUTION (Not Used)

END OF SECTION

PROJECT MANUAL

MAIN STREET, SECOND TO FIFTH STREET IMPROVEMENTS
Juneau, Alaska

CBJ Contract No. E12-167



DOWL HKM

5368 Commercial Boulevard
Juneau, AK 99801
(907) 780-3533
FAX (907) 780-3535
nhobbs@dowlhkm.com

SPECIAL PROVISIONS

The Standard Specifications for Civil Engineering Projects and Subdivision Improvements December 2003 Edition, with twelve Errata Sheets, as published by the City and Borough of Juneau, is part of these Contract Documents and shall pertain to all phases of the contract. The Standard Specifications for Civil Engineering Projects and Subdivision Improvements December 2003 Edition is available for a fee from the City and Borough of Juneau Engineering Contracts Office, (907) 586-0490, or you may view them online at: www.juneau.org/engineering.

Special Provisions - Table of Contents

***Add** the following Section*:

SECTION 01010 - SUMMARY OF WORK

PART 1 - GENERAL

1.1 GENERAL

A. The WORK to be performed under this contract shall consist of furnishing all plant, tools, equipment, materials, supplies, manufactured articles and furnishing all labor, transportation and services, including all fuel, power, water and essential communications and performing all WORK, or other operations required for the fulfillment of the contract in strict accordance with the Contract Documents. The WORK shall be complete, and all WORK, materials, and services, not expressly indicated or called for in the Contract Documents which may be necessary for the complete and proper construction of the WORK in good faith shall be provided by the CONTRACTOR as though originally so indicated, at no increase in cost to the OWNER.

1.2 WORK COVERED BY CONTRACT DOCUMENTS

A. The WORK covered in the Contract Documents generally includes: Reconstruction of Main Street, from Second Street to Fifth Street.

B. The WORK consists of replacement of the storm drainage, sanitary sewer and water systems, roadway and sidewalk embankments, curb and gutter, paved street surfacing, and miscellaneous related WORK. New items will include traffic islands, sidewalk pavers, landscaping, a sidewalk canopy, and street lighting.

C. SITE OF WORK. The site of the WORK is on Main Street in downtown Juneau, Alaska.

1.3 WORK BY OTHERS

A. The CONTRACTOR’s attention is directed to the fact that work may be conducted at the site by other contractors during the performance of the WORK under this contract. The CONTRACTOR shall conduct its operations so as to cause a minimum of interference with the WORK of such other contractors, and shall cooperate fully with such contractors to provide continued safe access to their respective portions of the site, as required to perform work under their respective contracts.

B. Interference with Work on Utilities. The CONTRACTOR shall cooperate fully with all utility forces of the OWNER or private agencies engaged in the relocation, altering, or otherwise rearranging of any facilities which interfere with the progress of the WORK, and shall schedule the WORK so as to minimize interference with said relocation, altering, or other rearranging of facilities.

1.4 CONTRACTOR USE OF PROJECT SITE

A. The CONTRACTOR's use of the Project site shall include construction operations and storage of materials, fabrication facilities, and field offices only in those areas identified on the Drawings.

1.5 OWNER USE OF THE PROJECT SITE

A. The OWNER may utilize all or part of the existing site during the entire period of construction for the conduct of the OWNER's normal operations. The CONTRACTOR shall cooperate and coordinate with the ENGINEER to facilitate the OWNER's operations and to minimize interference with the CONTRACTOR's operation at the same time. In any event, the OWNER shall be allowed access to the Project site during the period of construction.

1.6 PROJECT MEETINGS

A. Pre-Construction Conference

1. Prior to the commencement of WORK at the site, a Pre-Construction Conference will be held at a mutually agreed time and place which shall be attended by the CONTRACTOR's Project Manager, its superintendent, and its Subcontractors as the CONTRACTOR deems appropriate. Other attendants will be:

    a. ENGINEER and Inspector.
    b. Representatives of OWNER.
    c. Governmental representatives as appropriate.
    d. Others as requested by CONTRACTOR, OWNER, or ENGINEER.

2. Unless previously submitted to the ENGINEER, the CONTRACTOR shall bring to the Pre-Construction Conference one copy each of the following:

    a. Plan of Operation.
    b. Project Overview Bar Chart Schedule.
    c. Procurement schedule of major equipment and materials and items requiring long lead time.
    d. Shop Drawing/Sample/Substitute or "Or Equal" submittal schedule.
    e. Name and telephone number of CONTRACTOR's Project Supervisor.
    f. Erosion Control Plan with Storm Water Pollution Prevention Plan.
    g. First Traffic Control Plan

3. The purpose of the Pre-Construction Conference is to designate responsible personnel and establish a working relationship. Matters requiring coordination will be discussed and procedure for handling such matters established. The complete agenda will be furnished to the

CONTRACTOR prior to the meeting date. The CONTRACTOR should be prepared to discuss all of the items listed below:

a. Status of CONTRACTOR's insurance and bonds.
b. CONTRACTOR's tentative schedules.
c. Transmittal, review, and distribution of CONTRACTOR's submittals.
d. Processing applications for payment.
e. Maintaining record documents.
f. Critical WORK sequencing.
g. Field decisions and Change Orders.
h. Use of Project site, office and storage areas, security, housekeeping, and OWNER's needs.
i. Major equipment deliveries and priorities.
j. CONTRACTOR's assignments for safety and first aid.

4. The OWNER will preside at the Pre-Construction Conference and will arrange for keeping and distributing the minutes to all persons in attendance.
5. The CONTRACTOR and its Subcontractors should plan on the conference taking no longer than three hours. Items listed in paragraph 3 will be covered as well as a review of the Drawings and Specifications with the ENGINEER and OWNER.

B. Progress Meetings

1. The CONTRACTOR shall schedule and hold regular on-site progress meetings at least weekly and at other times as requested by the ENGINEER, or as required by the progress of the WORK. The CONTRACTOR, ENGINEER, and all Subcontractors active on the site must attend each meeting. CONTRACTOR may at its discretion request attendance by representatives of its Suppliers, manufacturers, and other Subcontractors.
2. The ENGINEER shall conduct the meeting and will arrange for recording and distributing the minutes. The purpose of the meetings will be to review the progress of the WORK, maintain coordination of efforts, discuss changes in scheduling, and resolve other problems which may develop. During each meeting, the CONTRACTOR is required to present any issues which may impact the WORK, with a view toward resolving these issues expeditiously.

1.7 DEFINITIONS APPLICABLE TO TECHNICAL SPECIFICATIONS

A. The following words have the meaning defined in the Technical Portions of the WORK:

1. Furnish - means to supply and deliver to the site, to unload and unpack ready for assembly, installation, testing, and start-up.
2. Indicated - is a word used to direct the CONTRACTOR to information contained on the drawings or in the Specifications. Terms such as "shown", "noted"," "scheduled", and "specified" also may be used to

assist in locating information but no limitation of location is implied or intended.

3. Install - defines operations at the site including assembly, erection, placing, anchoring, applying, shaping to dimension, finishing, curing, protecting, and cleaning, ready for the OWNER's use.
4. Installer - a person or firm engaged by the CONTRACTOR or its subcontract, or any Subcontractor, for the performance of installation, erection, or application WORK at the site. Installers must be expert in the operations they are engaged to perform.
5. Provide- is defined as furnish and install, ready for the intended use.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

***Add** the following Section*:

SECTION 01025 – MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.1 SCOPE

A. Payment for the various items of the Bid Schedule, as further specified herein, shall include all compensation to be received by the CONTRACTOR for furnishing all tools, equipment, supplies, and manufactured articles, and for all labor, operations, and incidentals appurtenant to the items for WORK being described, as necessary to complete the various items of the WORK all in accordance with the requirements of the Contract Documents, including all appurtenances thereto, and including all costs of permits and cost of compliance with the regulations of public agencies having jurisdiction, including Safety and Health Requirements of Occupational Safety and Health Administration of the U.S. Department of Labor (OSHA) and Occupational Safety and Health Standards of the Alaska Department of Labor, Division of Labor Standards and Safety.

B. No separate payment will be made for any Pay Item that is not specifically set forth in the Bid Schedule, and all costs therefore shall be included in the prices named in the Bid Schedule for the various appurtenant items of WORK.

C. In addition to the other incidental items of WORK listed elsewhere in the contract, the following items shall also be considered as incidental to other items of WORK under this contract:

1. Maintenance of all services through the Project area including power, water, storm and sanitary sewers, garbage pickup, mail delivery, and emergency vehicles.
2. Repair or replacement of existing adjacent facilities including piping, grading, steel, timber, concrete and asphalt items.

3. Final clean-up and site restoration.
4. All WORK necessary for coordination of work to be accomplished by property owners within the Project limits.
5. Removal and replacement of survey monuments and markers disturbed during construction, whether shown on the Drawings or not.
6. Watering of the roadway as necessary for dust control.
7. Removal and disposal of the existing sign assemblies within the Project limits not shown to remain, or as indicated in the Sign Assembly Table on the Drawings.
8. All fittings (except CPP and CMP saddle tees) required for storm, water and sanitary sewer pipes.
9. Restrained joints required for the D.I. water pipe.
10. Set aside landscape items for owners.
11. Usable material from excavation placed in the roadway under the shot rock borrow.
12. All restoration of disturbed areas behind sidewalks or curbing to equal or better condition.
13. All sideslope grading beyond sidewalks or curbing.
14. Adjustment of electrical box frames and covers to grade.
15. Crack sealing all joints following paving operations.
16. Removal and disposal of fire hydrants.
17. Removal and disposal of 22-inch diameter mountain ash at the City Museum.
18. All required bracing and support of existing concrete utility duct encasement and the vault penetrations for the 6-Inch PVC drain connections to the four vaults between Third Street and Calhoun Avenue.
19. Adjustment of all existing vault grates to grade.
20. All WORK associated with the connection to existing storm drain manhole CB-18.
21. All temporary work necessary for winter shutdown between phases one and two with the exception of asphalt pavement. This WORK will include 3-inches of temporary concrete at the entrance to the Alaska Office Building at Station “M” 13+50 Left after the construction of the two adjacent canopy footings.

NOTE: Any Pay Item numbers with an A at the end refer to Additive Alternate Bid items.

1.2 MOBILIZATION (Pay Item Nos. 1505.1) PRICE BASED ON LUMP SUM PAY UNIT

A. Measurement for payment for Mobilization will be based upon the completion of the entire WORK as a Lump Sum Pay Unit, complete, all in accordance with the requirements of the Contract Documents.

B. Payment for Mobilization will be made at the amount shown on the Bid Schedule under Pay Item No. 1505.1, which payment will constitute full compensation for all WORK described in Section 01505 - Mobilization, as shown on the Drawings and as directed by the ENGINEER.

C. Partial payments will be made as the WORK progresses as follows:

1. When 5% of the total original contract amount is earned from other Pay Items, 50% of the amount bid for Mobilization, or 5% of the original contract amount, whichever is lesser, will be paid.
2. When 10% of the total original contract amount is earned from other Pay Items, 100% of the amount bid for Mobilization, or 10% of the original contract amount, whichever is lesser, will be paid.
3. Upon completion of all WORK on the Project, payment of any amount bid for Mobilization in excess of 10% of the total contract amount will be paid.

1.3 TRAFFIC CONTROL (Pay Item No. 1550.1) PRICE BASED ON LUMP SUM PAY UNIT

A. Measurement for payment for Traffic Control will be based upon the completion of the entire WORK as a Lump Sum Pay Unit, complete, all in accordance with the requirements of the Contract Documents.

B. Payment for Traffic Control will be made at the amount shown on the Bid Schedule under Pay Item No. 1550.1, which payment will constitute full compensation for all WORK described in Section 01550 – Site Access and Storage, as shown on the Drawings, and as directed by the ENGINEER.

1.4 EROSION AND SEDIMENT CONTROL (Pay Item No. 1570.1) PRICE BASED ON LUMP SUM PAY UNIT

A. Measurement for payment for Erosion and Sediment Control will be based upon the completion of the entire WORK as a Lump Sum Pay Unit, complete, all in accordance with the requirements of the Contract Documents.

B. WORK under this Pay Item includes obtaining all necessary permits for storm water control as required by Alaska Department of Environmental Conservation and the Environmental Protection Agency. This includes furnishing, installing and maintaining all measures required by these permits.

C. Payment for Erosion and Sediment Control will be made at the amount shown on the Bid Schedule under Pay Item No. 1570.1, which payment will constitute full compensation for all WORK described in Section 01570 – Erosion and Sediment Control, as shown on the Drawings and as directed by the ENGINEER.

2.1 EXCAVATION (Pay Item Nos. 2202.1) PRICE BASED ON QUANTITY, CUBIC YARD

A. Measurement for payment for Excavation will be based on the number of cubic yards of unclassified material actually excavated, as determined by the average end area method. Where impractical to measure by the average end area method, the ENGINEER may approve other acceptable methods involving three-dimensional measurements. Excavation outside of the subcut limits indicated in the Drawings, or without direction from the ENGINEER will not be measured for payment.

B. No deduction in the measurement for Excavation will be made for the trenching required for pipe and structure installations above the bottom of, or within the subcut limits as shown on the Typical Sections.

C. No deduction in the measurement for Excavation will be made where concrete encased utility ducts prohibit excavation for the roadway prism, or where the utiliwalk is being removed by the utilities.

D. Measurement for payment may be selected by the CONTRACTOR from one of the following methods:

1. From actual cross sections taken by the CONTRACTOR's surveyor (following pavement and concrete curbing, slabs or sidewalk removal where present), with the lower limits determined by the neat line subcut limits as indicated on the Typical Sections, or as directed by the ENGINEER.
2. The CONTRACTOR may review and utilize the ENGINEER's design earthwork quantity computations in lieu of providing its own quantity determinations.

E. The following will not be measured for direct payment; the cost of such WORK will be considered incidental to other WORK under the contract:

1. Overburden and other spoil material from borrow sources.
2. Removal of water by aeration of material to obtain required moisture content.
3. Any volumes of water or other liquid material.
4. Material used for the purpose other than directed.
5. Roadbed material scarified in place and not removed.
6. Material excavated when benching.
7. Slide or slipout material attributable to the carelessness of the CONTRACTOR.
8. The volume of conserved materials stockpiled at the option of the CONTRACTOR.
9. Placement of usable or otherwise suitable material from excavation, as determined by the ENGINEER, into the new roadway and sidewalk as embankment or selected embankment, or as embankment for any areas outside the roadway subcut within the project limits.

F. Payment for Excavation will be made at the Unit Price named in the Bid Schedule under Pay Item No. 2202.1, which payment will constitute full compensation for all WORK described in Section 02202 - Excavation and Embankment, as shown on the Drawings and as directed by the ENGINEER.

2.2 SHOT ROCK BORROW (Pay Item No. 2202.2) PRICE BASED ON QUANTITY, CUBIC YARD

A. Measurement for payment for Shot Rock Borrow will be based on the number of cubic yards of material in place as determined by the average end area method, and will be determined on a neatline basis. Where impractical to measure by the average end area method, the ENGINEER may approve other acceptable

methods involving three-dimensional measurements. Embankment outside of the lines, grades and cross sections indicated in the Drawings or as directed by the ENGINEER will be deducted from borrow quantities for pay purposes.

B. Payment for Shot Rock Borrow will be made at the Unit Price named in the Bid Schedule under Pay Item No. 2202.2, which payment will constitute full compensation for all WORK described in Section 02202 - Excavation and Embankment, as shown on the Drawings as and as directed by the ENGINEER.

2.3 SELECTED BORROW (Pay Item No. 2202.3) PRICE BASED ON QUANTITY, CUBIC YARD

A. Measurement for payment for Selected Borrow will be based on the number of cubic yards of material in place as determined by the average end area method, and will be determined on a neatline basis. Where impractical to measure by the average end area method, the ENGINEER may approve other acceptable methods involving three-dimensional measurements. Embankment outside of the lines, grades and cross sections indicated in the Drawings or as directed by the ENGINEER will be deducted from borrow quantities for pay purposes.

B. Selected borrow will be measured for payment where the existing utiliwalk is being demolished as shown on the Drawings, and in accordance with neatlines as follows:

1. The depth will be measured from the top of the bedding at 3-inches above the uppermost layer of relocated conduits, to the bottom of the 2-Inch Minus Shot Rock with Base Course, as shown on the Drawings.
2. The width will be measured between the outermost conduits in the duct bank, plus one foot.

C. Payment for Selected Borrow will be made at the Unit Price named in the Bid Schedule under Pay Item No. 2202.2, which payment will constitute full compensation for all WORK described in Section 02202 - Excavation and Embankment, as shown on the Drawings as and as directed by the ENGINEER.

2.4 MINING AREA RESTORATION AND ROAD CLEANING GUARANTEE (Pay Item No. 2202.4) PRICE BASED ON CONTINGENT SUM PAY UNIT

A. Measurement for this Item will be made as a Contingent Sum Pay Unit for completion of Mining Area Restoration and Road Cleaning.

B. The CONTRACTOR shall be responsible for removal of dirt, mud, rocks and other debris from CBJ and State Right-of-Ways accumulated from the hauling and quarry operations. It is the intent that the traveled public way be kept as clean as practical to minimize dust and to avoid unsafe traffic conditions. If the CONTRACTOR fails to perform necessary road cleaning, the CBJ may hire outside forces to perform the work and deduct the cost from this contingent sum item.

C. The Contractor shall be responsible for restoration of their mining area in accordance to the conditions of the material source used and mining plan

submitted. If the Contractor fails to perform the required mining area restoration, the CBJ may hire outside forces to perform the work and deduct the cost from this contingent sum item.

D. Release of final payment for Mining Area Restoration and Road Cleaning Guarantee will be made upon determination of completeness by the ENGINEER after deduction of OWNER incurred costs for necessary road cleaning and/or mining area restoration not completed by the CONTRACTOR.

E. Payment for Mining Area Restoration and Road Cleaning Guarantee will be made at the amount named in the Bid Schedule under Pay Item No. 2202.4, with deductions as described in this article, which payment will constitute full compensation for all WORK described in Section 2202 – Excavation and Embankment, as shown on the Drawings and as directed by the ENGINEER.

2.5 INDIVIDUAL MINING PLAN (Pay Item No. 2202.5) PRICE BASED ON LUMP SUM PAY UNIT

A. Measurement for payment for Individual Mining Plan will be based upon the completion of the entire WORK as a Lump Sum Pay Unit, complete, including preparation and approval of the Individual Mining Plan by a registered Civil Engineer in the State of Alaska, all in accordance with the requirements of the Contract Documents.

B. Payment for Individual Mining Plan will be made at the amount named in the Bid Schedule under Pay Item No. 2202.5, which payment will constitute full compensation for all WORK described in Section 2202 - Excavation and Embankment, as shown on the Drawings and as directed by the ENGINEER.

2.6 CONCRETE BACKFILL (Pay Item No. 2203.1) PRICE BASED ON LUMP SUM PAY UNIT

A. Measurement for payment of Concrete Backfill will be based upon the completion of the entire WORK as a Lump Sum Pay Unit, complete, all in accordance with the requirements of the Contract Documents.

B. WORK under this Pay Item will be required wherever trenching occurs beneath concrete encased utility ducts as shown on the Drawings.

C. Payment for Concrete Backfill will be made at the amount named in the Bid Schedule under Pay Item No. 2203.1, which payment will constitute full compensation for all WORK described in Section 02203 - Trenching, as shown on the Drawings and as directed by the ENGINEER.

2.7 2-INCH MINUS SHOT ROCK w/BASE COURSE (Pay Item No. 2204.1) PRICE BASED ON QUANTITY, CUBIC YARD

A. 2-Inch Minus Shot Rock w/Base Course will be measured by the number of cubic yards of material in place as determined by the average end area method, and will be determined on a neatline basis. Where impractical to measure by the average end area method, the ENGINEER may approve other acceptable

methods involving three-dimensional measurements. Material outside of the lines, grades and cross sections indicated in the Drawings, or as directed by the ENGINEER, will be deducted from 2-Inch Minus Shot Rock w/Base Course quantities for pay purposes.

B. Water needed for compaction and added to the base material on the grade will be considered incidental.

C. 2-Inch Minus Shot Rock shall be placed and compacted into a layer 4- inches to 5-inches thick, and covered with Base Course, to a total thickness of 6-inches for the street areas and into proportionally thinner layers for sidewalk areas. Both of these materials will be measured for payment under this Pay Item. 2-Inch Minus Shot Rock shall meet the requirements of Section 02202 – Excavation and Embankment.

D. Payment for 2-Inch Minus Shot Rock w/Base Course, will be made at the Unit Price named in the Bid Schedule under Pay Item No. 2204.1, which payment will constitute full compensation for all WORK described in Section 02202 – Excavation and Embankment and Section 02204 – Base Course, as shown on the Drawings and as directed by the ENGINEER.

2.8 SANITARY SEWER PIPE, [ ]-INCH PVC (Pay Item Nos. 2401.1, and 2401.2) PRICE BASED ON QUANTITY, LINEAR FOOT

A. Sanitary Sewer Pipe will be measured along the slope of the pipe in feet, from center to center of manholes, from center of manholes to end of pipe, or to limits of payment as shown on the Drawings. The aggregate laid lengths of wyes will not be deducted from lengths of pipes so measured.

B. Payment for Sanitary Sewer Pipe, 8-Inch PVC will be made at the Unit Price named in the Bid Schedule under Pay Item No. 2401.1, which payment will constitute full compensation for all WORK described in Section 02401 – Sanitary Sewer Pipe, as shown on the Drawings and as directed by the ENGINEER.

C. Payment for Sanitary Sewer Pipe, 12-Inch PVC will be made at the Unit Price named in the Bid Schedule under Pay Item No. 2401.2, which payment will constitute full compensation for all WORK described in Section 02401 – Sanitary Sewer Pipe, as shown on the Drawings and as directed by the ENGINEER.

2.9 SANITARY SEWER SERVICE LATERAL, 6-INCH (Pay Item No. 2401.3) PRICE BASED ON QUANTITY, EACH

A. Sanitary Sewer Service Lateral, 6-Inch, will be measured per each, complete in place, including pipe, cleanouts and cast iron frame and cover, fittings, and adapters as required to connect to sewer and existing services, trench excavation, bedding, backfill, sheeting and bracing, dewatering, cleaning and testing, and all other items necessary for a complete installation.

B. Payment for Sanitary Sewer Service Lateral, 6-Inch will be made at the Unit Price named in the Bid Schedule under Pay Item No. 2401.3, which payment will constitute full compensation for all WORK described in Section 02401 – Sanitary Sewer Pipe, as shown on the Drawings and as directed by the ENGINEER.

2.10 SANITARY SEWER MANHOLE, TYPE I, WITH FIBERGLASS BASE LINER (Pay Item No. 2402.1) PRICE BASED ON QUANTITY, EACH

A. Sanitary Sewer Manhole, Type I, with Fiberglass Base Liner will be measured per each, complete in place, including transition slab with asphalt pavement overlay, if required, and all earthwork.

B. All WORK required to set the frame and cover to grade, including construction of a concrete transition slab and pavement overlay, if necessary, will be considered incidental to other work under this Contract.

C. Payment for Sanitary Sewer Manhole, Type I, with Fiberglass Base Liner will be made at the Unit Price named in the Bid Schedule under Pay Item No. 2402.1, which payment will constitute full compensation for all WORK described in Section 02402 - Sanitary Sewer Manholes and Cleanouts, as shown on the Drawings and as directed by the ENGINEER.

2.11 [ ]-INCH PIPE CULVERT (Pay Item Nos. 2501.1, 2501.2 and 2501.3) PRICE BASED ON QUANTITY, LINEAR FOOT

A. Pipe Culvert, including all coupling bands, bends and other items necessary for the proper joining of the culvert pipe sections, will be measured by the staked length in linear feet.

B. Pipes for storm drains shall be measured by the staked length, from center to center of structures or to ends of pipe if no structure is present. No deduction shall be made for footage through inlets, catch basins or manholes.

C. Branch connections, coupling adapters and bends will be included in the linear foot measurement for conduit.

D. Trench excavation, bedding, backfill and imported backfill will not be measured for payment, but will be considered incidental to other WORK.

E. Payment for 4 and 6-Inch Pipe Culvert will be made at the Unit Price named in the Bid Schedule under Pay Item No. 2501.1, which payment will constitute full compensation for all WORK described in Section 02501 - Storm Sewer Pipe, as shown on the Drawings and as directed by the ENGINEER.

F. The 8-Inch PVC at CB-16 will be measurement for payment under Pay Item 2501.1.

G. Payment for 12-Inch Pipe Culvert will be made at the Unit Price named in the Bid Schedule under Pay Item No. 2501.2, which payment will constitute full

compensation for all WORK described in Section 02501 - Storm Sewer Pipe, as shown on the Drawings and as directed by the ENGINEER.

H. Payment for 18-Inch Pipe Culvert will be made at the Unit Price named in the Bid Schedule under Pay Item No. 2501.3, which payment will constitute full compensation for all WORK described in Section 02501 - Storm Sewer Pipe, as shown on the Drawings and as directed by the ENGINEER.

2.12 CPP SADDLE TEE (Pay Item No. 2501.4) PRICE BASED ON QUANTITY, EACH

A. CPP Saddle Tees will be measured per each, complete in place.

B. This Pay Item will include those CPP Saddle Tees shown on the Drawings, and also will be used to connect to the storm drain mains at locations as required to intercept unknown underground drainage pipes and flows.

C. Only those CPP Saddle Tees actually required, as shown on the Drawings, and as determined by the ENGINEER, will be measured for payment.

D. Payment for CPP Saddle Tee will be made at the Unit Price named in the Bid Schedule under Pay Item No. 2501.4, which payment will constitute full compensation for all WORK described in Section 02501 – Storm Sewer Pipe, as shown on the Drawings and as directed by the ENGINEER.

2.13 6-INCH UNDERDRAIN (Pay Item No. 2501.5) PRICE BASED ON QUANTITY, LINEAR FOOT

A. Underdrain pipe, including all coupling banks and other items necessary for the proper joining of the pipe sections, will be measured by the staked length.

B. Underdrain pipe will be measured from center of structures to ends of pipe.

C. Pipe perforations, 2-inch crushed stone, filter cloth and end caps will not be measured for payment, but will be considered incidental to other WORK.

D. Excavation, bedding and backfill will not be measured for payment, but will be considered incidental to other WORK.

E. Payment for 6-Inch Underdrain will be made at the Unit Price named in the Bid Schedule under Pay Item No. 2501.5, which payment will constitute full compensation for all WORK described in Section 02501 - Storm Sewer Pipe, as shown on the Drawings and as directed by the ENGINEER.

2.14 STORM DRAIN MANHOLE, TYPE I (Pay Item No. 2502.1) PRICE BASED ON QUANTITY, EACH

A. Storm Drain Manholes will be measured per each, complete in place, including transition slab with asphalt pavement overlay, if required, and all earthwork, frames and covers.

B. Payment for CB-1 will be measured for payment under this Pay Item.

C. Payment for Storm Drain Manhole, Type I, will be made at the Unit Price named in the Bid Schedule under Pay Item No. 2502.1, which payment will constitute full compensation for all WORK described in Section 02502 – Storm Sewer Manholes, Inlets and Catch Basins, as shown on the Drawings, and as directed by the ENGINEER.

2.15 CATCH BASIN, TYPE [ ] (Pay Item Nos. 2502.2 and 2502.3) PRICE BASED ON QUANTITY, EACH

A. Catch Basins will be measured per each, complete in place, including all earthwork, frames and grates or covers.

B. Trench Drain Catch Basin CB-5 will be measured for payment under Pay Item No. 2502.4.

C. Payment for Catch Basin, Type III will be made at the Unit Price named in the Bid Schedule under Pay Item No. 2502.2 which payment will constitute full compensation for all WORK described in Section 02502 - Storm Sewer Manholes, Inlets and Catch Basins, as shown on the Drawings and as directed by the ENGINEER.

D. Payment for Catch Basin, Type IV, will be made at the Unit Price named in the Bid Schedule under Pay Item No. 2502.3, which payment will constitute full compensation for all WORK described in Section 02502 - Storm Sewer Manholes, Inlets and Catch Basins, as shown on the Drawings and as directed by the ENGINEER.

2.16 TRENCH DRAIN AND HEATED SIDEWALK, (Pay Item No. 2502.4) PRICE BASED ON LUMP SUM PAY UNIT

A. Measurement for payment for Trench Drain and Heated Sidewalk will be based upon the completion of the entire WORK as a Lump Sum Pay Unit, complete, all in accordance with the requirements of the Contract Documents.

B. The trench drain WORK will include all earthwork, concrete, reinforcement, drain channel, frame and grate. The heated sidewalk WORK will include the replacement of the mat material, temperature and moisture sensors, and all other WORK required to replace the existing heated sidewalk on west third to equal or better conditions as shown on the Drawings.

C. The connection of the new heated sidewalk mat cold leads to the existing power supply from the court plaza building will be measured for payment under Pay Item 16000.2.

D. Removal of the existing heated sidewalk will be measured for payment under Pay Item 3304.1.

E. The new 6-inch concrete sidewalk poured around the heating mats will be measured for payment under Pay Item 3303.1.

F. Insulation required under the sidewalk will be measured for payment under Pay Item 2607.1.

G. Payment for Trench Drain and Heated Sidewalk will be made at the amount named in the Bid Schedule under Pay Item No. 2502.4, which payment will constitute full compensation for all WORK described in Section 02502 - Storm Sewer Manholes, Inlets and Catch Basins, Section 03301 Structural Concrete, Section 16060 Grounding and Bonding, Section 16120 Conductors and Cables, and Section 16140 Wiring Devices as shown on the Drawings and as directed by the ENGINEER.

2.17 6-INCH D.I. WATER SERVICE (Pay Item No. 2601.1) PRICE BASED ON QUANTITY, EACH

A. Measurement for payment of 6-Inch D.I. Water Service will be based on the actual number of 6-Inch Water Service assemblies satisfactorily installed, complete in place.

B. The 6-Inch D.I. Water Service shall include restrained joints, megalugs, 6-inch D.I. service pipe and fittings, 6-inch gate valve, valve box, tee, end cap, thaw wire, continuity straps, thrust blocks, corp stop assembly, marking tape and all necessary excavation and backfill.

C. Payment for 6-Inch D.I. Water Service will be made at the Unit Price named in the Bid Schedule under Pay Item No. 2601.1, which payment will constitute full compensation for all WORK described in Section 02601 – Water Pipe, and Section 02605 – Water Services, as shown on the Drawings and as directed by the ENGINEER.

2.18 [ ]-INCH D.I. WATER PIPE (Pay Item Nos. 2601.2 and 2601.3) PRICE BASED ON QUANTITY, LINEAR FOOT

A. Measurement of water pipe will be made along the slope of the pipe from the centers of fittings and valves in linear feet. No deduction in length will be made for valves and fittings. All fittings, except valves, required for satisfactory installation of water pipe will be considered incidental to the water pipe pay items.

B. All restrained joint gaskets will be considered incidental to other WORK under this Section.

C. Payment for 8-Inch D.I. Water Pipe will be made at the Unit Price named in the Bid Schedule under Pay Item No. 2601.2, which payment will constitute full compensation for all WORK described in Section 02601 - Water Pipe, as shown on the Drawings and as directed by the ENGINEER.

D. Payment for 12-Inch D.I. Water Pipe will be made at the Unit Price named in the Bid Schedule under Pay Item No. 2601.3, which payment will constitute full compensation for all WORK described in Section 02601 - Water Pipe, as shown on the Drawings and as directed by the ENGINEER.

2.19 [ ]-INCH GATE VALVE (Pay Item Nos. 2602.1 and 2602.2) PRICE BASED ON QUANTITY, EACH

A. Measurement for payment of gate valves and valve boxes will be based on the actual quantity, each, of such valves and boxes furnished and installed in accordance with the requirements of the Contract Documents.

B. Payment for 8-Inch Gate Valve will be made at the Unit Price named in the Bid Schedule under Pay Item No. 2602.1, which payment will constitute full compensation for all WORK described in Section 02602 - Valves, as shown on the Drawings and as directed by the ENGINEER.

C. Payment for 12-Inch Gate Valve will be made at the Unit Price named in the Bid Schedule under Pay Item No. 2602.2, which payment will constitute full compensation for all WORK described in Section 02602 - Valves, as shown on the Drawings and as directed by the ENGINEER.

2.20 FIRE HYDRANT ASSEMBLY (Pay Item No. 2603.1) PRICE BASED ON QUANTITY, EACH

A. Measurement for payment of Fire Hydrant Assembly will be the actual number of fire hydrant assemblies satisfactorily installed, complete in place.

B. A Fire Hydrant Assembly includes the fire hydrant, the tee or required fitting at the mainline water pipe, barrel extension (if required), thrust block, six-inch gate valve, valve box, joint restraints, continuity wires, thaw wires, warning tapes, and any other required fittings, including pipe, to connect the hydrant leg from the mainline water pipe to the fire hydrant or from the stubbed water pipe to the fire hydrant as shown on the Drawings.

C. Trench excavation and backfill shall be considered incidental to other WORK under the contract.

D. Payment for Fire Hydrant Assembly will be made at the Unit Price named in the Bid Schedule under Pay Item No. 2603.1, which payment will constitute full compensation for all WORK described in Section 02603 - Fire Hydrants, as shown on the Drawings and as directed by the ENGINEER.

2.21 1-INCH WATER SERVICE (Pay Item No. 2605.1) PRICE BASED ON QUANTITY, EACH

A. Measurement of payment for water services two-inches and smaller will be the actual number of water services satisfactorily installed from the water pipe to the property line or as shown on the Drawings.

B. A water service includes the curb stop, service box, corporation stop, thaw wires, service saddle, required fittings, warning tape, service pipe, and all WORK necessary to install the service to the locations as shown on the Drawings.

C. Trench excavation and backfill shall be considered incidental to the water service.

D. Removal and disposal of existing water meter boxes and meter yoke piping will be considered incidental to the water service.

E. Payment for 1-Inch Water Service will be made at the Unit Price named in the Bid Schedule under Pay Item No. 2605.1, which payment will constitute full compensation for all WORK described in Section 02605 - Water Services, as shown on the Drawings and as directed by the ENGINEER.

2.22 PIPE INSULATION (Pay Item No. 2607.1) PRICE BASED ON QUANTITY, BOARD

A. Measurement for payment of pipe insulation will be the actual number of 2" x 2' x 8' boards installed.

B. Payment for Pipe Insulation will be made at the Unit Price named in the Bid Schedule under Pay Item No. 2607.1, which payment will constitute full compensation for all WORK described in Section 02607 - Pipe Insulation, as shown on the Drawings and as directed by the ENGINEER.

2.23 CONSTRUCTION SURVEYING (Pay Item No. 2702.1) PRICE BASED ON LUMP SUM PAY UNIT

A. Measurement for payment of Construction Surveying will be based upon the completion of the entire WORK as a Lump Sum Pay Unit, complete, all in accordance with the requirements of the Contract Documents.

B. Payment for Construction Surveying will be made at the amount named in the Bid Schedule under Pay Item No. 2702.1, which payment will constitute full compensation for all WORK described in Section 02702 - Construction Surveying, as shown on the Drawings and as directed by the ENGINEER.

2.24 REMOVE AND RESET MONUMENT w/NEW CASE (Pay Item No. 2703.1) PRICE BASED ON QUANTITY, EACH

A. Measurement for payment for removal and resetting of monuments with new cases will be based on the actual quantity, each, of such monuments removed and reset with new cases, in accordance with the requirements of the Contract Documents.

B. Only the survey centerline monuments located at Station “M” 12+28 and Station “M” 12+30 will be included under this Pay Item. Removal and resetting of all other survey monuments will be considered incidental to other WORK.

C. Payment for Remove and Reset Monument w/New Case will be made at the Unit Price named in the Bid Schedule under Pay Item No. 2703.1, which payment will constitute full compensation for all WORK described in Section 02703 – Monuments, as shown on the Drawings and as directed by the ENGINEER.

2.25 STABILIZATION FABRIC (Pay Item No. 2714.1) PRICE BASED ON QUANTITY, SQUARE YARD

A. Measurement of Stabilization Fabric will be based on the actual square yards, excluding overlaps, complete in place and accepted.

B. Stabilization Fabric is a contingency item and shall be used only as directed by the ENGINEER.

C. Payment of Stabilization Fabric will be made at the Unit Price named in the Bid Schedule under Pay Item No. 2714.1, which payment will constitute full compensation for all WORK described in Section 02714 – Filter Cloth, as shown on the Drawings and as directed by the ENGINEER.

2.26 WATER, STORM AND SANITARY PIPE REMOVAL (Pay Item No. 2716.1) PRICE BASED ON LUMP SUM

A. Measurement for payment for Storm, Sanitary and Water Pipe Removal will be based upon the completion of the entire WORK as a Lump Sum Pay Unit, complete, all in accordance with the requirements of the Contract Documents.

B. Payment for Water, Storm and Sanitary Pipe Removal will be made at the amount named in the Bid Schedule under Pay Item No. 2716.1, which payment will constitute full compensation for all WORK described in Section 02716 – Water, Storm and Sanitary Pipe Removal, as shown on the Drawings and as directed by the ENGINEER.

2.27 STORM AND SANITARY STRUCTURE REMOVAL (Pay Item No. 2717.1) PRICE BASED ON LUMP SUM

A. Measurement for payment for Storm and Sanitary Structure Removal will be based upon the completion of the entire WORK as a Lump Sum Pay Unit, complete, all in accordance with the requirements of the Contract Documents.

B. Payment for Storm and Sanitary Structure Removal will be made at the amount named in the Bid Schedule under Pay Item No. 2717.1, which payment will constitute full compensation for all WORK described in Section 02717 –Storm and Sanitary Structure Removal, as shown on the Drawings, and as directed by the ENGINEER.

2.28 SIGN ASSEMBLIES (Pay Item No. 2718.1) PRICE BASED ON LUMP SUM

A. Measurement for payment for Sign Assembly will be based upon the completion of the entire WORK as a Lump Sum Pay Unit, complete, all in accordance with the requirements of the Contract Documents.

B. WORK under this Pay Item includes providing all new sign assembly materials, including signs, posts and re-mounting existing signs to new posts as shown in the Sign Assembly Table on the Drawings.

C. Removal and disposal of existing signs not to be reused will be considered incidental to other WORK under this Section.

D. Payment for Sign Assemblies will be made at the amount named in the Bid Schedule under Pay Item No. 2718.1, which payment will constitute full compensation for all WORK described in Section 02718 - Sign Assembly, as shown on the Drawings, and as directed by the ENGINEER.

2.29 PROJECT SIGN ASSEMBLY (Pay Item No. 2718.2) PRICE BASED ON LUMP SUM PAY UNIT

A. Measurement for payment for Project Sign Assembly will be based on the completion of the entire WORK as a Lump Sum Pay Unit, complete, all in accordance with the requirements of the Contract Documents.

B. The sign panel will be provided by the OWNER. All other required materials shall be provided by the CONTRACTOR.

C. Payment for Project Sign Assembly will be made at the amount named in the Bid Schedule under Pay Item No. 2718.2, which payment will constitute full compensation for all WORK described in Section 02718 - Sign Assembly, as shown on the Drawings and as directed by the ENGINEER.

2.30 PAINTED TRAFFIC MARKINGS (Pay Item No. 2720.1) PRICE BASED ON LUMP SUM

A. Measurement for payment for Painted Traffic Markings will based upon the completion of the entire WORK as a Lump Sum Pay Unit, complete, all in accordance with the requirements of the Contract Documents.

B. WORK under this Pay Item includes the painted traffic markings as shown on the Drawings.

C. Payment for Painted Traffic Markings will be made at the amount shown in the Bid Schedule under Pay Item No. 2720.1, which payment will constitute full compensation for all WORK described in Section 02720 – Painted Traffic Markings, as shown on the Drawings and as directed by the ENGINEER.

2.31 A.C. PAVEMENT, Type II-A, Class B (Pay Item No. 2801.1) PRICE BASED ON QUANTITY, TON

A. Asphalt Concrete Pavement will be measured for payment by the ton.

B. The tolerance for thickness of asphalt concrete pavement under square yard measurement shall be plus or minus one-quarter inch from design mat thickness, as shown on the typical section. This one-quarter inch tolerance shall be the exception only, with the average variance for the job being not more than plus or minus one-eighth inch from the design mat thickness. All asphalt concrete placed outside the tolerance allowed will be corrected by the CONTRACTOR at no cost to the OWNER.

C. No measurement will be made for asphalt concrete pavement that exceeds 12% more than the neat line quantity, as determined by the nominal design thickness multiplied by the actual area paved, with a conversion factor of 119 lb per square yard per inch of thickness.

D. All resealing of joints with existing pavement, including those resealed after the pavement has cooled to ambient temperatures, will not be measured for payment, but will be considered incidental to other WORK under the contract.

E. Tack Coat applied to existing joint surfaces and along edge of gutters prior to placement of A.C. pavement, will be considered incidental to other WORK under Pay Item No. 2801.1.

F. Asphalt Pavement required for reconstructed collars around manholes and water valves, if any, will be considered incidental to other WORK under this Section.

G. Payment for A.C. Pavement, will be made at the Unit Price named in the Bid Schedule under Pay Item No. 2801.1, which payment will constitute full compensation for all WORK described in Section 02801 - Asphalt Concrete Pavement, as shown on the Drawings and as directed by the ENGINEER.

H. Payment under this Pay Item may include deductions in final price if, after testing, the asphalt pavement does not meet the required specification. Deductions are further described in Section 02801 – Asphalt Concrete Pavement, Part 3 – Execution, Article 3.13, Acceptance Sampling and Testing, Paragraph K.

2.32 FOG SEAL COAT (Pay Item No. 2803.1) PRICE BASED ON QUANTITY, TON

A. Fog Seal Coat shall be measured for payment by the ton, delivered and placed in accordance with the Contract Documents.

B. Payment for Fog Seal Coat will be made at the Unit Price named in the Bid Schedule under Pay Item No. 2803.1, which payment will constitute full compensation for all WORK described in Section 02803 - Fog Seal Coat, as shown on the Drawings and as directed by the ENGINEER.

2.33 BLOTTING SAND (Pay Item No. 2803.2) PRICE BASED ON QUANTITY, TON

A. Blotting Sand shall be measured for payment by the ton delivered and placed in accordance with the Contract Documents.

B. Payment for Blotting Sand will be made at the Unit Price named in the Bid Schedule under Pay Item No. 2803.2, which payment will constitute full compensation for all WORK described in Section 02803 - Fog Seal Coat, as shown on the Drawings and as directed by the ENGINEER.

2.34 ASPHALT-TREATED BASE (Pay Item No. 2804.1) PRICE BASED ON QUANTITY, TON

A. Asphalt-Treated Base will be measured for payment by the ton.

B. No measurement will be made for asphalt concrete pavement that exceeds 12% more than the neat line quantity, as determined by the nominal design thickness multiplied by the actual area paved, with a conversion factor of 118.0 lb per square yard per inch of thickness.

C. Payment for Asphalt-Treated Base will be made at the Unit Price named in the Bid Schedule under Pay Item No. 2804.1, which payment will constitute full compensation for all WORK described in Section 02804 – Hot Mix Asphalt-Treated Base Course, as shown on the Drawings and as directed by the ENGINEER.

2.35 REMOVE EXISTING ASPHALT SURFACING (Pay Item No. 2806.1) PRICE BASED ON QUANTITY, SQUARE YARDS

A. Removing asphalt surfacing, including leveling course, will be measured for payment per square yard, complete, except that no measurement will be made for removing asphaltic surfacing less than one-inch-thick.

B. Removal of existing asphalt surfacing will be measured per top square yard, which will include the full thickness of all layers of existing asphalt, including leveling courses and underlying pavement. Concrete slabs located in the street areas, if any, will be included under Pay Item No. 2806.1.

C. Payment for Remove Existing Asphalt Surfacing will be made at the Unit Price named in the Bid Schedule under Pay Item No. 2806.1, which payment will constitute full compensation for all WORK described in Section 02806 - Remove Existing Asphalt Surfacing, as shown on the Drawings and as directed by the ENGINEER.

2.36 SITE FURNISHINGS (Pay Item No. 2870.1) PRICE BASED ON LUMP SUM

A. Measurement for payment for Site Furnishings will be based upon the completion of the entire WORK as a Lump Sum Pay Unit, complete, all in accordance with the requirements of the Contract Documents.

B. The WORK under this Pay Item includes the following:

1. Benches, trash cans and associated concrete pads, and pay to park station concrete pads.
2. Ornamental guardrails and handrails for concrete retaining walls A and B.

C. Pay to park stations will be provided by the City and Borough of Juneau. Installation of pay to park stations will be measured for payment under Pay Item 16000.2.

D. Payment for Site Furnishings will be made at the amount named in the Bid Schedule under Pay Item 2870.1, which payment will constitute full compensation for all WORK in Section 02870 – Site Furnishings, and Section 03301 – Structural Concrete, as shown on the Drawings and as directed by the ENGINEER.

2.37 LAWNS AND GRASSES (Pay Item No. 2920.1) PRICE BASED ON LUMP SUM

A. Measurement for payment for Lawns and Grasses will be based upon the completion of the entire WORK as a Lump Sum Pay Unit, complete, all in accordance with the requirements of the Contract Documents.

B. The WORK under this Pay Item includes the following:

1. Installing planting soil and seeding in areas disturbed by construction requiring 6 inches or less of planting soil.
2. All WORK associated with seeding as shown on Landscape Drawings.

C. Payment for Lawns and Grasses will be made at the amount named in the Bid Schedule under Pay Item 2920.1, which payment will constitute full compensation for all WORK in Section 02920 - Lawns and Grasses as shown on the Drawings and as directed by the ENGINEER.

2.38 EXTERIOR PLANTS (Pay Item No. 2930.1) PRICE BASED ON LUMP SUM

A. Measurement for payment for Exterior Plants will be based upon the completion of the entire WORK as a Lump Sum Pay Unit, complete, all in accordance with the requirements of the Contract Documents.

B. The WORK under this Pay Item includes the following:

1. Mulch, shrubs, perennials and bulbs, all other vegetation items and associated planting soil.
2. All WORK associated with removing and replacing existing shrubs and perennials as shown on the Landscape Drawings, including excavation and grading.

C. Payment for Exterior Plants will be made at the amount named in the Bid Schedule under Pay Item 2930.1, which payment will constitute full compensation for all WORK in Section 02920 - Lawns and Grasses, and Section 02930 – Exterior Plants, as shown on the Drawings and as directed by the ENGINEER.

2.39A WINDFALL FISHERMAN SITE IMPROVEMENTS (Pay Item No. 2930.2A, Additive Alternate Two) PRICE BASED ON LUMP SUM

A. Measurement for payment for Windfall Fisherman Site Improvements will be based upon the completion of the entire WORK as a Lump Sum Pay Unit, complete, all in accordance with the requirements of the Contract Documents.

B. The WORK under this Pay Item will include all site work behind the proposed back of sidewalk surrounding the Windfall Fisherman (Bear) at approximate station “M” 13+10 RT. The WORK under this Pay Item will include the following:

1. All planting soil, mulch, shrubs, perennials and bulbs, all other vegetation items.
2. All concrete walls, stairs, and flatwork.
3. All excavation and grading.
4. All river rock, shot rock borrow, base course, sand, pavers, lighting, and site furnishings.

C. Payment for Windfall Fisherman Site Improvements will be made at the amount named in the Bid Schedule under Pay Item 2930.2, which payment will constitute full compensation for all WORK in Section 02870 Site Furnishings, Section 02920 - Lawns and Grasses, Section 02930 – Exterior Plants, Section 03301 Structural Concrete, Section 03302 Concrete Structures, Section 03303 Sidewalk, Curb and Gutter, and Section 03305 Concrete and Granite Pavers, as shown on the Drawings and as directed by the ENGINEER.

3.1 CONCRETE RETAINING WALLS (Pay Item No. 3302.1) PRICE BASED ON QUANTITY, LUMP SUM

A. Measurement of Concrete for Retaining Walls will be based upon the completion of the entire WORK as a Lump Sum Pay Unit, complete, all in accordance with the requirements of the Contract Documents.

B. WORK under this Section includes Wall A, Wall B, concrete stairs at the CBJ Museum, and the sidewalk grade beam between fourth and fifth street.

C. Forms, reinforcing steel, anchor bolts, joint filler and other such miscellaneous items necessary to complete the WORK will be considered incidental to this Pay Item.

D. All necessary excavation, backfill, placement and removal of forms, removal and disposal of existing structures and appurtenances, and other work necessary to complete the WORK will be considered incidental to this Pay Item.

E. The stone veneer for Wall B will be considered incidental to this Pay Item.

F. 6-Inch Pipe Culvert and 6-Inch Underdrain will be measured for payment under Pay Item Nos. 2501.1 and 2501.5, respectively. Wall Guardrail and Handrail shall be considered incidental to Pay Item No. 2870.1 Site Furnishings.

G. Payment for Concrete Retaining Walls will be made at the amount named in the Bid Schedule under Pay Item No. 3302.1, which payment will constitute full compensation for all WORK described in Section 03302 – Concrete Structures, as shown on the Drawings and as directed by the ENGINEER.

3.2 ALASKA OFFICE BUILDING CANOPY FOOTINGS (Pay Item No. 3302.2) PRICE BASED ON QUANTITY, LUMP SUM

A. Measurement of Alaska Office Building Canopy Footings will be based upon the completion of the entire WORK as a Lump Sum Pay Unit, complete, all in accordance with the requirements of the Contract Documents.

B. WORK under this Section includes all excavation, backfill, placement and removal of forms, and phasing requirements.

C. Forms, reinforcing steel, anchor bolts, and other such miscellaneous items necessary to complete the WORK will be considered incidental to this Pay Item.

D. Payment for Alaska Office Building Canopy Footings will be made at the amount named in the Bid Schedule under Pay Item No. 3302.2, which payment will constitute full compensation for all WORK described in Section 03302 – Concrete Structures, as shown on the Drawings and as directed by the ENGINEER.

3.3 CONCRETE SIDEWALK AND DRIVEWAY, 4 AND 6-INCHES THICK (Pay Item No. 3303.1) PRICE BASED ON QUANTITY, SQUARE YARD

A. Measurement of Concrete Sidewalk and Driveway, 4 and 6-Inches Thick will be based on the actual square yards complete in place and accepted.

B. The additional 2-inches of concrete in driveways will be considered incidental to this Pay Item.

C. Payment for Concrete Sidewalk and Driveway, 4 and 6-Inches Thick will be made at the Unit Price named in the Bid Schedule under Pay Item No. 3303.1, which payment will constitute full compensation for all WORK described in Section 03303 – Sidewalk, Curb and Gutter, as shown on the Drawings and as directed by the ENGINEER.

3.4 DETECTABLE TILE (Pay Item No. 3303.2) PRICE BASED ON QUANTITY, SQUARE FOOT

A. Measurement of Detectable Tile will be based on the square foot, complete in place and accepted.

B. The measurements will be made to the outside dimensions of the detectable tiles. The concrete surrounding the tile detailed on the Drawings will be measured for payment under Pay Item No.s 3305.1 and 3305.2.

C. The concrete beneath the detectable warning tile will be considered incidental to this Pay Item.

D. Payment for Detectable Tile will be made at the Unit Price named in the Bid Schedule under Pay Item No. 3303.2, which payment will constitute full compensation for all WORK described in Section 03303 – Sidewalk, Curb and Gutter, as shown on the Drawings and as directed by the ENGINEER.

3.5 CURB AND GUTTER, TYPE I (Pay Item No. 3303.3) PRICE BASED ON QUANTITY, LINEAR FOOT

A. Curb and Gutter, Type I, will be measured for payment per linear foot actually installed, complete in place as shown on the Contract Documents.

Measurements will be made along the face of the curb and will be continuous across catch basins.

B. Spill curb and gutter will be measured for payment under this Pay Item.

C. The type III valley gutter at the raised crosswalk at west third street will be measured for payment under this Pay Item.

D. Median Island end ramps will also be measured for payment under this Pay Item. Measurements will be made along an assumed face of curb 1'-6" off of the lip of the end ramps.

E. Payment for Curb and Gutter, Type I, will be made at the Unit Price named in the Bid Schedule under Pay Item No. 3303.3, which payment will constitute full compensation for all work described in Section 03303 - Sidewalk, Curb and Gutter, as shown on the Drawings, and as directed by the ENGINEER.

3.6 REMOVAL OF CONCRETE SIDEWALK AND DRIVEWAY (Pay Item No. 3304.1) PRICE BASED ON QUANTITY, SQUARE YARD

A. Removal of Concrete Sidewalk and Driveway will be measured for payment by the actual square yards of concrete slab originally in place, removed and disposed of, in accordance with the Contract Documents.

B. The Utilities will remove and stockpile the utiliwalk decking. Disposal of the utiliwalk decking will be measured for payment under this Pay Item.

C. Payment for Removal of Concrete Sidewalk and Driveway will be made at the Unit Price named in the Bid Schedule under Pay Item No. 3304.1, which payment will constitute full compensation for all WORK described in Section 03304 - Remove Existing Sidewalk, Concrete Slab or Curb and Gutter, as shown on the Drawings and as directed by the ENGINEER.

3.7 REMOVAL OF CURB AND GUTTER (Pay Item No. 3304.2) PRICE BASED ON QUANTITY, LINEAR FOOT

A. Removal of Curb and Gutter will be measured by the actual linear foot of concrete curb and gutter originally in place, removed and disposed of in accordance with the Contract Documents.

B. Disposal of the modified Curb and Gutter supporting the utiliwalk decking will be measured for payment under this Pay Item.

C. Payment for Removal of Curb and Gutter will be made at the Unit Price named in the Bid Schedule under Pay Item No. 3304.2, which payment will constitute full compensation for all WORK described in Section 03304 – Remove Existing Sidewalk, Concrete Slab or Curb and Gutter, as shown on the Drawings and as directed by the ENGINER.

3.8 SIDEWALK, GRANITE PAVERS (Pay Item No. 3305.1) PRICE BASED ON QUANTITY, SQUARE YARD

A. Measurement of Sidewalk, Granite Pavers will be made based on the actual square yards, complete in place and accepted.

B. This Pay Item includes the WORK to furnish and install precast Pavers, bedding and joint sand, paving and joint sealer, as described in Section 03305 – Concrete Pavers, and as shown on the Drawings.

C. This Pay Item includes the WORK to construct the concrete band along the buildings and/or at the back of edge of sidewalk, and all concrete immediately adjacent to detectable tiles.

D. No deduction will be made for utility lids.

E. Concrete pads for benches, trash cans, and pay to park stations will be measured for payment under Pay Item 2870.1.

F. Payment for Sidewalk, Granite Pavers will be made at the Unit Price named in the Bid Schedule under Pay Item No. 3305.1, which payment will constitute full compensation for all WORK described in Section 03305 – Concrete and Granite Pavers, as shown on the Drawings and as directed by the ENGINEER.

3.9 SIDEWALK, HOLLAND PAVERS (Pay Item No. 3305.2) PRICE BASED ON QUANTITY, SQUARE YARD

A. Measurement of Sidewalk, Holland Pavers will be made based on the actual square yards, complete in place and accepted.

B. This Pay Item includes the WORK to furnish and install precast Pavers, bedding and joint sand, paving and joint sealer, as described in Section 03305 – Concrete Pavers, and as shown on the Drawings.

C. This Pay Item includes the WORK to construct the concrete band along the buildings and/or at the back of edge of sidewalk. The additional concrete required where the concrete band is elevated above the top of pavers shall be considered incidental.

D. All concrete immediately adjacent to detectable tiles will be measured for payment under this Pay Item. No deduction will be made for utility lids.

E. Concrete pads for benches, trash cans, and pay to park stations will be measured for payment under Pay Item 2870.1.

F. Payment for Sidewalk, Holland Pavers will be made at the Unit Price named in the Bid Schedule under Pay Item No. 3305.2, which payment will constitute full compensation for all WORK described in Section 03305 – Concrete and Granite Pavers, as shown on the Drawings and as directed by the ENGINEER.

5.1A ALASKA OFFICE BUILDING CANOPY (Pay Item No. 5120.1A, Additive Alternate One) PRICE BASED ON LUMP SUM

A. Measurement for payment for Alaska Office Building Canopy will be based upon the completion of the entire WORK as a Lump Sum Pay Unit, complete, all in accordance with the requirements of the Contract Documents.

B. The WORK under this Item includes street canopies on the west side of Main Street between third and fourth street, all inclusive of required excavation, posts and structure, glazing system, wood soffits and other wood finishes, gutters and downspouts to a point of connection to storm sewer lines provided to the top of footing as shown on the Drawings.

C. Lighting WORK for the Alaska Office Building Canopy will be measured for payment under Pay Item No.s 16000.2 Lighting and 16000.3A Alaska Office Building Canopy Lighting as shown on the Drawings.

D. Payment for Alaska Office Building Canopy will be made at the amount named in the Bid Schedule under Pay Item No. 5120.1A, which payment will constitute full compensation for all WORK described in Section 05120 – Structural Steel, Section 05121 – Architecturally-Exposed Structural Steel Framing, Section 06200 – Finish Carpentry, Section 08635 – Metal-Framed Canopies, Section 08800 -- Glazing, and Section 09900 – Paints and Coatings as shown on the Drawings and as directed by the ENGINEER.

16.1 UTILIWALK REMOVAL AND DUCT BANK INSTALLATION COORDINATION (Pay Item No. 16000.1) PRICE BASED ON LUMP SUM

A. Measurement for payment for Utiliwalk Removal and Duct Bank Installation Coordination will be based upon the completion of the entire WORK as a Lump Sum Pay Unit, complete as shown on the Drawings, all in accordance with the requirements of the Contract Documents.

B. WORK under this Pay Item will include:

1. Coordination of all work by the Utilities.
2. Disposal of Utiliwalk removed by the Utilities.
3. Furnishing to the site approximately 220 tons of Base Course, Grading D-1, to be placed as bedding material by the Utilities.

C. WORK to be performed by the Utilities in conjunction with this Pay Item will generally include the removal of the existing Utiliwalks and installation of new ducts beneath a new sidewalk. The work will specifically include the following:

1. Removal of Utiliwalk covers and stockpile for removal by the Contractor.
2. Lifting and supporting of utility cables.
3. Removal of the Utiliwalk and stockpile for removal by the Contractor.
4. Preparation of the trench for conduit relocation.
5. Provision and installation of split ducts around the existing cables and conventional spare ducts.
6. Installation of bedding material around the relocated ducts.

D. Work performed by the Utilities will not be measured for payment within this contract.

E. The Selected Borrow required above the bedding and below the 2-Inch Minus Shot Rock with Base Course will be measured for payment under Pay Item 2202.2, Selected Borrow.

F. Disposal of the Utiliwalk covers will be measured for payment under Pay Item 3304.1, Removal of Concrete Sidewalk and Driveway.

G. Removal and disposal of the modified curb and gutter supporting the inside edge of the Utiliwalk cover will be measured for payment under Pay Item 3304.2, Removal of Curb and Gutter.

H. All traffic control and pedestrian access required for the Utilities to perform their WORK will be considered incidental to other Pay Items.

I. Payment for WORK performed by the CONTRACTOR on the Utiliwalk Removal and Duct Bank Installation Coordination will be made at the amount named in the Bid Schedule under Pay Item No. 16000.1, which payment will constitute full compensation for all WORK required as shown on the Drawings.

16.2 LIGHTING (Pay Item No. 16000.2) PRICE BASED ON LUMP SUM

A. Measurement for payment for Lighting will be based upon the completion of the entire WORK as a Lump Sum Pay Unit, complete, all in accordance with the requirements of the Contract Documents.

B. This WORK includes the provision of all of the underground circuits; ductwork and handholes; junction boxes; luminaires, poles, and foundations; and controls with the following exception:

1. The underground conductors and cables supplying power to the Alaska Office Building Canopy Lighting from the handhole at STA “M” 12+72, 30’LT, and all other above grade WORK required for the Alaska Office Building Canopy lighting. This WORK will be measured for payment under Pay Item 16000.3A Alaska Office Building Canopy Lighting.

C. The underground conduit from the handhole at STA “M” 12+72, 30’LT, through the Alaska Office Building Canopy footings to a termination point at the top of the footings as shown on the Drawings, shall be measured for payment under this Pay Item.

D. Pay to park stations will be provided by the City and Borough of Juneau. Installation of pay to park stations will be measured for payment under this Pay Item. The concrete pads for the pay to park stations will be measured for payment under Pay Item 2870.1.

E. The connection of the heated sidewalk mat cold leads to the existing court plaza building power supply on west third shall be considered incidental to this WORK. All other WORK associated with the heated sidewalk will be measured for payment under Pay Item 2502.4.

F. Payment for Lighting will be made at the amount named in the Bid Schedule under Pay Item No. 16000.2, which payment will constitute full compensation for all WORK described in Section 16060 – Grounding and Bonding, Section 16120 – Conductors and Cables, and Section 16131 – Underground Ducts and Utility Structures, Section 16140 – Wiring Devises, and Section 16521 – Exterior Lighting as shown on the Drawings and as directed by the ENGINEER.

16.3A ALASKA OFFICE BUILDING CANOPY LIGHTING (Pay Item No. 16000.3A, Additive Alternate One) PRICE BASED ON LUMP SUM

A. Measurement for payment for Alaska Office Building Canopy Lighting will be based upon the completion of the entire WORK as a Lump Sum Pay Unit, complete, all in accordance with the requirements of the Contract Documents.

B. This WORK includes the underground conductors and cables from the handhole at STA "M" 12+72, 30'LT as shown on the Drawings.

C. This WORK will also include all other lighting WORK required for the Alaska Office Building Canopy, including but not limited to, the provision and installation of luminaires, conduit, and circuits as shown on the Drawings.

D. Payment for Alaska Office Building Canopy Lighting will be made at the amount named in the Bid Schedule under Pay Item No. 16000.3A, which payment will constitute full compensation for all WORK described in Section 16060 – Grounding and Bonding, Section 16120 – Conductors and Cables, and Section 16131 – Underground Ducts and Utility Structures, Section 16140 – Wiring Devises, and Section 16521 – Exterior Lighting as shown on the Drawings and as directed by the ENGINEER.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

END OF SECTION

SECTION 01550 – SITE ACCESS AND STORAGE, PART 1 – GENERAL, Article 1.3, MAINTENANCE OF TRAFFIC, ***revise*** *paragraph* M. *to read:*

M. Special pedestrian detours are often necessary in areas adjacent to new construction due to demolition of existing sidewalks and other structures. The CONTRACTOR shall provide smooth, graded pathways free of mud, muck, and other materials that will be objectionable to people in street shoes. The pathways shall be a minimum of 36-inches-wide, and shall be clearly marked with staking, warning ribbons, or other methods to guide pedestrians through the construction areas and to their residence walkways, and business entrances, if applicable. Orange plastic fencing with metal posts shall be used for pedestrian control.

SECTION 01550 – SITE ACCESS AND STORAGE, PART 1 – GENERAL, Article 1.3, MAINTENANCE OF TRAFFIC, ***add*** *the following:*

U. A Traffic Control Plan (TCP) is required for this project, see TCP Form located at the end of Special Provisions. The CONTRACTOR shall provide a TCP approved by the ENGINEER, and the CBJ General Engineering Division prior to commencement of this Project. All approvals shall be obtained by the CONTRACTOR and shall be considered incidental to the Contract, and no separate payment shall be made.

***Add** the following Section*:

SECTION 01570 – EROSION CONTROL

PART 1 - GENERAL

1.1 THE REQUIREMENT

A. The CONTRACTOR shall provide for erosion control during construction in accordance with the requirements of the Alaska Department of Environmental Conservation (ADEC). All sedimentation from on-site drainage shall be caught on-site.

B. The WORK under this section includes providing all labor, materials, tools and equipment necessary to construct and maintain temporary erosion control works; including but not limited to, wattles, silt fences, silt containment booms, settling ponds, check dams, ditches, etc.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Materials shall be suitable for the intended use and perform effectively to control silt and surface erosion. All materials shall remain the property of the CONTRACTOR.

PART 3 - EXECUTION

3.1 GENERAL

A. The CONTRACTOR shall install temporary erosion control structures and devices as necessary and/or as directed by the ENGINEER. They shall be maintained in effective operating condition at all times. Catch basin silt screens, silt fences and any other silt collection devices shall be cleaned whenever they have become half-filled with silt or debris, and other items shall be cleaned, repaired, or replaced as necessary. Prior to completion of work, the CONTRACTOR shall clean and remove all silt and debris from the settling pond and check dams.

B. Temporary erosion control structures shall remain in place until the project is completed and replaced by permanent erosion control WORK, protected by final stabilization or until the ENGINEER approves their removal.

C. The CONTRACTOR shall be responsible for meeting the requirements of all permits (including permits naming the OWNER, or other parties); therefore, shall be responsible for the quality of the run-off water from the Project site and for any fine and penalties resulting from the construction operation .

D. The CONTRACTOR is responsible to prepare, submit and maintain a Storm Water Pollution Prevention Plan (SWPPP) in accordance with the Alaska

Construction General Permit (CGP) to ADEC that is in accordance with their construction methodologies and sequences.

1. For projects disturbing greater than 1 Acre, this requirement shall include submission of a Notice of Intent (NOI) to ADEC and

E. The CONTRACTOR shall submit to the ENGINEER Erosion and Sediment Control Plan, a copy of the NOI and documentation of their submittal of the SWPPP to ADEC, prior to beginning any WORK at the Project site. WORK at the Project site will not be permitted until approval of this plan has been obtained from the governing agency or agencies.

F. The CONTRACTOR shall submit NOT (Notice of Termination) at completion of the WORK and removal of all SWPPP items.

END OF SECTION

SECTION 01700 – PROJECT CLOSE-OUT, PART 1 - GENERAL, Article 1.3, FINAL SUBMITTALS, Paragraph A. ***Delete*** Items 6, 7 and 8 and ***replace with*** *the following sub-paragraph:*

6. Compliance Certificate and Release, signed by the CONTRACTOR, shall be submitted to the Engineering Contract Administrator.

SECTION 01700 – PROJECT CLOSE-OUT, PART 1 – GENERAL, Article 1.3, FINAL SUBMITTALS. ***Add*** *the following paragraph:*

C. Before final payment, the CONTRACTOR shall provide the OWNER with clearance from the Alaska Department of Labor and Workforce Development for the CONTRACTOR and all Subcontractors that have worked on the Project. This clearance shall indicate that all Employment Security Taxes have been paid. A sample form for this purpose is at the end of Section 00800 – Supplementary General Conditions.

SECTION 01700 – PROJECT CLOSE-OUT, PART 1 - GENERAL, ***add*** *the following Article:*

1.5 PROJECT SIGN ASSEMBLY REMOVAL

A. The Project sign assembly shall be removed and the Project sign panel delivered to the CBJ Project Manager, as directed by the ENGINEER.

B. No progress payments will be processed by the OWNER after the CONTRACTOR has been directed by the ENGINEER to remove and deliver the Project sign panel to the CBJ, until the Project sign panel has been received by the CBJ.

SECTION 01700 – PROJECT CLOSE-OUT, PART 1 – GENERAL. ***Replace*** *the* COMPLIANCE CERTIFICATE AND RELEASE FORM *with the following form located at the end of this Section.*

COMPLIANCE CERTIFICATE AND RELEASE FORM

PROJECT: MAIN STREET, SECOND TO FIFTH STREET IMPROVEMENTS
CONTRACT NO: E12-167

The CONTRACTOR must complete and submit this to the Engineering Contracts Administrator with respect to the entire contract.

Completed forms may be submitted upon completion of the Project. All requirements and submittals must be met before final payment will be made to the CONTRACTOR.

I certify that the following and any referenced attachments are true:

- All WORK has been performed, materials supplied, and requirements met in accordance with the applicable Drawings, Specifications, and Contract Documents.

- All Suppliers and Subcontractors have been paid in full with no claims for labor, materials or other services outstanding. If all Subcontractors and suppliers are not paid in full, please explain on a separate sheet.

- All employees have been paid not less than the current prevailing wage rates set by the State of Alaska (or U.S. Department of Labor, as applicable).

- All equal employment opportunity, certified payroll and other reports have been filed in accordance with the prime contract.

- The attached list of Subcontractors is complete (required from CONTRACTOR). The Engineering Contract Administrator was advised and approved of all Subcontractors before WORK was performed and has approved any substitutions of Subcontractors.

- All DBE firms listed as a precondition of the prime contract award must have performed a commercially useful function in order for the WORK to count to a DBE goal. All DBE firms performed the WORK stated and have received at least the amount claimed for credit in the Contract Documents.

- All DBE Subcontractors must attach a signed statement of the payment amount received, the nature of WORK performed, whether any balance is outstanding, and indicate that no rebates are involved.

- If the amount paid is less than the amount originally claimed for DBE credit, the CONTRACTOR has attached approval from the Engineering Contract Administrator for underutilization.

I understand it is unlawful to misrepresent information in order to receive a payment which would otherwise be withheld if these conditions were not met. I am an authorized agent of this firm and sign this freely and voluntarily. The foregoing statements are true and apply to the following project contractor.

_____ Capacity: CONTRACTOR
Firm Name

_____ _____ _____
Signed Printed Name and Title Date

Return completed form to: Jennifer Mannix, Engineering Contracts Administrator, City and Borough of Juneau, 155 South Seward Street, Juneau, AK 99801. Call (907) 586-0873 if we can be of further assistance or if you have any questions.

END OF SECTION

Add *the following Section:*

SECTION 01704 – FINAL CLEAN-UP AND SITE RESTORATION

PART 1 - GENERAL

1.1 DESCRIPTION

A. The WORK under this section includes providing all supervision, labor, materials, tools and equipment necessary for final clean-up and restoration of all areas disturbed by construction activities, to a condition equal to, or better than, before construction started. This does not include clean-up or restoration incidental to, or directly provided for by, other construction items.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Any materials required shall conform to the appropriate section of these Specifications.

PART 3 - EXECUTION

3.1 CONSTRUCTION

A. The CONTRACTOR shall clean up all sites disturbed during construction of the Project. This includes removal of all construction equipment, disposal of all excess materials, disposal of all rubbish and debris, removal of all temporary structures, and grading of the sites so that no standing water is evident.

B. If the CONTRACTOR has obtained material from the CBJ/State pit, the excavated area shall be cleaned up and any stipulations required by the Individual Mining Plan shall be completed. The gravel pit overhead charge shall be paid to CBJ within 60 days after removal of material from the pit.

END OF SECTION

SECTION 02202 – EXCAVATION AND EMBANKMENT, PART 2 – PRODUCTS, ***replace*** Article 2.7, SHOT ROCK BORROW, *in its entirety with the following:*

A. Shot Rock Borrow shall consist of 10-inch minus shot rock and shall contain no mulch, frozen material, roots, sod or other deleterious matter. The shot rock borrow shall be evenly graded, with at least 10% by weight retained on the 8-inch screen.

B. Shot Rock Borrow shall have a plasticity index not greater than 6, as determined by AASHTO T90. It shall consist of not more than 6% by weight of particles that pass the No. 200 sieve as determined by ATM T-7. The percent of minus No. 200 material will be determined on minus 3-inch material.

C. At least 50% by weight of the particles retained on the 3/8-inch sieve shall have at least two fractured faces as determined by ATM T-4.

D. Elongation Specification:
The length of the crushed stone backfill shall not be more than twice the designated screen dimensions.

E. Sodium Sulfate Loss:
Aggregate shall pass the percent sodium sulfate loss per AASHTO T 104 with 9% maximum.

F. LA Abrasion:
Percent of wear per AASHTO T 96 shall be 45% maximum.

G. Shot Rock Borrow for this project shall have a maximum Nordic Abrasion value of 18. Test procedure for Nordic Abrasion is Alaska Test Method 312. This is available at the CBJ Engineering Department and State of Alaska Department of Transportation and Public Facilities Southeast Region Materials Laboratory.

SECTION 02202 – EXCAVATION AND EMBANKMENT, PART 2 - PRODUCTS, ***add*** *the following Articles:*

2.8 2-INCH MINUS SHOT ROCK

A. 2-Inch Minus Shot Rock shall contain no mulch, frozen material, roots, sod or other deleterious matter.

B. The shot rock shall have a plasticity index not greater than 6, as determined by AASHTO T 90. It shall consist of not more than 3% by weight of particles that pass the No. 200 sieve, as determined by ATM T-7.

C. At least 50% by weight of the particles retained on the 3/8-inch sieve shall have at least two fractured faces as determined by ATM T-4.

D. At least 80% by weight of particles shall be retained on the 1-inch sieve.

E. Elongation Specifications:
The length of the crushed stone backfill shall not be more than twice the designated screen dimensions.

F. Sodium Sulfate Loss:
Aggregate shall pass the percent sodium sulfate loss per AASHTO T 104 with 9% maximum.

G. LA Abrasion:
Percent of wear per AASHTO T 96 shall be 45% maximum.

H. 2-Inch Shot Rock for this project shall have a maximum Nordic Abrasion value of 18. Test procedure for Nordic Abrasion is Alaska Test Method 312. This is available at the CBJ Engineering Department and State of Alaska Department of Transportation and Public Facilities Southwest Region Materials Laboratory.

2.9 USABLE MATERIAL FROM EXCAVATION. Usable material from excavation shall meet the requirements for Embankment.

SECTION 02202 – EXCAVATION AND EMBANKMENT, PART 3 – EXECUTION, Article 3.4, EMBANKMENT CONSTRUCTED FROM ROCK FRAGMENTS, ***add*** *the following paragraphs:*

C. Shot Rock Borrow may be placed within the embankment in a single lift where 18-inches or less. Embankments over 18-inches shall be placed in lifts not exceeding 18-inches.

D. All rock embankment surfaces shall be rolled full width with as many passes of a vibratory roller as required to obtain a solid mass of interlocking rock fragments, prior to placement of subsequent layers of material.

E. The surface of the shot rock borrow shall be sealed with fines from the shot rock material, or shall have imported clean sand or other non-frost-susceptible material used to seal the surface, as approved by the ENGINEER, before placement of the 2-inch minus shot rock base course. This work will be considered incidental to other WORK under the contract.

SECTION 02202 – EXCAVATION AND EMBANKMENT, PART 3 - EXECUTION, ***add*** *the following Articles:*

3.6 2-INCH MINUS SHOT ROCK / D-1 BASE COURSE

A. 2-Inch Minus Shot Rock shall be placed to the depths as shown or described on the Drawings, and compacted to a firm, interlocking mass prior to placing any D-1 base course.

B. Base Course, Grading D-1 shall not be placed over the 2-Inch Minus Shot Rock until approved by the ENGINEER. The D-1 Base Course shall be compacted as directed by the ENGINEER.

3.7 INDIVIDUAL MINING PLANS

A. If the CONTRACTOR decides to use material from the CBJ/State Lemon Creek Borrow Pit or Stabler's Point Rock Quarry, the CONTRACTOR shall provide an Individual Mining Plan that conforms to the requirements of Section 00700 – General Conditions, Article 4.6.

B. The Individual Mining Plan shall be developed using the survey information provided by the OWNER, or the CONTRACTOR may provide an independent survey with two-foot contours of the Pit and Quarry property. The survey shall provide sufficient survey information to calculate quantities, shown drainage features and property boundaries. If the CONTRACTOR uses the OWNER furnished survey information, the Individual Mining Plans shall be done in CAD.

SECTION 02203 – TRENCHING, PART 2 - MATERIALS, Article 2.2 BEDDING, ***delete*** *paragraph A.*

SECTION 02203 – TRENCHING, PART 2 - MATERIALS, Article 2.3 BACKFILL, ***Add*** *the following paragraph*:

B. Concrete Backfill is defined as Backfill material consisting of Portland Cement Concrete with a minimum compressive strength of 2,000 psi.

SECTION 02203 – TRENCHING, PART 3 - EXECUTION, Article 3.3 BACKFILL, ***Add*** *the following paragraph*:

E. Where Backfill cannot be compacted to 95% of optimum density within the street and sidewalk limits, as shown on the Drawings, Concrete Backfill shall be used above the bedding material and below the base course material.

SECTION 02204 – BASE COURSE, PART 2 – PRODUCTS Article 2.1, MATERIALS, ***add*** *the following paragraph:*

E. Base course for this project shall have a maximum Nordic Abrasion Value of 18, as determined by ATM 312, and shall meet the gradation requirements for grading D-1.

SECTION 02401 – SANITARY SEWER PIPE, PART 2 – PRODUCTS, ***add*** *the following Articles:*

2.9 PVC PIPE SWEEPS

A. PVC Pipe Sweeps shall be constructed of SDR 35 PVC Sewer Pipe as indicated on the plans.

B. PVC Pipe Sweeps shall be manufactured radius and sweep angle as indicated on the Plans and shall be manufactured by the following or an approved alternate manufacturer:
Specified Fittings, Inc.
164 West Smith Road
Bellingham, WA 98226
888-734-8846

2.10 PIPE CONNECTORS

A. "Mission Flex Seal" connectors will not be acceptable for use on this project.

SECTION 02401 – SANITARY SEWER PIPE, PART 3 - EXECUTION, Article 3.1, CONSTRUCTION, ***add*** *the following paragraphs:*

S. Service Connections and Laterals shall be 6-inch PVC, and shall be provided with a cleanout as shown on CBJ Standard Detail 214 – Sanitary Sewer Connection. The cleanout shall be located with the cleanout cover 6-inches from the property line, unless otherwise shown on the Drawings, or as directed by the ENGINEER. The cleanout shall be provided with a locking ductile iron, or cast iron frame and cover.

T. Sewer Services shall be graded at 2% from the connection at the main through the cleanout, unless otherwise approved by the ENGINEER. Bends (45° or less) shall be used as required to connect to the existing pipe.

SECTION 02402 – SANITARY SEWER MANHOLES AND CLEANOUTS, PART 2 - PRODUCTS, Article 2.3, MISCELLANEOUS, ***delete*** *paragraph F and* ***replace*** *with the following:*

F. Manhole exterior joint waterproofing shall be a Miradri system as manufactured by Carlisle CCW, including Carlisle – CCW 704 primer, CCW Miradri 861 Membrane, and CCW 704 mastic, or approved equal that includes a membrane and adhesive system for positive water exclusion. The membrane shall extend at least 18" each side of manhole joints, except this width may be reduced to 9" each side of manhole joints if the joint is less than 4-feet below finish grade and the joint is above the maximum water table.

G. Delete the requirement for the flexible annular space filler, as shown on CBJ Standard Detail 209 – Manhole Connection Details, for the Flexible Seal Adapter.

H. Manhole Grade Ring Adjustment Units:

1. Manhole grade adjustment units shall be Recycled Adjustment Risers, "Infra-RISER," as manufactured by GNR Technologies, or approved equal.
2. The adjustment riser shall consist of no less than 80% by weight recycled rubber from tires, and no less than 10% by volume shredder fiber. The riser shall meet or exceed the following when tested on units not less than 24 hours old, and not more than 60 days old, and maintained at 23±2°C (73±3°F) for at least 12 hours prior to and during testing.

Physical Property	**Test Method**	**Acceptable Results**
Density	ASTM C642-90	1.098±0.05g/cm^3
Durometer hardness - molded surface	GNR method based on ASTM D 2240	75A±5 points
Durometer Hardness - interior surface	GNR method based on ASTM D 2240	73A± 5 points
Tensile Strength	ASTM 412-87	1.6 MPa (232 pai) (not < 1 Mpa)
Compression Deformation - initial deformation	GNR method based on ASTM D 575	under 1 MPa (145 psi) 6±2%
Compression Deformation - final deformation	GNR method based or ASTM D 575	under 1 MPa (145 psi) 6±2%
Compression Set	GNR method based On ASTM 395	under 1 MPa (145 psi) 0.4% (=4% max.)

Brittleness at low temperature	ASTM D 746-79	-40° F (-40°C)
Freeze/Thaw when exposed to deicing chemicals	ASTM 672-91	no loss after 50 cycles
Coefficient of thermal Expansion	ASTM C 531-85	1.6 X 10^4 mm/mm/°C (8 X 10^5 in/in/°F
Weathering 70 hr. @ 70°C	ASTM D 573-88	
- hardness retained		100%
- compressive strength retained		100%
- tensile strength retained		100%
- elongation retained		100%

3. Each adjustment riser shall be clearly marked on the inside surface with the manufacturer's name and location of the manufacturer.
4. The manufacturing process shall be such that individual units will be consistent in quality and appearance. All rough edges shall be trimmed prior to shipping.
5. The thickness of the adjustment riser shall be within 3 mm of the manufacturer's stated dimensions. All other dimensions shall be within 5 mm.
6. Except for shim or wedge units, the deviation from the plane parallel to the theoretical surface shall not be greater than 1 in 500.

I. Sanitary sewer manholes shall be provided with a fiberglass reinforced base liner system.

1. The base liner shall be a non-load bearing component integrally cased and adequately anchored inside new precast concrete manhole base sections during concrete casting at the concrete precaster's manufacturing facility.
2. The prefabricated fiberglass manhole base liner shall be a one piece construction of unlayered homogeneous composite with a minimum thickness of 0.12" to 0.20".
3. The prefabricated fiberglass manhole base liner shall include full flow channels with side walls to the crown of the pipe, inner surface of the bench to have an anti-skid pattern.
4. Fiberglass/PVC boot hole sleeves to suit the specific pipe types, grade and alignment shall be monolithically attached to the prefabricated base liners.
5. The fiberglass reinforced base liner system shall be as manufactured by GU International Fiberglass Base Liner, GU Hub-Rubber Connector or approved equal.

SECTION 02402 – SANITARY SEWER MANHOLES AND CLEANOUTS, PART 3 - EXECUTION, Article 3.1 CONSTRUCTION, ***delete*** *paragraphs M through R and* ***replace*** *with the following paragraphs:*

M. Up to 24-inches thick washed rock or shot rock shall be placed beneath each manhole to provide a stable base pad.

N. The CONTRACTOR shall repair all imperfections and leaks disclosed by either visual inspection or testing. The method of repair shall be subject to the ENGINEER's approval.

O. Manhole Grade Ring Adjustment Units are required for each new sanitary sewer manhole, reconstructed sanitary sewer manhole, and adjustment of existing manhole to grade.

1. Each manhole shall contain at least one recycled rubber riser, with thickness varying to match frame and cover to finish grade requirements, to form the final surface for installation of the frame.
2. The total height of the rubber adjustment riser shall be a minimum of 1" and a maximum of 3".
3. Concrete and steel surfaces to receive sealing compound shall be clean, dry and free of grease or oils.
4. Adjustment risers shall be bonded to adjacent surfaces by laying a continuous bead, 5/16" thick cold applied joint sealant compound conforming to ASTM-D 1850 (PL Premium POLYURETHANE Door, Window & Siding Sealant *or* PL Premium POLYURETHANE Concrete & Masonry Sealant, formerly Chemrex CX-22) or equivalent, on the top surface of the concrete course, or the bottom surface of the riser, on a diameter 1" smaller than the outside diameter of the rubber adjustment riser.
5. The adjustment riser shall then be seated firmly in place, ensuring it is centered over the opening. Apply a second continuous strip of sealant to the top surface of adjustment riser, 0.5" from the outside diameter of the rubber adjustment riser or manhole frame.
6. The adjustment riser must form the final surface for the seating of the frame and cover assembly. Concrete adjustment units must not form the final surface for seating the frame.
7. If more than one adjustment riser is required, a continuous bead of sealant shall be applied between each unit in the same manner as in paragraph 4 above. A continuous bead of sealant shall also be placed on the top surface of the concrete course or on the bottom surface of the bottom riser and to the top surface of the top adjustment riser.
8. The frame shall then be set firmly in place ensuring that it is properly centered over the structure opening and is firmly contacting the rubber riser through the sealant.
9. Adjustment risers shall have an inside diameter that is within 2" of the inside diameter of the concrete structure, and equal to the outside diameter of the concrete structure ±2".

P. Manhole frames and covers shall be set to final grade prior to final paving operations, with the compacted pavement to provide a depression to the top of manhole frame within the allowable limits of 3/8-inch minimum to ¾-inch maximum, as determined by using an 8-foot-long straight edge across the frame in all directions.

1. The frame can be set to final position prior to the laydown machine passing over the structure, or immediately following the laydown machine passing over the structure.
2. The intended purpose of these requirements is that the asphalt pavement is compacted to grade around the frame and cover with no cut out of compacted pavement allowed.
3. If the depression of the frame and cover below finish pavement is found to be out of allowable tolerances after the pavement has cooled to the point that sawcutting and removal of the pavement is necessary, the following corrective action will be required:

    a. A square cut-out of the pavement shall be made to a minimum of 6-inches and maximum of 8-inches outside the edge of frame flange, with this cut-out oriented with the sides at 45° to traffic.
    b. A concrete transition slab shall be constructed as shown in the detail on Drawing No. 6. This slab shall be allowed to cure for a minimum of 48 hours before placing the hot asphalt mix over the transition slab.
    c. This WORK shall be completed prior to the street fog sealing operation.

Q. Manhole riser rings shall be sealed to the top of manhole cone or flattop and to each other with one run of "RAM-NEK" or "RUB-R-NEK" around the inside edge and one run around the outside edge of the riser ring. The units shall be heated and compressed to at least 50% of original thickness of the "RAM-NEL" or "RUB-R-NEK." No grout shall be used to seal the riser rings.

SECTION 02501 – STORM SEWER PIPE, PART 2 - PRODUCTS, ***add*** *the following Articles:*

2.9 UNDERGROUND MARKING TAPE

A. Underground Marking Tape shall be yellow, at least 4-inches wide, 4-mil thick, polyethylene tape with a metallic backing capable of being traced with locators. The tape shall have black letters with the following wording: "Caution: Storm Sewer Line Buried Below," or similar. The marking tape shall be installed 12-inches above the top of all storm sewer mains and services.

2.10 6-INCH UNDERDRAIN

A. Pipe shall be perforated and shall meet the requirements of Article 2.6, Corrugated Polyethylene Pipe, of this Section.

B. Drainage rock shall be 1" minus crushed stone meeting the following gradation in accordance with ASTM D-422:

Sieve Size	Percent Passing
1-Inch	100
¾-Inch	75 – 100
No. 4	0 – 10
No. 50	0 – 5

C. Filter cloth shall be Type A and shall meet the requirements of Section 02714 – Filter Cloth.

SECTION 02501 -- STORM SEWER PIPE, PART 3 – EXECUTION, Article 3.1, CONSTRUCTION. ***Add*** *the following paragraph:*

P. 6-Inch Underdrain is a contingency item and shall be installed at those locations as directed by the ENGINEER.

1. 6-inch pipe, where used to connect the 6-inch underdrain pipe to catch basins and saddle tees, will be measured for payment under Pay Item No. 2501.1, 4 & 6-Inch Pipe Culvert.

SECTION 02502 – STORM SEWER MANHOLES, INLETS AND CATCH BASINS, PART 2 - PRODUCTS, ***add*** *the following article:*

2.8 6-INCH TRENCH DRAINS

A. Trench drains shall be ACO KS100S modular systems or an approved equal.

B. Trench drain grates shall be as noted on the Drawings

C. Concrete and reinforcing steel used for this WORK shall be in accordance with Section 03302-CONCRETE STRUCTURES.

2.9 HEATED SIDEWALK

A. Heating mat shall be EASY HEAT Sno Melter G30x36-2-50, or approved equal.

B. Snow-Ice detector shall be EASY HEAT model SI-120U or equivalent EASY HEAT product.

SECTION 02502 – STORM SEWER MANHOLES, INLETS AND CATCH BASINS, PART 3 - EXECUTION, Article 3.1, CONSTRUCTION, ***delete*** *paragraph C and* ***replace*** *with the following paragraph C.:*

C. Metal frames shall be set over the cast-in-place concrete support structure with a maximum ¼-inch thick mortar bed.

Add *the following paragraphs:*

Q. Modular trench drain systems shall be installed in accordance with the manufacturer's recommendations, and as directed by the ENGINEER.

R. Prior to installing heated sidewalk at West Third Street, field verify materials in existing heated sidewalk prior to ordering new materials.

S. Install heating mat according to manufacturer's recommendations, and as follows:

1. Install heating mat at a sufficient depth in the sidewalk to keep contraction joints from exposing the mat.
2. Pour concrete sidewalk in two lifts. After the first lift is poured and leveled, place the heating mat on the fresh concrete and proceed to pour the second lift. Second lift shall be a minimum of 1.5" thick.

T. Install Snow-Ice Detectors according to manufacturer's recommendations. Snow-Ice Detector sensors shall be installed in concrete sidewalk above heating mat, but flush with top of sidewalk.

SECTION 02603 – FIRE HYDRANTS, PART 2 – PRODUCTS, Article 2.1, FIRE HYDRANTS, paragraph F. ***Delete*** *the first sentence and* ***replace*** *with the following:*

Fire hydrants shall be three-way and furnished with two 2-1/2-inch hose nozzles and one 5-inch pumper nozzle. The pumper nozzle shall be one-piece design, compatible with 5-inch Storz hose coupling. The nozzle shall be an integral part of the fire hydrant assembly, resistant to tamper or removal by persons not familiar with the art of fire hydrant construction. Add-on Storz compatible adapters shall not be acceptable.

SECTION 02605 – WATER SERVICES, PART 2 – PRODUCTS, Article 2.1, WATER SERVICES, ***delete*** *paragraph C and* ***replace*** *with the following:*

C. Service pipe and fittings shall be cold drawn, seamless annealed Type K Copper. Fittings for pipe less than 2-inches in diameter shall be flared bronze fittings. Fittings for 2-inch pipe shall be bronze grip-lock compression fittings.

SECTION 02605 – WATER SERVICES, PART 3 – EXECUTION, Article 3.1, CONSTRUCTION. ***Add*** *the following paragraphs:*

E. Thaw wires shall be placed over a 6-inch minimum layer of backfill so thaw wire does not come in contact with copper tubing. When two or more services are placed in same trench, thaw wires shall have a 6-inch minimum clearance between adjacent thaw wires.

F. Thaw wires shall be run into the service box near the top of box through a drilled hole large enough for the thaw wire. No cutting or notching of the service box will be permitted.

Add *the following Section:*

SECTION 02607 – PIPE INSULATION

PART 1 - GENERAL

1.1 DESCRIPTION. The WORK under this Section includes providing all labor, materials, tools and equipment necessary for furnishing and installing pipe insulation for water pipe and service pipe at locations shown on the Drawings and as directed by the ENGINEER.

PART 2 - PRODUCTS

2.1 RIGID INSULATION. Rigid insulation shall be rigid board closed cell polystyrofoam material containing a flame retardant additive specifically designed for underground pipe or pavement installations, equivalent to Dow Chemical Company Styrofoam HI, and approved by the ENGINEER.

2.2 SPRAYED-ON INSULATION. Sprayed-on urethane foam insulation applied directly to the pipe exterior with an elastomeric coating, may be approved by the ENGINEER, provided the material has demonstrated a satisfactory performance history in underground installation and has the following physical properties:

Density	2 pcf, Minimum
Compressive Strength (ASTM D 1621)	35 psi, Minimum at 5% Deflective or Yield
Water Absorption (ASTM C 177)	0.25% by Vol. Maximum
Thermal Conductivity (ASTM C 177)	$\frac{\text{Max. 0.23 BTU}}{\text{Hr. Ft.}^2 \text{ EF. In. Thickness}}$

PART 3 - EXECUTION

3.1 CONSTRUCTION

A. When water pipes or service pipes have less than 5-feet of cover to finished grade or vertical clearance at a culvert crossing, either above or below, they shall be insulated as shown on CBJ Engineering Standard Detail 412 – Rigid Insulation.

B. Rigid insulation shall be a minimum of 2-feet wide and 2-inches thick. The length of insulation required shall be as shown on the Drawings or as directed by the ENGINEER. Insulation shall be placed between 6 and 12-inches from the water pipe or service pipe with the width centered on the longitudinal axis of the water pipe or service pipe as shown on CBJ Engineering Standard Detail 412 – Rigid Insulation.

C. Sprayed-on urethane foam insulation shall be a minimum of 4-inches thick and be installed in strict conformance to the manufacturer's recommendations. Precautions to protect CONTRACTOR personnel, Project inspectors, and the public in general shall be taken by the CONTRACTOR in compliance with OSHA Standards and the manufacturer's recommendations.

END OF SECTION

SECTION 02710 – SEEDING, ***delete*** *the section in its entirety.*

SECTION 02714 – FILTER CLOTH, PART 2 – PRODUCTS, Article 2.1, CLOTH, ***add*** *the following:*

F. Stabilization Fabric shall be "Mirafi Filterweave 404," or approved equal.

SECTION 02716 – REMOVAL AND DISPOSAL OF CULVERT PIPE, ***delete*** *in its entirety and* ***replace*** *with the following Section:*

SECTION 02716 – WATER, STORM AND SANITARY PIPE REMOVAL

PART 1 - GENERAL

1.1 DESCRIPTION. The WORK under this Section includes providing all labor, tools and equipment necessary for removal and disposal of existing water, storm drainage and sanitary sewer pipe and culvert headwalls within the Project limits designated for removal.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

A. GENERAL. All water, storm drainage and sanitary sewer pipe, 6-inches or larger, shown on the Drawings for removal shall be removed and backfilled with suitable material to match the adjacent ground surface. Usable material from Project trench excavation shall be used as backfill. Disposal of the pipe shall be in accordance with these Specifications.

B. Existing piping required for removal for this Project includes all water and sanitary sewer pipe encountered within the pipe trenches. All pipe 4-inches, or larger, removed to the trench walls shall be plugged with grout. Existing piping less than 6-inches, located outside the trench limits may be left in place, except that all open pipe ends shall be plugged.

END OF SECTION

SECTION 02718 – SIGN ASSEMBLY, PART 3 - EXECUTION, Article 3.1, GENERAL, ***replace*** *paragraph A with the following:*

A. All material shall conform to the requirements of CBJ Standard Details 127A and 127B.

add *the following paragraph:*

H. Sign assemblies shall be installed as detailed in the Sign Assembly Table on the Drawings.

SECTION 02720 – PAINTED TRAFFIC MARKINGS, PART 2 – PRODUCTS, Article 2.1 – MATERIAL. ***Revise*** *paragraph A as follows:*

A. Traffic markings shall be alkyd pavement markings conforming to the requirements of AASHTO M 248, Type F.

SECTION 02801 – ASPHALT CONCRETE PAVEMENT, PART 1 - GENERAL, Article 1.1, DESCRIPTION, ***revise*** *paragraph B as follows:*

B. Asphaltic concrete mix for this Project shall be Type II-A, Class B. See Table 02801-1.

SECTION 02801 – ASPHALT CONCRETE PAVEMENT, PART 1 – GENERAL, Article 1.1, DESCRIPTION, ***revise*** TABLE 02801-1, ASPHALTIC CONCRETE MIX REQUIREMENTS, *as follows:*

Design Parameters	Class A	Class B
Voids in total mix, percent	2.5 – 4.0%	2.5 – 4.0%
Percent oil content	6.0 – 6.8%	6.0 – 6.8%

SECTION 02801 -- ASPHALT CONCRETE PAVEMENT, PART 3 – EXECUTION, Article 3.10, JOINTS, ***add*** *the following paragraph:*

J. All joints with existing asphalt pavement shall be resealed with asphalt cement after the new pavement has cooled to ambient temperature. All joints with concrete gutters found to have a gap shall be blown out using a weed burner torch, filled with asphalt cement and covered with a layer of dry sand. Excess sand shall be removed and asphalt cement placed on the concrete gutter more than one-inch from the edge of gutter shall be removed using solvent or other approved methods.

SECTION 02801 -- ASPHALT CONCRETE PAVEMENT, PART 3 – EXECUTION Article 3.13, ACCEPTANCE SAMPLING AND TESTING, ***add*** *the following paragraph*

K. For each lot of asphalt pavement produced, at least two (2) samples shall be taken by the CONTRACTOR for purposes of acceptance testing by the OWNER. The CONTRACTOR shall split the sample with the OWNER to retain a portion for their own use. The sample shall be taken according to proper sampling methods, from the asphalt pavement on the grade.

Based on the averaged results of the acceptance testing, a deduction from the asphalt pavement pay item may be made at the following amounts:
#200 Sieve: the greater of either 1.0% the contract price for asphalt pavement placed within the sampled lot or $500 per each 0.1% outside the job mix design tolerance, not exceeding 6% maximum, of the percent passing the #200 sieve.

Asphalt Content: the greater of either 1.0% the contract price for asphalt pavement placed within the sampled lot or $500 per each 0.1% outside the allowable job mix design asphalt content tolerance. The allowable asphalt content tolerance for this Contract shall be +/- 0.4% of the target job mix design asphalt content and shall not exceed the asphalt oil content limits specified in this Contract.

The pay deductions for exceeding the job mix design tolerances does not constitute acceptance of a mix that does not meet the specifications. Further acceptance testing will be performed to determine if the asphalt pavement specifications have been met. No payment for asphalt pavement will be made for

asphalt pavement exceeding job mix design tolerances, or not meeting asphalt pavement specifications, until additional testing determines whether the asphalt pavement meets all other specifications.

For the purposes of this Contract, one lot of asphalt pavement is defined as 500 tons, or a single day's asphalt pavement production of at least 100 tons.

SECTION 02803 - FOG SEAL COAT, PART 2 - PRODUCTS, Article 2.1, MATERIALS, ***revise*** *paragraph C to read as follows:*

C. The blotter material shall be suitable, dry, clean sand.

Add *the following Section:*

SECTION 02804 – HOT MIX ASPHALT-TREATED BASE COURSE

PART 1- GENERAL

1.1 DESCRIPTION

A. The WORK under this Section consists of the furnishing and mixing of aggregate and asphalt cement at a central mixing plant, and the hauling, spreading, and compaction of the mixture all as specified conformance with the lines, grades and thickness shown on the Drawings.

PART 2- PRODUCTS

2.1 AGGREGATES

A. The aggregate shall conform to the following:

1. Aggregate shall be crushed stone or crushed gravel, and shall consist of sound, tough, durable pebbles or rock fragments of uniform quality. All material shall be free from clay balls, vegetable matter or other deleterious matters. In addition, aggregate shall meet the following requirements:

Percent of Wear	AASHTO T 96	50 max
Degradation Value	ATM T-13	30 min
Percent Fracture	ATM T-4	70 min
Plastic Index	AASHTO T 90	6 max

2. The gradation shall conform to the requirements of the table below.

ATB AGGREGATE GRADATION
(Percent passing by weight)

Sieve Design.

1	100
3/4	70-100
3/8	50-80
No.4	35-65
No.8	20-50
No.40	8-30
No.200	0-6

B. The acceptance of aggregates will be based upon representative samples taken from the stockpile.

2.2 ASPHALT

A. The type and grade of asphalt cement material will be as required under Section 02801 – Asphalt Concrete Pavement.

B. The asphalt cement materials shall conform to the applicable requirements of Section 02801 – Asphalt Concrete Pavement, and will be conditionally accepted at the source.

2.3 COMPOSITION OF MIXES

A. At least 15 days prior to the production of asphalt concrete pavement the CONTRACTOR shall submit a current mix design. The mix design shall be performed within nine (9) months of the construction season. The following related items shall be submitted with the mix design:

1. Notification that aggregate proposed for the asphalt concrete mixture is available for sampling.
2. A minimum of three (3) one-gallon samples of the asphalt cement proposed for use in the mixture, including name of product, manufacturer, test results as required, manufacturer's certificate of compliance, and a temperature viscosity curve for the asphalt cement.
3. A 1/2 pint sample of the anti-strip additive proposed, including name of product, manufacturer, and manufacturer's data sheet, and current Materials Safety Data Sheet (MSDS).
4. The CONTRACTOR shall accompany the ENGINEER during sampling, and shall furnish all the assistance needed to assure that the ENGINEER obtains representative samples.
5. The mix design shall be 50 blow Marshall Method.

B. The Asphalt Treated Base (ATB) Course mixture for this Project shall contain between 3.5 and 4.5 percent of the type and grade of asphalt required under Section 02801 – Asphalt Concrete Pavement.

C. Changes in aggregate gradation or aggregate source shall require the CONTRACTOR to submit a revised mix design in the same manner as the original submittal.

D. The ATB mix design shall be submitted to the ENGINEER and the Alaska Department of Transportation and Public Facilities for approval at least 15 days before production of asphalt concrete pavement mixture.

PART 3- EXECUTION

3.1 WEATHER LIMITATIONS

A. The asphalt mixture shall not be placed on a wet or frozen surface, or when weather conditions will prevent proper handling, compaction or finishing of the mixture. No asphalt mixture shall be placed unless the air temperature is above 35° F, as measured in the shade and away from any heat sources.

3.2 STOCKPILING

A. Aggregates may be stored in a single stockpile. Aggregates shall be reclaimed from the stockpile so as to minimize segregation. Aggregates that have been mixed with earth or foreign material, or become coated with undesirable material, shall not be used.

3.3 ASPHALT PLANTS

A. Mixing plants shall conform to Section 02801 – Asphalt Concrete Pavement.

3.4 HAULING EQUIPMENT

A. Hauling equipment shall conform to Section 02801 – Asphalt Concrete Pavement.

3.5 SPREADING EQUIPMENT

A. Spreading equipment shall conform to the requirements of Section 02801 – Asphalt Concrete Pavement.

3.6 ROLLERS

A. Rollers shall conform to Section 02801 – Asphalt Concrete Pavement.

3.7 PREPARATION OF ASPHALT

A. Preparation of asphalt shall conform to Section 02801 – Asphalt Concrete Pavement.

3.8 PREPARATION OF AGGREGATE

A. The aggregate for the mix shall be heated and dried to a temperature compatible with the mix requirements specified. Dryer flames shall be properly adjusted to avoid damaging the aggregate and to avoid soot on the aggregate.

3.9 MIXING

A. Mixing of Asphalt Treated Base Course materials shall conform to Section 02801 – Asphalt Concrete Pavement.

3.10 SPREADING AND FINISHING

A. Hot Mix Asphalt Treated Base Course mixture shall be deposited and spread on an approved surface in one layer.

B. On areas where irregularities or unavoidable obstacles preclude spreading by mechanical equipment, the mixture shall be deposited, spread, raked and luted by hand tools in layers. The depth of such layers shall be governed by the ability of the compaction equipment to achieve the required degree of compaction. A tack coat shall be placed between successive layers of base material. When successive layers are placed on the same day, or have not been contaminated by sand or dust or not subject to traffic, the tack coat may be deleted.

C. The longitudinal joints in the ATB Course shall offset those in the asphalt concrete layer by approximately 6-inches. The actual location of the longitudinal joints in the ATB course shall be submitted to the ENGINEER fifteen days prior to the production of ATB.

3.11 COMPACTION

A. Compaction shall consist of initial rolling by vibratory rollers, steel-wheeled tandem rollers and/or pneumatic tired rollers, and final rolling with steel-wheeled tandem rollers. Each layer shall be rolled until the material has achieved a relative density of 94% of Rice MSG.

3.12 SURFACE TOLERANCES

A. The surface will be tested after final rolling at selected locations using a 10-foot straightedge. The variation of the surface between any two contacts with the surface shall not exceed 3/8-inch. All bumps or depressions exceeding the specified tolerance shall be corrected by removing defective WORK and replacing with new material as directed, at no additional expense to the OWNER.

3.13 THICKNESS REQUIREMENTS

A. The maximum allowable deficiency shall be ½-inch. When the thickness deficiency exceeds ½-inch, the CONTRACTOR shall correct the deficiency by either overlaying the deficient area with additional base course material, or by increasing the pavement thickness in an amount sufficient to provide the full depth of base course. In either case, the CONTRACTOR shall perform the

remedial WORK at his expense. The CONTRACTOR shall perform the remedial WORK in such a manner that the amount of mixture required may be readily identified and accounted for by means of weight tickets.

END OF SECTION

***Add** the following Section:*

SECTION 02870 – SITE FURNISHINGS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the contract, including General and Supplementary Conditions and Division 1 specification sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following site and street furnishings:

1. Benches
2. Trash cans

B. Related Sections include the following:

1. CBJ Standard Specifications.
2. Section 03300 – Cast In Place Concrete, for installation of anchor bolts cast in concrete footings.

C. Products furnished, but not installed under this Section, include anchor bolts to be cast in concrete footings.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, finishes, field-assembly requirements, and installation details for approval.

B. Samples for Initial Selection: For units with factory-applied color finishes.

C. Product Schedule: For site and street furnishings. Use same designations indicated on Drawings.

D. Maintenance Data: For site and street furnishings to include in maintenance manuals.

1.4 QUALITY ASSURANCE

A. Source Limitations: Obtain each type of site and street furnishings through one source from a single manufacturer.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Products: Subject to compliance with requirements, provide one of the following or approved equal:

1. Benches:

a. Kenneth Lynch & Sons
114 Willenbrock Road, Oxford, CT 06478
(203) 264-2831
www.klynchandsons.com

2. Trash Cans:

a. BearSaver,
1390 S. Milliken Ave, Ontario, CA 91761
(909) 605-1697

2.2 MATERIALS

A. Steel: Free from surface blemishes and complying with the following:

1. Plates, Shapes, and Bars: ASTM A 36/A 36M.
2. Steel Pipe: Standard-weight steel pipe complying with ASTM A 53, or electric-resistance-welded pipe complying with ASTM A 135.
3. Tubing: Cold-formed steel tubing complying with ASTM A 500.
4. Mechanical Tubing: Cold-rolled, electric-resistance-welded carbon or alloy steel tubing complying with ASTM A 513, or steel tubing fabricated from steel complying with ASTM A 569/A 569M and complying with dimensional tolerances in ASTM A 500; zinc coated internally and externally.
5. Sheet: Commercial steel sheet complying with ASTM A 569/A 569M.

B. Aluminum: Alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated; free from surface blemishes and complying with the following:

1. Rolled or Cold-Finished Bars, Rods, and Wire: ASTM B 211.
2. Extruded Bars, Rods, Wire, Profiles, and Tubes: ASTM B 221.
3. Structural Pipe and Tube: ASTM B 429.
4. Sheet and Plate: ASTM B 209.

C. Stainless Steel: Free from surface blemishes and complying with the following:

1. Sheet, Strip, Plate, and Flat Bars: ASTM A 666.

D. Anchors, Fasteners, Fittings, and Hardware: Manufacturer's standard, noncorrodible materials; commercial quality; concealed, recessed, and capped or

plugged. Provide as required for site and street furnishings' assembly, mounting, and secure attachment.

2.3 BENCH

A. Kenneth Lynch and Sons: 1964 World's Fair, Model 6731-A, or approved equal.

B. Unit Configuration: 8 foot length, backless with arm rests.

C. Installation Method: Surface mounted.

D. Material:

1. Frame: Cast Ductile Iron
2. Seat: Ipe: Bethabara/Tabebeuia serratifolia

E. Finishes/Colors:

1. Frame: Powder coated, color black
2. Seat: Satin stainless steel

2.4 TRASH CANS

A. Bear Saver, Hid-A-Bag, Model Number: HA-P, 32 gallon capacity, or approved equal, with standard supplied can. Unit to be accessible including lid.

B. Installation Method: Anchored to concrete pad as indicated by manufacturer.

C. Steel Finish: Powder coated.

D. Color: Black.

2.5 FABRICATION

A. Metal Components: Form to required shapes and sizes with true, consistent curves, lines, and angles. Separate metals from dissimilar materials to prevent electrolytic action.

B. Welded Connections: Weld connections continuously. Weld solid members with full-length, full-penetration welds and hollow members with full-circumference welds. At exposed connections, finish surfaces smooth and blended so no roughness or unevenness shows after finishing and welded surface matches contours of adjoining surfaces.

C. Pipes and Tubes: Form simple and compound curves by bending members in jigs to produce uniform curvature for each repetitive configuration required; maintain cylindrical cross section of member throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces of handrail and railing components.

D. Steel and Iron Components: Galvanized, galvanized and color coated, or color coated. Bare metal steel or iron components are not permitted.

E. Exposed Surfaces: Polished, sanded, or otherwise finished; smooth all surfaces, free from burrs, barbs, splinters, and sharpness; all edges and ends rolled, rounded, or capped.

F. Factory Assembly: Assemble components in the factory to the greatest extent possible to minimize field assembly. Clearly mark units for assembly in the field.

2.6 FINISHES, GENERAL

A. Comply with NAAMM's "Metal Finishes Manual for Landscape Architectural and Metal Products" for recommendations for applying and designating finishes.

B. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

2.7 STEEL AND GALVANIZED STEEL FINISHES

A. Baked-Enamel, Powder-Coat Finish: Manufacturer's standard, baked, polyester-TGIC, powder-coat finish complying with finish manufacturer's written instructions for surface preparation, including pretreatment, application, baking, and minimum dry film thickness.

2.8 STAINLESS-STEEL FINISHES

A. Remove tool and die marks and stretch lines or blend into finish.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and conditions, with Installer present, for compliance with requirements for correct and level finished grade, mounting surfaces, installation tolerances, and other conditions affecting performance.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

A. Comply with manufacturer's written installation instructions, unless more stringent requirements are indicated. Complete field assembly of site and street furnishings, where required.

B. Unless otherwise indicated, install site and street furnishings after landscaping and paving have been completed.

C. Landscape Architect to approve location of furnishings prior to installation. Install site and street furnishings level, plumb, true, and securely anchored at locations indicated on Drawings. Where indicated on drawings, orient furnishings with paving patterns.

3.3 CLEANING

A. After completing site and street furnishing installation, inspect components. Remove spots, dirt, and debris. Repair damaged finishes to match original finish or replace component.

END OF SECTION

***Add** the following Section:*

SECTION 02920 – LAWNS AND GRASSES

PART 1 – GENERAL

1.1 SUMMARY

A. Section Includes:

1. Turf grass seeding

B. Related Sections include the following:

1. Section 02930 –Exterior Plants, for installation of planting soils.

1.2 DEFINITION

A. Retain definition(s) remaining after this Section has been edited.

B. Finish Grade: Elevation of finished surface of planting soil.

C. Manufactured Topsoil: Soil produced off-site by homogeneously blending mineral soils or sand with stabilized organic soil amendments to produce topsoil or planting soil.

D. Pesticide: A substance or mixture intended for preventing, destroying, repelling, or mitigating a pest. This includes insecticides, miticides, herbicides, fungicides, rodenticides, and molluscicides. It also includes substances or mixtures intended for use as a plant regulator, defoliant, or desiccant.

E. Pests: Living organisms that occur where they are not desired or that cause damage to plants, animals, or people. These include insects, mites, grubs, mollusks (snails and slugs), rodents (gophers, moles, and mice), unwanted plants (weeds), fungi, bacteria, and viruses.

F. Planting Soil: Standardized topsoil; existing, native surface topsoil; existing, in-place surface soil; imported topsoil; or manufactured topsoil that is modified with

soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth.

G. Subgrade: Surface or elevation of subsoil remaining after excavation is complete, or top surface of a fill or backfill before planting soil is placed.

H. Subsoil: All soil beneath the topsoil layer of the soil profile, and typified by the lack of organic matter and soil organisms.

I. Surface Soil: Whatever soil is present at the top layer of the existing soil profile at the Project site. In undisturbed areas, the surface soil is typically topsoil, but in disturbed areas such as urban environments, the surface soil can be subsoil.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Certification of grass seed.

1. Certification of each seed mixture.

C. Product certificates for plugs indicating location grown, species and size.

1.4 QUALITY ASSURANCE

A. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on Project site when work is in progress.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Seed and Other Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and indication of conformance with state and federal laws, as applicable.

1.6 MAINTENANCE SERVICE

A. Initial Maintenance Service: Provide full maintenance by skilled employees of landscape Installer. Maintain as required in Part 3. Begin maintenance immediately after each area is planted and continue until acceptable turf is established but for not less than the following periods:

1. Grass Areas (all): 60 days from date of completion

a. When initial maintenance period has not elapsed before end of planting season, or if turf is not fully established, continue maintenance during next planting season.

PART 2 - PRODUCTS

2.1 SEED

A. Turf Grass Seed: Fresh, clean, dry, new-crop seed complying with AOSA's "Journal of Seed Technology; Rules for Testing Seeds" for purity and germination tolerances.

B. Turf Grass Seed Mix: State-certified seed of grass species as follows for turf:

TYPE	VARIETY	%
Kentucky Bluegrass *Poa prantensis*	Merion, Nugget, or Park	45%
Red fescue *Festuca rubra*	Arctared, Boreal, or Pennlawn	45%
Annual Ryegrass *Lolium multiflorum*	-	10%

C. All seed shall have minimum 85% germination rate and maximum weed seed content shall be 0.5%.

D. Planting Season: Seeded areas: May 1st to August 1st or as approved by ENGINEER.

2.2 INORGANIC SOIL AMENDMENTS

A. Lime: ASTM C 602, agricultural liming material containing a minimum of 80 percent calcium carbonate equivalent and as follows:

1. Class: T, with a minimum of 99 percent passing through No. 8 sieve and a minimum of 75 percent passing through No. 60 sieve.

2.3 PLANTING SOILS

A. Planting Soil: Create planting soil using the following as indicated and homogeneously blending to a uniform texture. Soil mixes shall not have a deleterious material mass percentage of greater than 10% not passing through a #4 screen. Percentages are volume.

B. Planting soils for turf areas are a single soil mix to the depth indicated on the Drawings.

C. Planting Soil Mix: Mix topsoil with the following soil amendments in the following quantities:

1. Ratio of Loose Native Topsoil by Volume: 40%
2. Ratio of Sand by Volume: 60%
3. Total organic content: 5-6%
4. % passing 200 sieve: 14-18%

5. 25 pounds of Lime per 1000 square feet

2.4 MULCHES

A. Sphagnum Peat Mulch: Partially decomposed sphagnum peat moss, finely divided or of granular texture, and with a pH range of 3.4 to 4.8.

PART 3 - EXECUTION

3.1 TURF GRASS AREA PREPARATION

A. Prepare turf areas in the same manner as directed under Section 02930 Exterior Plants for Planting Bed Preparation.

B. Finish Grading: Grade planting areas to a smooth, uniform surface plane with loose, uniformly fine texture. Grade to within plus or minus 1/2 inch of finish elevation. Roll and rake, remove ridges, and fill depressions to meet finish grades. Limit finish grading to areas that can be planted in the immediate future.

C. Moisten prepared area before planting if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.

D. Before planting, obtain ENGINEER's acceptance of finish grading; restore planting areas if eroded or otherwise disturbed after finish grading.

3.2 SEEDING

A. Do not broadcast or drop seed when wind velocity exceeds 5 mph. Evenly distribute seed by sowing equal quantities in two directions at right angles to each other. Do not seed against existing trees. Limit extent of seed to outside edge of planting saucer.

B. Sow seed at a total rate of 5 lb/1000 sq. ft.

C. Rake seed lightly into top 1/8 inch of soil, roll lightly, and water with fine spray.

D. Do not seed areas to receive turf grass within 3 feet of tree trunks.

E. Protect seeded areas from hot, dry weather or drying winds by applying peat mulch within 24 hours after completing seeding operations. Soak areas, scatter mulch uniformly to a thickness of 3/16 inch and roll surface smooth.

3.3 TURF GRASS MAINTENANCE

A. Maintain and establish turf by watering, fertilizing, weeding, mowing, trimming, replanting, and performing other operations as required to establish healthy, viable turf. Roll, regrade, and replant bare or eroded areas and remulch to produce a uniformly smooth turf. Provide materials and installation the same as those used in the original installation.

B. Mow turf as soon as top growth is tall enough to cut. Repeat mowing to maintain height appropriate for species without cutting more than 1/3 of grass height.

Remove no more than 1/3 of grass-leaf growth in initial or subsequent mowings. This does not apply to native grass mix which is to be left natural length and infrequently mown.

C. Apply pesticides and other chemical products and biological control agents in accordance with authorities having jurisdiction and manufacturer's written recommendations. Coordinate applications with Owner's operations and others in proximity to the Work. Notify Owner before each application is performed.

3.4 SATISFACTORY TURF GRASS

A. Grass installations shall meet the following criteria as determined by ENGINEER:

1. Satisfactory Seeded Grass Area: At end of maintenance period, a healthy, uniform, close stand of grass has been established, free of weeds and surface irregularities, with coverage exceeding 90 percent over any 10 sq. ft. and bare spots not exceeding 5 by 5 inches.

B. Use specified materials to reestablish grassed areas that does not comply with requirements and continue maintenance until grass is satisfactory.

3.5 CLEANUP AND PROTECTION

A. Promptly remove soil and debris created by turf work from paved areas. Clean wheels of vehicles before leaving site to avoid tracking soil onto roads, walks, or other paved areas.

B. Erect temporary fencing or barricades and warning signs as required to protect newly planted areas from traffic. Maintain fencing and barricades throughout initial maintenance period and remove after plantings are established.

END OF SECTION

***Add** the following Section:*

SECTION 02930 – EXTERIOR PLANTS

PART 1 – GENERAL

1.1 SUMMARY

A. Section Includes:

1. Shrubs.
2. Planting Soils and Amendments.

1.2 DEFINITIONS

A. Backfill: The earth used to replace or the act of replacing earth in an excavation.

B. Finish Grade: Elevation of finished surface of planting soil.

C. Native Topsoil: Existing native organic and mineral soils used to produce planting soil.

D. Planting Soil: Soil produced by homogeneously blending native topsoil, mineral soils and/or sand with stabilized organic soil amendments to produce planting soil to meet the planting soil specifications.

E. Subgrade: Surface or elevation of subsoil remaining after completing excavation, or top surface of a fill or backfill, before placing planting soil.

F. Subsoil: All soil beneath the topsoil layer of the soil profile, and typified by the lack of organic matter and soil organisms.

G. Balled and Potted Stock: Plants dug with firm, natural balls of earth in which they are grown and placed, unbroken, in a container. Ball size is not less than diameter and depth recommended by ANSI Z60.1 for type and size of plant required.

H. Bare-Root Stock: Plants with a well-branched, fibrous-root system developed by transplanting or root pruning, with soil or growing medium removed, and with not less than minimum root spread according to ANSI Z60.1 for type and size of plant required.

I. Container-Grown Stock: Healthy, vigorous, well-rooted plants grown in a container, with a well-established root system reaching sides of container and maintaining a firm ball when removed from container. Container shall be rigid enough to hold ball shape and protect root mass during shipping and be sized according to ANSI Z60.1 for type and size of plant required.

J. Root Flare: Also called "trunk flare." The area at the base of the plant's stem or trunk where the stem or trunk broadens to form roots; the area of transition between the root system and the stem or trunk.

K. Girdling Roots: Roots that encircle the stems (trunks) of trees below the soil surface.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Samples for Verification: For each of the following:

1. Organic Mulch: 1-quart volume of each organic mulch required; in sealed plastic bags labeled with composition of materials by percentage of weight and source of mulch. Each Sample shall be typical of the lot of material to be furnished; provide an accurate representation of color, texture, and organic makeup.
2. Planting Soil: 1-quart volume of each soil required; in sealed plastic bags labeled with composition of materials by percentage of weight and

source of soil. Each Sample shall be typical of the lot of material to be furnished; provide an accurate representation of color, texture, and soil makeup.

C. Product certificates.

D. Planting Schedule: Indicating anticipated planting dates for exterior plants.

E. Maintenance Instructions: Recommended procedures to be established by OWNER for maintenance of exterior plants during a calendar year.

1.4 QUALITY ASSURANCE

A. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on Project site when planting is in progress.

B. Topsoil and Planting Soil Analysis: Furnish soil analysis by a qualified soil-testing laboratory stating percentages of organic matter; gradation of sand, silt, and clay content; deleterious material; pH; and mineral and plant-nutrient content for topsoil and each type of planting soil.

1. Report suitability of soil for plant growth. State-recommended quantities of nitrogen, phosphorus, and potash nutrients and soil amendments to be added to produce satisfactory topsoil.

C. Provide quality, size, genus, species, and variety of exterior plants indicated, complying with applicable requirements in ANSI Z60.1, "American Standard for Nursery Stock."

D. Shrub and Plant Material Measurements: Measure according to ANSI Z60.1 with branches and trunks or canes in their normal position. Do not prune to obtain required sizes. Take caliper measurements 6 inches above ground for trees up to 4-inch caliper size, and 12 inches above ground for larger sizes. Measure main body of tree or shrub for height and spread; do not measure branches or roots tip-to-tip.

E. Observation: LANDSCAPE ARCHITECT may observe trees and shrubs either at place of growth or at site before planting for compliance with requirements for genus, species, variety, size, and quality. LANDSCAPE ARCHITECT retains right to observe trees and shrubs further for size and condition of balls and root systems, insects, injuries, and latent defects and to reject unsatisfactory or defective material at any time during progress of work. Remove rejected trees or shrubs immediately from Project site.

1. Notify LANDSCAPE ARCHITECT of arrival of planting materials for inspection three days prior to installation.

F. Trees shall meet the following specifications for quality:

1. As typical for the species/cultivar, trees shall be healthy and vigorous, as indicated by an inspection for the following:

a. foliar crown density
b. length of shoot growth (throughout crown)
c. size, color and appearance of leaves
d. uniform distribution of roots in the container media
e. appearance of roots
f. absence of twig and/or branch dieback
g. relative freedom from insects and diseases

2. There shall be no roots circling more than one-third the way around in the top half of the root ball. Roots larger than this may be cut provided they are smaller than one-third the trunk diameter. There shall be no kinked roots greater than 1/5 the trunk diameter.
3. Trunk flare on trees must be visible above the surface of the root ball. Major roots must be found at 2 inches or less below surface of root ball.
4. Shrubs should be rooted into the root ball so that soil or media remains intact and trunk and root ball move as one when lifted.
5. The relationship between caliper, height and root ball size shall meet the ANSI Z60.1 standard.
6. The branching should be symmetrical, free of large voids, and typical o the species or cultivar.
7. The main branches shall be free of wounds (except for properly-made pruning wounds), damaged areas, conks, bleeding, and signs of insects or disease.
8. At time of inspection and delivery, the rootball shall be moist throughout, and the tree crown shall show no signs of moisture stress, as indicated by wilt, shriveled, dead leaves, or branch dieback. Roots shall show no signs of being subjected to excess soil moisture conditions, as indicated by root discoloration, distortion, death, or foul odor.
9. If any of the above conditions are not met, trees may be rejected.

G. Provide quality, size, genus, species, and variety of exterior plants indicated, complying with applicable requirements in ANSI Z60.1, "American Standard for Nursery Stock."

H. Pre-Installation Conference: Conduct conference on site prior to beginning work.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Bulk Materials: Do not deliver or place backfill, soils and soil amendments in frozen, wet, or muddy conditions.

1. Do not dump or store bulk materials near structures, utilities, sidewalks, pavements, and other facilities, or on existing trees, turf areas or plants.
2. Provide protection including tarps, plastic and or matting between all bulk materials and any finished surfaces sufficient to protect the finish material.

B. Provide erosion-control measures to prevent erosion or displacement of bulk materials and discharge of soil-bearing water runoff or airborne dust to adjacent properties, water conveyance systems, and walkways. Provide additional

sediment control to retain excavated material, backfill, soil amendments and planting mix within the project limits as needed.

C. Do not prune trees and shrubs before delivery. Protect bark, branches, and root systems from sun scald, drying, sweating, whipping, and other handling and tying damage. Do not bend or bind-tie trees or shrubs in such a manner as to destroy their natural shape. Provide protective covering of exterior plants during delivery. Do not drop exterior plants during delivery and handling.

D. Handle planting stock by root ball or container.

E. Deliver exterior plants after preparations for planting have been completed and install immediately. If planting is delayed more than six hours after delivery, set exterior plants and trees in shade, protect from weather and mechanical damage, and keep roots moist.

1. Heel-in bare-root stock. Soak roots that are in dry condition in water for two hours. Reject dried-out plants.
2. Set balled stock on ground and cover ball with soil, peat moss, sawdust, or other acceptable material.
3. Water root systems of plants stored on-site deeply and thoroughly with a fine-mist spray. Water as often as necessary to maintain root systems in a moist, but not overly-wet condition.

F. Keep plant tags and labels on all plants until approved.

1.6 PROJECT CONDITIONS

A. Verification of Existing Conditions and Protection of New or Existing Improvements: Before proceeding with work in this section, the Installer shall carefully check and verify all dimensions, quantities, and grade elevations, and inform the LANDSCAPE ARCHITECT immediately of any discrepancies.

1. Carefully examine the civil, record, and survey drawings to become familiar with the existing underground conditions before digging. Verify the location of all aboveground and underground utility lines, infrastructure, other improvements, and existing trees, shrubs, and plants to remain including their root system, and take proper precautions as necessary to avoid damage to such improvements and plants.
2. In the event of conflict between existing and new improvements notify the LANDSCAPE ARCHITECT in writing and obtain written confirmation of any changes to the work prior to proceeding.

a. When new or previously existing utility lines are encountered during the course of excavation, notify the LANDSCAPE ARCHITECT in writing and make recommendations as to remedial action. Proceed with work in that area only upon approval of appropriate remedial action. Coordinate all work with the appropriate utility contractors, utility company or responsible public works agency.

B. Protect partially completed installation against damage from other construction traffic when work is in progress, and following completion with highly visible construction tape, fencing, or other means until construction is complete.

1.7 COORDINATION

A. Planting Restrictions: Plant during the following periods. Coordinate planting periods with maintenance periods to provide required maintenance from date of Substantial Completion.

1. All Woody Plant Material: May 1 to September 15 or as approved by LANDSCAPE ARCHITECT.
2. All Spring Flowering Bulbs: September 15 to November 1 or as approved by LANDSCAPE ARCHITECT.

B. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit. Do not plant during excessive periods of rain or when soils are saturated and can become compacted due to normal planting operations.

1.8 WARRANTY

A. Warranty: Installer's standard form in which Installer agrees to repair or replace plantings that fail in materials, workmanship, or growth within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Death and unsatisfactory growth, except for defects resulting from lack of adequate maintenance, neglect, abuse by OWNER, or incidents that are beyond CONTRACTOR's control.
b. Structural failures including plantings falling or blowing over.

2. Warranty Periods from Date of Substantial Completion:

a. Trees and Shrubs: One year.
b. Ground Cover: One year.

1.9 MAINTENANCE SERVICE

A. Special Maintenance Service: Provide maintenance full maintenance by skilled employees of landscape Installer. Begin maintenance immediately after each area is planted and continue until substantial completion of project. After substantial completion provide three site visits/landscape inspections to ensure maintenance of landscape by facility staff and/or residents is acceptable. Provide written instruction if any oversights or errors are detected and notify LANDSCAPE ARCHITECT if any actions or lack of actions are resulting in deterioration of plant health, vigor, or site conditions. Coordinate site visits with OWNER.

1. Site Visit Period for Trees and Shrubs: 12 months from date of substantial completion

2. Site Visit Period for Ground Covers: 12 months from date of substantial completion.

PART 2 – PRODUCTS

2.1 TREE AND SHRUB MATERIAL

A. General: Furnish nursery-grown trees and shrubs complying with ANSI Z60.1, with healthy root systems developed by transplanting or root pruning. Provide well-shaped, fully branched, healthy, vigorous stock free of disease, insects, eggs, larvae, and defects such as knots, sun scald, injuries, abrasions, and disfigurement.

B. Exterior Plant Heights: Furnish trees and shrubs with root balls measured from top of root ball, which shall begin at root flare according to ANSI Z60.1. Root flare shall be visible before planting.

C. Provide trees and shrubs as indicated on Drawings.

D. Tree and shrub sizes indicated on Drawings are sizes after pruning.

2.2 SPRING BULBS

A. General: Furnish nursery-grown landscape #1 quality bulbs, harvested for year of planting. Do not use bruised, soft, damaged or diseased bulbs.

B. Provide bulbs as indicated on Drawings.

2.3 NATIVE TOPSOIL

A. Native Topsoil: Fertile, friable, surface soil containing natural loam (approximately 45% sand, 40% silt and 15% clay) and complying with ASTM D 5268, pH range of 5.5 to 7, an average of 10 percent organic material content; free of stones 1 inch or larger in any dimension and other extraneous materials harmful to plant growth. Topsoil to be free of vegetative plant parts or seed capable of propagating. Topsoil shall be free of volcanic ash and shall not have a deleterious material mass percentage of greater than 5% not passing through a #4 screen. Obtain topsoil from naturally well-drained sites where topsoil occurs at least 4” deep; do not obtain from bogs or marshes.

1. Topsoil Source: Reuse surface soil stockpiled on-site. Verify suitability of stockpiled surface soil to produce topsoil. Clean surface soil of roots, plants, sod, stones, clay lumps, and other extraneous materials harmful to plant growth.

a. Supplement with imported or manufactured topsoil from off-site sources when quantities are insufficient.

2.4 INORGANIC SOIL AMENDMENTS

A. Sand: Clean, washed, natural or manufactured uniform coarse texture sand, free of toxic materials and other deleterious material.

2.5 ORGANIC SOIL AMENDMENTS

A. Organic Soil Amendments: Shall be shredded material with a deleterious material mass of less than 5%.

B. Compost: Well-composted, sterilized, stable, and weed-free organic matter, pH range of 5.5 to 8; moisture content 35 to 55 percent by weight; 100 percent passing through ½-inch sieve; soluble salt content of 5 to 10 decisiemens/m; not exceeding 0.5 percent inert contaminants and free of substances toxic to plantings; and as follows:

1. Organic Matter Content: 50 to 60 percent of dry weight.

C. Peat: Finely divided or granular texture, with a pH range of 6 to 7.5, containing partially decomposed moss peat, native peat, or reed-sedge peat and having a water-absorbing capacity of 1100 to 2000 percent.

D. Wood Derivatives: Decomposed, nitrogen-treated sawdust, ground bark, or wood waste; of uniform texture, free of chips, stones, sticks, soil, or toxic materials.

E. Manure: Well-rotted, unleached, stable or cattle manure containing not more than 25 percent by volume of straw, sawdust, or other bedding materials; free of toxic substances, stones, sticks, soil, weed seed, and material harmful to plant growth.

2.6 FERTILIZER

A. Slow-Release Fertilizer: Granular or pelleted fertilizer consisting of 50 percent water-insoluble nitrogen, phosphorus, and potassium in the following composition:

1. Composition: 8 percent nitrogen, 32 percent phosphorous, and 16 percent potassium, by weight.

2.7 PLANTING SOIL MIXES

A. Planting Soil: Create sub soil and planting soil using the following as indicated and homogeneously blending to a uniform texture. Soil mixes shall not have a deleterious material mass percentage of greater than 10% not passing through a #4 screen. Percentages are volume.

B. Sub Soil Mix: Mix topsoil with the following soil amendments in the following quantities:

1. Ratio of Loose Native Topsoil by Volume: 30%
2. Ratio of Sand by Volume: 70%
3. Total organic content: 2-3%
4. % passing 200 sieve: 14-18%

C. Planting Soil Mix: Mix topsoil with the following soil amendments in the following quantities:

1. Ratio of Loose Native Topsoil by Volume: 65%
2. Ratio of Sand by Volume: 30%
3. Ratio of Loose Organics by Volume: 5%
4. Total organic content: 9-11%
5. % passing 200 sieve: 11-16%
6. Weight of Slow-Release Fertilizer per 1000 Sq. Ft.: 10 pounds.

2.8 MULCHES

A. Organic Mulch: Ground or shredded bark.

PART 3 – EXECUTION

3.1 EXAMINATION

A. Examine areas to receive exterior plants for compliance with requirements and conditions affecting installation and performance. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities, and lawns and existing exterior plants from damage caused by planting operations.

B. Obtain utility locates for all underground utilities and structures in planting areas. Notify the LANDSCAPE ARCHITECT of any conflicts prior to beginning excavation.

C. Provide erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

D. Lay out planting beds and trenches for exterior plantings. Stake locations, outline areas, adjust locations when requested and obtain LANDSCAPE ARCHITECT acceptance of layout before starting planting bed excavation work and planting. Make minor adjustments as required.

E. Excavate beds to the depth required to accept the depth of planting soils as indicated on Drawings.

F. Fill all excavations completely with water and allow to naturally percolate from excavations. Notify LANDSCAPE ARCHITECT of any beds which fail to percolate within 24 hours and make good excavations through drilling, reducing compaction, and other methods to get adequate percolation as indicated. Repeat water percolation test as needed.

G. Scarify the sides and bottom of all beds to a depth of 3 inches after percolation test to reduce compaction as a result of testing.

H. Lay out individual tree and shrub locations and areas for multiple exterior plantings. Stake locations, outline areas, adjust locations when requested, and

obtain LANDSCAPE ARCHITECT acceptance of layout before planting. Make minor adjustments as required.

3.3 PLANTING BED ESTABLISHMENT

A. Homogeneously blend soil mixes off-site before spreading or mix planting soil in beds and homogeneously blend planting soil mix to the full depth to a uniform texture. Do not add planting soil until all water has percolated out of excavation.

B. Spread planting soil to the depth indicated on Drawings. Install in lifts that do not exceed 8 inches. Compact using irrigation or a water filled roller. Do not use mechanical compaction. Compact soil to 82-85% of maximum dry density. Check the soil compaction with a penetrometer or densitometer. Do not spread if planting soil or subgrade is frozen, muddy, or excessively wet.

C. If the planting soil becomes overly compacted, remove the soil and reinstall.

D. Finish Grading: Grade planting beds to a smooth, uniform surface plane with loose, uniformly fine texture. Roll and rake, remove ridges, and fill depressions to meet finish grades.

E. Plant plant material after finish grades are established and before planting lawns. Do not plant in soils immediately after performing irrigation compaction of planting soils. Allow soils to dry before planting.

F. Finish Grading: Grade planting beds to a smooth, uniform surface plane with loose, uniformly fine texture. Roll and rake, remove ridges, and fill depressions to meet finish grades.

3.4 TREES AND SHRUBS

B. Excavation of Planting Pits and Trenches: Excavate pits to a depth and width to accommodate roots and result in the uppermost lateral root being no more than 2 inches below finish grade but below finish grade. Avoid mixing of soil layers during excavation. Scarify sides of plant pit smeared or smoothed during excavation. Limit compaction of planting soils as a result of planting operations. Loosen planting soils, by hand, that have been compacted during planting operations.

3.5 SHRUB AND GROUND COVER PLANTING

A. Before planting, verify that root flare is visible at top of root ball according to ANSI Z60.1. If root flare is not visible, remove soil in a level manner from the root ball to where the top-most root emerges from the trunk. After soil removal to expose the root flare, verify that root ball still meets size requirements.

B. Remove stem girdling roots and kinked roots. Remove injured roots by cutting cleanly; do not break.

C. Set balled and burlapped stock plumb and in center of planting pit or trench with root flare 2 inches above adjacent finish grades.

1. Use planting soil for backfill.
2. After placing some backfill around root ball to stabilize plant, carefully cut and remove burlap, rope, and wire baskets from tops of root balls and from sides, but do not remove from under root balls. Remove pallets, if any, before setting. Do not use planting stock if root ball is cracked or broken before or during planting operation.
3. Backfill around root ball in layers, tamping to settle soil and eliminate voids and air pockets. Spread and compact planting soil as indicated in planting bed establishment.
4. Continue backfilling process. Water again after placing and tamping final layer of soil.

D. Set container-grown stock plumb and in center of planting pit or trench with root flare 1 inch above adjacent finish grades.

1. Use planting soil for backfill.
2. Carefully remove root ball from container without damaging root ball or plant.
3. Backfill around root ball in layers, tamping to settle soil and eliminate voids and air pockets. Spread and compact planting soil as indicated in planting bed establishment.
4. Continue backfilling process. Water again after placing and tamping final layer of soil.

E. When planting on slopes, set the plant so the root flare on the uphill side is flush with the surrounding soil on the slope; the edge of the root ball on the downhill side will be above the surrounding soil. Apply enough soil to cover the downhill side of the root ball.

3.6 BULB PLANTING

A. Plant spring flowering bulbs in the autumn during dates indicated. Do not plant in frozen or waterlogged soils.

B. Plant bulbs with noses pointing upward at the spacing and depth indicated on the Drawings.

C. Minimize disturbance to existing plant material within planting area and prevent planting soil from becoming overly compacted due to planting operations.

3.7 PRUNING

A. Prune only when directed by LANDSCAPE ARCHITECT. Pruning to be executed by a certified Arborist, or experienced nurseryman with pruning experience. Do not prune branches unless damaged or to retain natural character. Prune trees and shrubs according to standard horticultural practice. Tree sizes indicated are sizes after pruning. Prune shrubs to retain natural character. Shrub sizes indicated are sizes after pruning.

B. Remove all nursery ties, tape, ribbons and wire from branches and trunk. Remove all nursery plant identification labels and tags when approved and directed by LANDSCAPE ARCHITECT.

3.8 MULCHING

A. Cover all beds with minimum of two inch depth of mulch. Keep mulch four inches from all trunks and canes. Ensure even coverage.

3.9 PLANT MAINTENANCE

A. Plant Maintenance: Maintain plantings by pruning, cultivating, watering, weeding, fertilizing, restoring planting saucers, and resetting to proper grades or vertical position, as required to establish healthy, viable plantings. Spray or treat as required to keep trees and shrubs free of insects and disease.

B. Protect exterior plants from damage due to landscape operations, operations by other contractors and trades, and others. Maintain protection during installation and maintenance periods. Treat, repair, or replace damaged plantings.

3.10 CLEANUP AND PROTECTION

A. During planting, keep adjacent paving and construction clean and work area in an orderly condition.

B. Protect plants from damage due to landscape operations and operations of other contractors and trades. Maintain protection during installation and maintenance periods. Treat, repair, or replace damaged plantings.

3.11 DISPOSAL

A. Remove surplus soil and waste material including excess subsoil, unsuitable soil, trash, and debris and legally dispose of them off Owner's property.

END OF SECTION

SECTION 03303 – SIDEWALK, CURB AND GUTTER, PART 2 - PRODUCTS, Article 2.1, MATERIALS, ***revise*** *paragraph B. to read:*

B. Synthetic fibers shall be used for reinforcement with curb and gutter and concrete sidewalk replacements, except a 6-foot length of No. 4 reinforcing bar shall be centered across catch basins centered in the curb. Except as described above, reinforcing steel or wire mesh shall not be used unless approved by the ENGINEER. Sidewalks shall utilize Fibermesh 150, or approved equal. Curbs, gutters and driveways shall utilize a fibrillated product, Fibermesh 300, or approved equal. Application rates of both products shall be at least 1.5 pounds per cubic yard of concrete. Fibermesh shall be as manufactured by “SI Concrete Systems,” or approved equal.

SECTION 03303 – SIDEWALK, CURB AND GUTTER, PART 3 – EXECUTION, ***add*** *the following Articles:*

3.2 DETECTABLE TILE

A. The concrete for detectable tile access ramps shall be constructed as shown on the Drawings, and shall be 6-inches thick. Detectable tiles shall be installed at each ramp to the dimensions and locations shown on the Drawings. Detectable tiles shall be "Versa Tile" from ACO, or approved equal. Installation of the detectable tiles shall be in accordance with the manufacturer's installation instructions.

B. The detectable tiles shall be black in color. The CONTRACTOR shall submit a color sample to the ENGINEER for approval a minimum of fourteen days prior to installation of the detectable tiles.

3.3 TRAFFIC ISLAND RAMP

A. The Traffic Island End Ramps shall be constructed as shown on the Drawings. The end ramps shall be painted with alkyd pavement markings conforming to the requirements of AASHTO M 248, Type F.

Add *the following Section:*

SECTION 03305 - CONCRETE AND GRANITE PAVERS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the contract, including General and Supplementary Conditions and Division 1 specification sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following pavers and related materials:

1. Concrete Pavers
2. Granite Pavers
3. Concrete Paver A
4. ADA Detectible Warning Tiles
5. Bedding and Joint Sand
6. Paving and joint sealer

B. Related Sections include the following:

1. CBJ Standard Specifications
2. Section 03300 – Cast In Place Concrete, for installation concrete curbs and slabs.

1.3 REFERENCES

A. The following references pertain to this section.

1. American Society of Testing and Materials (ASTM) (latest edition):
2. C 33 Specification for Concrete Aggregates.
3. C 136 Method for Sieve Analysis for Fine and Coarse Aggregate.
4. C 140 Sampling and Testing Concrete Masonry Units.
5. C144 Specification for Natural and Manufactured Sands.
6. C 936 Specification for Solid Interlocking Concrete Paving Units.
7. C 979 Specification for Pigments for Integrally Colored Concrete.
8. D 698 Test Methods for Moisture Density Relations of Soil and Soil Aggregate Mixtures Using a 5.5 lb Rammer and 12 in. drop.
9. D 1557 Test Methods for Moisture Density Relations of Soil and Soil Aggregate Mixtures Using a 10-lb Rammer and 18 in. drop.
10. D 2940 Graded Aggregate Material for Bases or Subbases for Highways or Airports.

1.4 QUALITY ASSURANCE

A. Installation shall be by a contractor and crew with at least five years of experience in placing interlocking concrete pavers on projects of similar nature or dollar cost.

B. The CONTRACTOR shall conform to all local, state/provincial licensing and bonding requirements.

1.5 SUBMITTALS

A. Shop or product Drawings and product data shall be submitted.

B. Full size samples of concrete paving units shall be submitted to indicate color and shape selections. Colors shall be as indicated on the Drawings.

C. Full size samples of granite community paver shall be submitted to indicate color, material, graphics, finish, and design. Color, materials, and final graphics to be approved by Landscape Architect prior to production of custom pavers.

D. Sieve analyses for grading of bedding and joint sand shall be submitted.

E. Test results shall be submitted from an independent testing laboratory for compliance of paving unit requirements to ASTM C 936 or other applicable requirements.

F. The layout, pattern, and relationship of paving joints to fixtures and project formed details shall be indicated.

1.6 MOCK-UPS

A. A 10-foot x 16-foot paver area shall be installed as described in Article 3.2. This area can be used to determine the amount that the pavers settle into the bedding sand after compaction, joint sizes, lines, laying pattern(s), color(s) and texture of

the Project. This area shall be the standard from which the WORK will be judged.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Concrete pavers shall be delivered to the site in steel banded, plastic banded, or plastic wrapped cubes capable of transfer by fork lift or clamp lift. The pavers shall be unloaded at the job site in such a manner that no damage occurs to the product.

B. Bedding and joint sand shall be covered with a secure waterproof covering to prevent exposure to rainfall or removal by wind.

C. Delivery and paving schedules shall be coordinated in order to minimize interference with normal use of buildings adjacent to paving.

1.8 ENVIRONMENTAL CONDITIONS

A. Sand or pavers shall not be installed during heavy rain or snowfall.

B. Sand and pavers shall not be installed over frozen base materials.

C. Frozen bed sand and joint sand shall not be installed.

PART 2 - PRODUCTS

2.1 CONCRETE PAVERS

A. HOLLAND Pavers:

1. Pavers shall be: HOLLAND manufactured by UNI® licensed producers, or approved equal.
2. Product name(s)/shape(s), color(s), and thickness of the paver(s) shall be as follows:

    a. Colors: To match existing Main Street sidewalk paver colors, to be approved by Landscape Architect.
    b. Thickness: 2-3/8-inch (60 mm nominal).
    c. Sizes: 7-7/8 by 3-15/16 inches nominal length and width; and 3-15/16 inches by 3-16/16 inches nominal length and width.

B. Pavers shall meet the minimum material and physical properties set forth in ASTM C 936, Standard Specification for Interlocking Concrete Paving Units. Efflorescence shall not be a cause for rejection.

1. Average compressive strength of 8,000 psi with no individual unit under 7,200 psi for 60 mm units, and 9,440 psi and 8,500 for 80 mm units.
2. Average absorption of 5% with no unit greater than 7% when tested in accordance with ASTM C 140.
3. Resistance to 50 freeze-thaw cycles when tested according to ASTM C 67.

2.2 GRANITE PAVERS

A. Granite pavers shall be quarry run from Coldspring Granite Company, or approved equal.

1. Product name(s)/shape(s), color(s), and thickness of the paver(s) shall be as follows:

a. Colors: To match existing granite on Fourth Street in front of Capitol, as approved by Landscape Architect.
b. Thickness: 3-inch.
c. Sizes: 4-inch by 8-inch and 8-inch by 8-inch.
d. Finish: 4 sides cut and top surface flame finished.

2.3 COCRETE DETECTABLE WARNING PAVERS

A. Wausau tile, 12-inch by 12-inch by 2-inch, with truncated cone pavers, or approved equal pavers shall meet the following physical characteristics:

Property	Value	Test Method
Compressive Strength	=> 8,000 psi ave.	ASTM C 140
Flexural Strength	=> 7,000 psi ave.	ASTM C293
Water Absorption	< 6%	ASTM C140
Freeze/Thaw	=> 1% loss dry weight (50 cycles)	ASTM C67
Center Load	1,850 lbs.	WTCL 99

2.4 CONCRETE ADHESIVE

A. Adhesive shall be Type 1 suitable for wet locations, manufactured by Pavetech, or approved equal.

2.5 BEDDING SAND

A. Provide bedding sand as follows:

1. Washed, clean, non-plastic, free from deleterious or foreign matter, symmetrically shaped, natural or manufactured from crushed rock.
2. Do not use limestone screenings, stone dust, or sand for the bedding sand material that does not conform to conform to the grading requirements of ASTM C33.
3. Do not use mason sand or sand conforming to ASTM C 144 for the bedding sand.
4. Where concrete pavers are subject to vehicular traffic, utilize sands that are as hard as practically available.
5. Sieve according to ASTM C 136.

B. Bedding Sand Material Requirements: Conform to the grading requirements of ASTM C 33 with modifications as shown in Table 1.

TABLE 1
GRADING REQUIREMENTS FOR BEDDING SAND
ASTM C 33

Sieve Size	**% Passing**
3/8 in. (9.5 mm)	100
No. 4 (4.75 mm)	95 to 100
No. 8 (2.36 mm)	85 to 100
No. 16 (1.18 mm)	50 to 85
No. 30 (0.600 mm)	25 to 60
No. 50 (0.300 mm)	10 to 30
No. 100 (0.150 mm)	2 to 10
No. 200 (0.075 mm)	0 to 1 max.

2.6 JOINT SAND

A. Provide joint sand as polymeric sand as follows:

1. Polymeric sand shall be Polymeric Sand HP as manufactured by Techniseal, or approved equal.
2. Polymeric sand shall be comprised of graded sand (ASTM C-144) and polymer binders in sealed and labeled containers.
3. Provide color of polymeric sand to best match colors of paver for each paving pattern.
4. Joint Sand Material Requirements: Conform to the grading requirements of ASTM C 144 as shown with modifications in Table 2 below:

TABLE 2
GRADING REQUIREMENTS FOR JOINT SAND
ASTM C 144

Sieve Size	**ASTM C 144 Natural Sand Percent Passing**	**ASTM C 144 Manufactured Sand Percent Passing**
No. 4 (4.75 mm)	100	100
No. 8 (2.36 mm)	95 to 100	95 to 100
No. 16 (1.18 mm)	70 to 100	70 to 100
No. 30 (0.600 mm)	40 to 75	40 to 100
No. 50 (0.300 mm)	10 to 35	20 to 40
No. 100 (0.150 mm)	2 to 15	10 to 25
No. 200 (0.075 mm)	0 to 1	0 to 10

2.7 PAVING AND JOINT SEALER

A. Epoxy acrylic sealer, SUREGUARD or approved equal.

2.4 PAVER CLEANER

A. Cleaner shall be Paverprep by PaveChem, or approved equal.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that the subgrade preparation, compacted density, and elevations conform to the specifications.

B. Verify that aggregate base materials, thickness compaction, surface tolerances, and elevations conform to the Specifications.

C. Install edge restraints per the Drawings and manufacturer's recommendations.

D. Verify that the base is dry, uniform, even, and ready to support sand, pavers, and imposed loads.

E. Beginning of bedding sand and paver installation means acceptance of base and edge restraints.

3.2 SITE PREPARATION

A. The site must be stripped of all topsoil and other objectionable materials to the grades specified.

B. All subdrainage of underground services within the pavement area must be completed in conjunction with subgrade preparation and before the commencement of subbase construction. All service trenches within the pavement area must be back filled to the sub- grade level with approved material placed in uniform lifts not exceeding 4 inch loose thickness. Each lift must be compacted to at least 100 percent Standard Proctor Maximum Dry Density as specified in ASTM 698.

C. After trimming to the grades specified, the subgrade is to be proof-rolled to 100 percent Standard Proctor Maximum Dry Density in the presence of the ENGINEER, with soft spots or localized pockets of objectionable material excavated and properly replaced with approved granular material.

D. The subgrade shall be trimmed to within 0 to 1/2 inch of the specified grades. The surface of the prepared subgrade shall not deviate by more than1/2 inch from the bottom edge of a 10-foot straight edge laid in any direction. A soil sterilant to inhibit weed growth may be applied at the direction of the ENGINEER.

E. The CONTRACTOR shall ensure that the prepared subgrade is protected from damage from inundation by surface water. No traffic shall be allowed to cross the prepared subgrade. Repair of any damage resulting shall be the responsibility of the CONTRACTOR and shall be repaired.

F. Under no circumstances shall further pavement construction proceed until the subgrade has been inspected by the ENGINEER.

3.3 PAVER INSTALLATION

A. The sand shall be spread evenly over the base course and screeded to a nominal 1 inch thickness, not exceeding 1-1/2 inch thickness. The screeded sand should not

be disturbed. Sufficient sand shall be placed in order to stay ahead of the laid pavers. Bedding sand shall not be used to fill depressions in the base surface.

B. Initiation of paver placement shall be deemed to represent acceptance of the pavers.

C. Pavers shall be free of foreign material before installation.

D. Pavers shall be inspected for color distribution and all chipped, damaged or discolored pavers shall be replaced.

E. The pavers shall be laid in the pattern(s) as shown on the Drawings. Straight pattern lines shall be maintained

F. Joints between the pavers on average shall be between 1/16 inch and 2/16 inch wide.

G. Gaps at the edges of the paved area shall be filled with cut pavers or edge units. Cut pavers should be no smaller than one-third of the full unit size along edges subject to vehicular traffic.

H. Pavers to be placed along the edge shall be cut with a double blade paver splitter or masonry saw. Cutting pavers in place with a cutoff saw is prohibited. See CBJ Standard Specification for noise and dust control requirements.

I. The paver surface shall be swept clean of all debris before compacting, in order to avoid damage from point loads.

J. A low amplitude, high frequency plate compactor shall be used to compact the pavers into the sand. Use Table 4 below to select size of compaction equipment:

TABLE 4
PAVER THICKNESS AND REQUIRED MINIMUM
COMPACTIVE EFFORT

Paver Thickness	**Compactive Effort**
2-3/8 in.	3,000 lbs
3-1/8 in.	5,000 lbs

K. The pavers shall be compacted and dry polymeric joint sand shall be swept into the joints until the joints are full, approximately two or three passes with the compactor. Do not compact within 3-feet of the unrestrained edges of the paving units. Follow manufacturer's recommendations for the application of polymeric joint sand including moisture requirements.

L. All WORK to within 3-feet of the laying face must be left fully compacted with sand-filled joints at the completion of each day.

M. Excess joint sand shall be swept off when the job is complete.

N. The final surface elevations shall not deviate more than 3/8 inch under a 10 foot long straightedge.

O. The final surface elevation of pavers shall be 1/8 inch above adjacent drainage inlets, concrete collars or channels to allow for setting.

3.4 POWER AND JOINT SEALER APPLICATION

A. All pavers shall be cleaned prior to sealing. Apply paver cleaner per manufacturer's instructions. Apply paver and joint sealer to all pavers, per manufacturer's instructions.

3.5 FIELD QUALITY CONTROL

A. Final elevations shall be checked for conformance to the Drawings after removal of excess joint sand.

B. Upon completion of the WORK, clean up all WORK areas by removing any debris, surplus material, and equipment from the site.

END OF SECTION

TRAFFIC CONTROL PLAN
(Daytime only)

All Traffic Control Plans (TCP) shall contain the following information:

Project name/ building permit number: _____

Duration of TCP: _____ Reason for TCP: _____

Existing speed limit: _____ MPH Existing lane widths: _____

Sidewalk width: _____ Construction lane width: _____

Responsible Person: _____ Contact phone : _____

TRAFFIC CONTROL DIAGRAM

Show location of all signs and traffic control devices with spacing. List signs and control devices with **Manual of Uniform Traffic Control Devices** (MUTCD) number.

Requirements: All signs to be **Fluorescent Orange** (Alaska State Std. Mod. 615-2.01) and meet the standards listed in the **MUTCD**. **Flaggers** are to be certified, wearing approved apparel (Alaska State Std Mod 643-3.10), and using Sign (Alaska State Std Mod 643-2.01). Juneau Police Department, Capital Transit, Capital City Fire Rescue and CBJ Street Department shall be notified a minimum of 24hrs in advance of any detour.

END OF SPECIAL PROVISIONS

SECTION 04860 - STONE MASONRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the contract, including General and Supplementary Conditions and Division 1 specification sections, apply to this Section.

1.2 SUMMARY

A. Section includes stone masonry anchored to concrete backup walls.

B. Related Sections:

1. CBJ Standard Specifications, for aggregate bases

2. Section 03300 – Cast-In-Place Concrete, for footings and epoxy bonding

1.3 SUBMITTALS

A. Product Data: For each type of product indicated.

1. For stone varieties proposed for use on Project, include test data indicating compliance with physical properties required by referenced ASTM standards.

B. Samples:

1. For each stone type indicated provide rock and color samples to be approved by Landscape Architect prior to fabrication.

2. For each stone type indicated provide samples of rock finishes to be approved by Landscape Architect.

3. For each color of mortar required provide colors to be approved by Landscape Architect.

1.4 PROJECT CONDITIONS

A. Protection of Stone Masonry: During construction, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work.

B. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Comply with cold-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602.

1. Cold-Weather Cleaning: Use liquid cleaning methods only when air temperature is 40 deg F and above and will remain so until masonry has dried.

C. Hot-Weather Requirements: Comply with hot-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602.

PART 2 - PRODUCTS

2.1 STONE: Masonry for Concrete Walls

A. Provide sound natural stone to match the existing stone at the City Museum. Color and texture of rock to be approved by the Engineer prior to fabrication.

2.2 MORTAR MATERIALS

A. Portland Cement: ASTM C 150, Type I or II, except Type III may be used for cold-weather construction. Provide natural color or white cement as required to produce mortar color indicated.

1. Low-Alkali Cement: Not more than 0.60 percent total alkali when tested according to ASTM C 114.

B. Hydrated Lime: ASTM C 207, Type S.

C. Masonry Cement: ASTM C 91.

D. Mortar Pigments: Natural and synthetic iron oxides and chromium oxides, compounded for use in mortar mixes. Use only pigments with a record of satisfactory performance in stone masonry mortar.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

a. Davis Colors; True Tone Mortar Colors.
b. Lanxess Corporation; Bayferrox Iron Oxide Pigments.
c. Solomon Colors; SGS Mortar Colors.

2.3 VENEER ANCHORS

A. Hot-Dip Galvanized-Steel Sheet: ASTM A 1008/A 1008M, cold-rolled, carbon-steel sheet hot-dip galvanized after fabrication to comply with ASTM A 153/A 153M, Class B-2.

B. Corrugated-Metal Veneer Anchors: Not less than 0.030-inch thick by 7/8-inch wide hot-dip galvanized steel sheet with corrugations having a wavelength of 0.3 to 0.5 inch and an amplitude of 0.06 to 0.10 inch.

2.4 MISCELLANEOUS MASONRY ACCESSORIES

A. Asphalt Damp proofing: Asphalt emulsion complying with ASTM D 1227, Type III or IV.

B. Weep Hole/Vent Products: Round Plastic Tubing: Medium-density polyethylene, 3/8-inch OD by thickness of stone masonry and wall.

2.5 MASONRY CLEANERS

A. Proprietary Acidic Cleaner: Manufacturer's standard-strength cleaner designed for removing mortar and grout stains, efflorescence, and other new construction stains from stone masonry

surfaces without discoloring or damaging masonry surfaces; expressly approved for intended use by cleaner manufacturer and stone producer.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

    a. Diedrich Technologies, Inc.
    b. Dominion Restoration Products.
    c. EaCo Chem, Inc.
    d. Hydrochemical Techniques, Inc.
    e. Prosoco, Inc.

2.6 MORTAR MIXES

A. General: Do not use admixtures unless otherwise indicated.

1. Do not use calcium chloride.

2. Limit cementitious materials in mortar to portland cement and lime.

3. Mixing Pointing Mortar: Thoroughly mix cementitious and aggregate materials together before adding water. Then mix again, adding only enough water to produce a damp, unworkable mix that will retain its form when pressed into a ball. Maintain mortar in this dampened condition for one to two hours. Add remaining water in small portions until mortar reaches desired consistency. Use mortar within 30 minutes of final mixing; do not retemper or use partially hardened material.

B. Mortar for Stone Masonry: Comply with ASTM C 270, Proportion Specification.

1. Mortar for Setting Stone: Type M with Dry Block, or approved equal.

2.7 FABRICATION ROCK MASONRY FOR CONCRETE WALLS

A. Select stone to produce pieces of thickness, size, and shape to match existing wall at the City Museum.

PART 3 - EXECUTION

3.1 PREPARATION OF ROCK MASONRY FOR CONCRETE WALLS

A. Coat concrete and unit masonry backup with asphalt damp proofing.

3.2 SETTING OF STONE MASONRY FOR CONCRETE WALLS

A. Perform necessary field cutting and trimming as stone is set.

1. Use hammer and chisel to split stone that is fabricated with split surfaces.

B. Sort stone before it is placed in wall to remove stone that does not comply with requirements relating to aesthetic effects, physical properties, or fabrication, or that is otherwise unsuitable for intended use.

C. Arrange stones with course heights as indicated, random lengths, and uniform joint widths, with offset between vertical joints as indicated.

D. Maintain uniform joint widths except for variations due to different stone sizes and where minor variations are required to maintain bond alignment if any. Lay walls with joints not less than 1/4 inch at narrowest points or more than 3/8 inch at widest points.

3.3 INSTALLATION OF ANCHORED STONE MASONRY

A. Anchor stone masonry to concrete with corrugated-metal veneer anchors unless otherwise indicated. Secure anchors by inserting dovetailed ends into dovetail slots in concrete.

B. Anchor stone masonry to unit masonry with corrugated-metal veneer anchors unless otherwise indicated. Embed anchors in unit masonry mortar joints or grouted cells for distance at least one-half of unit masonry thickness.

C. Space anchors not more than 16 inches o.c. vertically and 36 inches o.c. horizontally. Install additional anchors within 12 inches of openings, sealant joints, and perimeter at intervals not exceeding 12 inches.

D. Set stone in full bed of mortar with full head joints unless otherwise indicated. Build anchors into mortar joints as stone is set.

3.4 ADJUSTING AND CLEANING

A. In-Progress Cleaning: Clean stone masonry as work progresses. Remove mortar fins and smears before tooling joints.

B. Final Cleaning masonry for concrete walls: After mortar is thoroughly set and cured, clean stone masonry as follows:

1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.

2. Test cleaning methods on mockup; leave one-half of panel uncleaned for comparison purposes.

3. Protect adjacent stone and nonmasonry surfaces from contact with cleaner by covering them with liquid strippable masking agent, polyethylene film, or waterproof masking tape.

4. Wet wall surfaces with water before applying cleaner; remove cleaner promptly by rinsing thoroughly with clear water.

5. Clean stone masonry by bucket and brush hand-cleaning method described in BIA Technical Note No. 20 Revised II, using job-mixed detergent solution.

6. Clean stone masonry with proprietary acidic cleaner applied according to manufacturer's written instructions.

C. Final Cleaning rock seats: After stones are placed, clean stone masonry as follows:

1. Clean stone masonry with proprietary acidic cleaner applied according to manufacturer's written instructions.

END OF SECTION 04860

SECTION 05120 - STRUCTURAL STEEL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Structural steel.
2. Grout.

B. Related Sections:
1. Division 05 Section "Architecturally Exposed Structural Steel Framing" for additional requirements for architecturally exposed structural steel.

1.3 DEFINITIONS

A. Structural Steel: Elements of structural-steel frame, as classified by AISC 303, "Code of Standard Practice for Steel Buildings and Bridges."

1.4 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: Show fabrication of structural-steel components.

1. Include details of cuts, connections, splices, camber, holes, and other pertinent data.
2. Include embedment drawings.
3. Indicate welds by standard AWS symbols, distinguishing between shop and field welds, and show size, length, and type of each weld. Show backing bars that are to be removed and supplemental fillet welds where backing bars are to remain.
4. Indicate type, size, and length of bolts, distinguishing between shop and field bolts. Identify pretensioned and slip-critical high-strength bolted connections.

C. Welding Procedure Specifications (WPSs) and Procedure Qualification Records (PQRs): Provide according to AWS D1.1/D1.1M, "Structural Welding Code - Steel," for each welded joint whether prequalified or qualified by testing, including the following:

1. Power source (constant current or constant voltage).
2. Electrode manufacturer and trade name, for demand critical welds.

D. Qualification Data: For qualified fabricator.

E. Welding certificates.

F. Paint Compatibility Certificates: From manufacturers of topcoats applied over shop primers, certifying that shop primers are compatible with topcoats.

G. Mill test reports for structural steel, including chemical and physical properties.

H. Product Test Reports: For the following:

1. Bolts, nuts, and washers including mechanical properties and chemical analysis.
2. Direct-tension indicators.
3. Tension-control, high-strength bolt-nut-washer assemblies.
4. Shear stud connectors.
5. Shop primers.
6. Nonshrink grout.

I. Source quality-control reports.

1.5 QUALITY ASSURANCE

A. Fabricator Qualifications: A qualified fabricator that participates in the AISC Quality Certification Program and is designated an AISC-Certified Plant, Category STD.

B. Installer Qualifications: A qualified installer who participates in the AISC Quality Certification Program and is designated an AISC-Certified Erector, Category ACSE.

C. Shop-Painting Applicators: Qualified according to AISC's Sophisticated Paint Endorsement P1 or SSPC-QP 3, "Standard Procedure for Evaluating Qualifications of Shop Painting Applicators."

D. Welding Qualifications: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."

1. Welders and welding operators performing work on bottom-flange, demand-critical welds shall pass the supplemental welder qualification testing, as required by AWS D1.8. FCAW-S and FCAW-G shall be considered separate processes for welding personnel qualification.

E. Comply with applicable provisions of the following specifications and documents:

1. AISC 303.
2. AISC 341 and AISC 341s1.
3. AISC 360.
4. RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."

F. Preinstallation Conference: Conduct conference at Owner’s office.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Store materials to permit easy access for inspection and identification. Keep steel members off ground and spaced by using pallets, dunnage, or other supports and spacers. Protect steel members and packaged materials from corrosion and deterioration.

1. Do not store materials on structure in a manner that might cause distortion, damage, or overload to members or supporting structures. Repair or replace damaged materials or structures as directed.

B. Store fasteners in a protected place in sealed containers with manufacturer's labels intact.

1. Fasteners may be repackaged provided Owner's testing and inspecting agency observes repackaging and seals containers.

1.7 COORDINATION

A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturers' recommendations to ensure that shop primers and topcoats are compatible with one another.

B. Coordinate installation of anchorage items to be embedded in or attached to other construction without delaying the Work. Provide setting diagrams, sheet metal templates, instructions, and directions for installation.

PART 2 - PRODUCTS

2.1 STRUCTURAL-STEEL MATERIALS

A. Recycled Content of Steel Products: Provide products with an average recycled content of steel products so postconsumer recycled content plus one-half of preconsumer recycled content is not less than 25 percent.

B. W-Shapes: ASTM A 992/A 992M, Grade 50 (345).

C. Channels, Angles: ASTM A 36/A 36M.

D. Plate and Bar: ASTM A 36/A 36M.

E. Cold-Formed Hollow Structural Sections: ASTM A 500, Grade B, structural tubing.

F. Welding Electrodes: Comply with AWS requirements.

2.2 PRIMER

A. Primer: Comply with Division 09 painting Sections.

B. Primer: SSPC-Paint 25, Type I, zinc oxide, alkyd, linseed oil primer.

C. Primer: SSPC-Paint 25 BCS, Type I, zinc oxide, alkyd, linseed oil primer.

D. Primer: SSPC-Paint 23, latex primer.

E. Primer: Fabricator's standard lead- and chromate-free, nonasphaltic, rust-inhibiting primer complying with MPI#79 and compatible with topcoat.

2.3 GROUT

A. Nonmetallic, Shrinkage-Resistant Grout: ASTM C 1107, factory-packaged, nonmetallic aggregate grout, noncorrosive and nonstaining, mixed with water to consistency suitable for application and a 30-minute working time.

2.4 FABRICATION

A. Structural Steel: Fabricate and assemble in shop to greatest extent possible. Fabricate according to AISC's "Code of Standard Practice for Steel Buildings and Bridges" and AISC 360.

1. Camber structural-steel members where indicated.
2. Fabricate beams with rolling camber up.
3. Identify high-strength structural steel according to ASTM A 6/A 6M and maintain markings until structural steel has been erected.
4. Mark and match-mark materials for field assembly.
5. Complete structural-steel assemblies, including welding of units, before starting shop-priming operations.

B. Thermal Cutting: Perform thermal cutting by machine to greatest extent possible.

1. Plane thermally cut edges to be welded to comply with requirements in AWS D1.1/D1.1M.

C. Bolt Holes: Cut, drill or punch standard bolt holes perpendicular to metal surfaces. Pre-drill all holes in galvanized steel prior to galvanizing.

D. Finishing: Accurately finish ends of columns and other members transmitting bearing loads.

E. Cleaning: Clean and prepare steel surfaces that are to remain unpainted according to SSPC-SP 1, "Solvent Cleaning."

F. Holes: Provide holes required for securing other work to structural steel and for other work to pass through steel framing members.

1. Cut, drill, or punch holes perpendicular to steel surfaces. Do not thermally cut bolt holes or enlarge holes by burning.
2. Baseplate Holes: Cut, drill, mechanically thermal cut, or punch holes perpendicular to steel surfaces.
3. Weld threaded nuts to framing and other specialty items indicated to receive other work.

2.5 SHOP CONNECTIONS

A. Weld Connections: Comply with AWS D1.1/D1.1M for tolerances, appearances, welding procedure specifications, weld quality, and methods used in correcting welding work.

1. Assemble and weld built-up sections by methods that will maintain true alignment of axes without exceeding tolerances in AISC 303 for mill material.

2.6 SHOP PRIMING

A. Shop prime steel surfaces except the following:

1. Surfaces embedded in concrete or mortar. Extend priming of partially embedded members to a depth of 2 inches (50 mm).
2. Surfaces to be field welded.
3. Surfaces to be high-strength bolted with slip-critical connections.
4. Surfaces to receive sprayed fire-resistive materials (applied fireproofing).

B. Surface Preparation: Clean surfaces to be painted. Remove loose rust and mill scale and spatter, slag, or flux deposits. Prepare surfaces according to the following specifications and standards:

1. SSPC-SP 2, "Hand Tool Cleaning."
2. SSPC-SP 3, "Power Tool Cleaning."
3. SSPC-SP 7/NACE No. 4, "Brush-Off Blast Cleaning."
4. SSPC-SP 11, "Power Tool Cleaning to Bare Metal."
5. SSPC-SP 14/NACE No. 8, "Industrial Blast Cleaning."
6. SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
7. SSPC-SP 10/NACE No. 2, "Near-White Blast Cleaning."
8. SSPC-SP 5/NACE No. 1, "White Metal Blast Cleaning."
9. SSPC-SP 8, "Pickling."

C. Priming: Immediately after surface preparation, apply primer according to manufacturer's written instructions and at rate recommended by SSPC to provide a minimum dry film thickness of 1.5 mils (0.038 mm). Use priming methods that result in full coverage of joints, corners, edges, and exposed surfaces.

1. Stripe paint corners, crevices, bolts, welds, and sharp edges.
2. Apply two coats of shop paint to surfaces that are inaccessible after assembly or erection. Change color of second coat to distinguish it from first.

D. Painting: Prepare steel and apply a one-coat, nonasphaltic primer complying with SSPC-PS Guide 7.00, "Painting System Guide 7.00: Guide for Selecting One-Coat Shop Painting Systems," to provide a dry film thickness of not less than 1.5 mils (0.038 mm).

2.7 SOURCE QUALITY CONTROL

A. Testing Agency: Owner will engage an independent testing and inspecting agency to perform shop tests and inspections and prepare test reports.

1. Provide testing agency with access to places where structural-steel work is being fabricated or produced to perform tests and inspections.

B. Correct deficiencies in Work that test reports and inspections indicate does not comply with the Contract Documents.

C. Welded Connections: In addition to visual inspection, shop-welded connections will be tested and inspected according to AWS D1.1/D1.1M and the following inspection procedures, at testing agency's option:

1. Liquid Penetrant Inspection: ASTM E 165.
2. Magnetic Particle Inspection: ASTM E 709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration will not be accepted.
3. Ultrasonic Inspection: ASTM E 164.
4. Radiographic Inspection: ASTM E 94.

D. In addition to visual inspection, shop-welded shear connectors will be tested and inspected according to requirements in AWS D1.1/D1.1M for stud welding and as follows:

1. Bend tests will be performed if visual inspections reveal either a less-than-continuous 360-degree flash or welding repairs to any shear connector.
2. Tests will be conducted on additional shear connectors if weld fracture occurs on shear connectors already tested, according to requirements in AWS D1.1/D1.1M.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify, with steel Erector present, elevations of concrete- and masonry-bearing surfaces and locations of anchor rods, bearing plates, and other embedments for compliance with requirements.

1. Prepare a certified survey of bearing surfaces, anchor rods, bearing plates, and other embedments showing dimensions, locations, angles, and elevations.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Provide temporary shores, guys, braces, and other supports during erection to keep structural steel secure, plumb, and in alignment against temporary construction loads and loads equal in intensity to design loads. Remove temporary supports when permanent structural steel, connections, and bracing are in place unless otherwise indicated.

1. Do not remove temporary shoring supporting composite deck construction until cast-in-place concrete has attained its design compressive strength.

3.3 ERECTION

A. Set structural steel accurately in locations and to elevations indicated and according to AISC 303 and AISC 360.

B. Base Bearing Plates: Clean concrete- and masonry-bearing surfaces of bond-reducing materials, and roughen surfaces prior to setting plates. Clean bottom surface of plates.

1. Set plates for structural members on wedges, shims, or setting nuts as required.
2. Weld plate washers to top of baseplate.
3. Promptly pack grout solidly between bearing surfaces and plates so no voids remain. Neatly finish exposed surfaces; protect grout and allow to cure. Comply with manufacturer's written installation instructions for shrinkage-resistant grouts.

C. Maintain erection tolerances of structural steel within AISC's "Code of Standard Practice for Steel Buildings and Bridges."

D. Align and adjust various members that form part of complete frame or structure before permanently fastening. Before assembly, clean bearing surfaces and other surfaces that will be in permanent contact with members. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.

1. Level and plumb individual members of structure.
2. Make allowances for difference between temperature at time of erection and mean temperature when structure is completed and in service.

E. Splice members only where indicated.

F. Do not use thermal cutting during erection unless approved by Architect. Finish thermally cut sections within smoothness limits in AWS D1.1/D1.1M.

G. Do not enlarge unfair holes in members by burning or using drift pins. Ream holes that must be enlarged to admit bolts.

H. Shear Connectors: Prepare steel surfaces as recommended by manufacturer of shear connectors. Use automatic end welding of headed-stud shear connectors according to AWS D1.1/D1.1M and manufacturer's written instructions.

3.4 FIELD CONNECTIONS

A. Weld Connections: Comply with AWS D1.1/D1.1M for tolerances, appearances, welding procedure specifications, weld quality, and methods used in correcting welding work.

1. Comply with AISC 303 and AISC 360 for bearing, alignment, adequacy of temporary connections, and removal of paint on surfaces adjacent to field welds.
2. Remove backing bars or runoff tabs, back gouge, and grind steel smooth.
3. Assemble and weld built-up sections by methods that will maintain true alignment of axes without exceeding tolerances in AISC's "Code of Standard Practice for Steel Buildings and Bridges" for mill material.

3.5 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to inspect field welds and high-strength bolted connections.

B. Bolted Connections: Bolted connections will be visually inspected to confirm snug-tightened condition.

C. Welded Connections: Field welds will be visually inspected according to AWS D1.1/D1.1M.

1. In addition to visual inspection, field welds will be tested and inspected according to AWS D1.1/D1.1M and the following inspection procedures, at testing agency's option:

a. Liquid Penetrant Inspection: ASTM E 165.
b. Magnetic Particle Inspection: ASTM E 709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration will not be accepted.
c. Ultrasonic Inspection: ASTM E 164.
d. Radiographic Inspection: ASTM E 94.

D. In addition to visual inspection, test and inspect field-welded shear connectors according to requirements in AWS D1.1/D1.1M for stud welding and as follows:

1. Perform bend tests if visual inspections reveal either a less-than-continuous 360-degree flash or welding repairs to any shear connector.
2. Conduct tests on additional shear connectors if weld fracture occurs on shear connectors already tested, according to requirements in AWS D1.1/D1.1M.

E. Correct deficiencies in Work that test reports and inspections indicate does not comply with the Contract Documents.

3.6 REPAIRS AND PROTECTION

A. Touchup Painting: Immediately after erection, clean exposed areas where primer is damaged or missing and paint with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.

1. Clean and prepare surfaces by SSPC-SP 2 hand-tool cleaning or SSPC-SP 3 power-tool cleaning.

B. Touchup Painting: Cleaning and touchup painting are specified in Division 09 painting Sections.

END OF SECTION

SECTION 05121 - ARCHITECTURALLY EXPOSED STRUCTURAL STEEL FRAMING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes architecturally exposed structural-steel framing.

1. Requirements in Division 5 Section "Structural Steel" also apply to AESS framing.

B. Related Sections:

1. Division 1 Section "Quality Requirements" for independent testing agency procedures and administrative requirements.
2. Division 5 Section "Structural Steel" for additional requirements applicable to AESS.
3. Division 9 painting Sections and Division 9 Section "High-Performance Coatings" for surface preparation and priming requirements.

1.3 DEFINITIONS

A. Architecturally Exposed Structural Steel: Structural steel designated as "architecturally exposed structural steel" or "AESS" in the Contract Documents.

B. Category 1 AESS: AESS that is within 96 inches vertically and 36 inches horizontally of a walking surface and is visible to a person standing on that walking surface or is designated as "Category 1 architecturally exposed structural steel" or "AESS-1" in the Contract Documents.

C. Category 2 AESS: AESS that is within 20 feet vertically and horizontally of a walking surface and is visible to a person standing on that walking surface or is designated as "Category 2 architecturally exposed structural steel" or "AESS-2" in the Contract Documents.

D. Category 3 AESS: AESS that is not defined as Category 1 or Category 2 or that is designated as "Category 3 architecturally exposed structural steel" or "AESS-3" in the Contract Documents.

1.4 SUBMITTALS

A. Shop Drawings: Show fabrication of AESS components. Shop Drawings for structural steel may be used for AESS provided items of AESS are specifically identified and requirements below are met for AESS.

1. Include details of cuts, connections, splices, camber, holes, and other pertinent data.
2. Include embedment drawings.
3. Indicate welds by standard AWS symbols, distinguishing between shop and field welds, and show size, length, and type of each weld. Show backing bars that are to be removed and supplemental fillet welds where backing bars are to remain. Indicate grinding, finish, and profile of welds.
4. Indicate type, size, and length of bolts, distinguishing between shop and field bolts. Identify pretensioned and slip-critical high-strength bolted connections. Indicate orientation of bolt heads.
5. Indicate exposed surfaces and edges and surface preparation being used.
6. Indicate special tolerances and erection requirements.

B. Samples: Submit samples of AESS to set quality standards for exposed welds for Category 1 AESS.

1. Two steel plates, 3/8 by 8 by 4 inches, with long edges joined by a groove weld and with weld ground smooth.
2. Steel plate, 3/8 by 8 by 8 inches, with one end of a short length of rectangular steel tube, 4 by 6 by 3/8 inches, welded to plate with a continuous fillet weld and with weld ground smooth and blended.

C. Qualification Data: For qualified fabricator and installer.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: A qualified installer who participates in the AISC Quality Certification Program and is designated an AISC-Certified Erector, Category ACSE.

B. Fabricator Qualifications: A qualified fabricator that participates in the AISC Quality Certification Program and is designated an AISC-Certified Plant, Category STD

C. Mockups: Build mockups of AESS to set quality standards for fabrication and installation.

1. Build mockup of typical portion of AESS as shown on Drawings.
2. Coordinate finish painting requirements with Division 9 painting Sections.
3. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

D. Preinstallation Conference: Conduct conference at Project site.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Use special care in handling to prevent twisting, warping, nicking, and other damage. Store materials to permit easy access for inspection and identification. Keep steel members off ground and spaced by using pallets, dunnage, or other supports and spacers. Protect steel members and packaged materials from corrosion and deterioration.

1. Do not store materials on structure in a manner that might cause distortion, damage, or overload to members or supporting structures. Repair or replace damaged materials or structures as directed.

1.7 PROJECT CONDITIONS

A. Field Measurements: Where AESS is indicated to fit against other construction, verify actual dimensions by field measurements before fabrication.

1.8 COORDINATION

PART 2 - PRODUCTS

2.1 FABRICATION

A. Shop fabricate and assemble AESS to the maximum extent possible. Locate field joints at concealed locations if possible. Detail assemblies to minimize handling and to expedite erection.

B. In addition to special care used to handle and fabricate AESS, comply with the following:

1. Fabricate with exposed surfaces smooth, square, and free of surface blemishes including pitting, rust, scale, and roughness.
2. Grind sheared, punched, and flame-cut edges of Category 1AESS to remove burrs and provide smooth surfaces and edges.
3. Fabricate Category 1 AESS with exposed surfaces free of mill marks, including rolled trade names and stamped or raised identification.
4. Fabricate Category 1 and Category 2 AESS with exposed surfaces free of seams to maximum extent possible.
5. Remove blemishes by filling or grinding or by welding and grinding, before cleaning, treating, and shop priming.
6. Fabricate with piece marks fully hidden in the completed structure or made with media that permits full removal after erection.
7. Fabricate Category 1AESS to the tolerances specified in AISC 303 for steel that is designated AESS.
8. Fabricate Category 2 and Category 3AESS to the tolerances specified in AISC 303 for steel that is not designated AESS.
9. Seal-weld open ends of hollow structural sections with 3/8-inch closure plates for Category 1AESS.

C. Curved Members: Fabricate indicated members to curved shape by rolling to final shape in fabrication shop.

1. Distortion of webs, stems, outstanding flanges, and legs of angles shall not be visible from a distance of 20 feet under any lighting conditions.
2. Tolerances for walls of hollow steel sections after rolling shall be approximately 1/2 inch.

D. Coping, Blocking, and Joint Gaps: Maintain uniform gaps of 1/8 inch with a tolerance of 1/32 inch for Category AESS.

E. Bolt Holes: Cut, drill, mechanically thermal cut, or punch standard bolt holes perpendicular to metal surfaces.

F. Holes: Provide holes required for securing other work to structural steel and for other work to pass through steel framing members.

1. Cut, drill, or punch holes perpendicular to steel surfaces. Do not thermally cut bolt holes or enlarge holes by burning.
2. Baseplate Holes: Cut, drill, mechanically thermal cut, or punch holes perpendicular to steel surfaces.
3. Weld threaded nuts to framing and other specialty items indicated to receive other work.

2.2 SHOP CONNECTIONS

A. High-Strength Bolts: Shop install high-strength bolts according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts" for type of bolt and type of joint specified.

1. Joint Type: Bearing.

B. Weld Connections: Comply with AWS D1.1/D1.1M and AWS D1.8/D1.8M for tolerances, appearances, welding procedure specifications, weld quality, and methods used in correcting welding work, and comply with the following:

1. Assemble and weld built-up sections by methods that will maintain true alignment of axes without exceeding specified tolerances.
2. Use weld sizes, fabrication sequence, and equipment for AESS that limit distortions to allowable tolerances.
3. Provide continuous, sealed welds at angle to gusset-plate connections and similar locations where Category 1 AESS is exposed to weather.
4. Provide continuous welds of uniform size and profile where Category 1 AESS is welded.
5. Grind butt and groove welds flush to adjacent surfaces within tolerance of plus 1/16 inch, minus 0 inch for Category 1 and Category 2 AESS.
6. Do not grind unless required for clearances or for fitting other components, or unless directed to correct unacceptable work.
7. Remove backing bars or runoff tabs; back-gouge and grind steel smooth for Category 1 and Category 2 AESS.
8. At locations where welding on the far side of an exposed connection of Category 1 and Category 2 AESS occurs, grind distortions and marking of the steel to a smooth profile aligned with adjacent material.
9. Make fillet welds for Category 1 and Category 2 AESS of uniform size and profile with exposed face smooth and slightly concave. Do not grind unless directed to correct unacceptable work.

2.3 SHOP PRIMING

A. Shop prime steel surfaces except the following:

1. Surfaces embedded in concrete or mortar. Extend priming of partially embedded members to a depth of 2 inches.
2. Surfaces to be field welded.
3. Surfaces to be high-strength bolted with slip-critical connections.
4. Surfaces to receive sprayed fire-resistive materials.

B. Surface Preparation for Nongalvanized Steel: Clean surfaces to be painted. Remove loose rust and mill scale and spatter, slag, or flux deposits. Prepare surfaces according to the following specifications and standards:

1. SSPC-SP 2, "Hand Tool Cleaning."
2. SSPC-SP 3, "Power Tool Cleaning."
3. SSPC-SP 7/NACE No. 4, "Brush-Off Blast Cleaning."
4. SSPC-SP 14/NACE No. 8, "Industrial Blast Cleaning."
5. SSPC-SP 11, "Power Tool Cleaning to Bare Metal."
6. SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
7. SSPC-SP 10/NACE No. 2, "Near-White Blast Cleaning."
8. SSPC-SP 5/NACE No. 1, "White Metal Blast Cleaning."
9. SSPC-SP 8, "Pickling."

C. Priming: Immediately after surface preparation, apply primer according to manufacturer's written instructions and at rate recommended by SSPC to provide a minimum dry film thickness of 1.5 mils. Use priming methods that result in full coverage of joints, corners, edges, and exposed surfaces.

1. Stripe paint corners, crevices, bolts, welds, and sharp edges.
2. Apply two coats of shop paint to surfaces that are inaccessible after assembly or erection. Change color of second coat to distinguish it from first.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify, with steel erector present, elevations of concrete- and masonry-bearing surfaces and locations of anchor rods, bearing plates, and other embedments for compliance with requirements.

1. Prepare a certified survey of bearing surfaces, anchor rods, bearing plates, and other embedments showing dimensions, locations, angles, and elevations.

B. Examine AESS for twists, kinks, warping, gouges, and other imperfections before erecting.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Provide temporary shores, guys, braces, and other supports during erection to keep AESS secure, plumb, and in alignment against temporary construction loads and loads equal in intensity to design loads. Remove temporary supports when permanent structural steel, connections, and bracing are in place unless otherwise indicated.

1. If possible, locate welded tabs for attaching temporary bracing and safety cabling where they will be concealed from view in the completed Work.
2. Do not remove temporary shoring supporting composite deck construction until cast-in-place concrete has attained its design compressive strength.

3.3 ERECTION

A. Set AESS accurately in locations and to elevations indicated and according to AISC 303 and AISC 360.

1. Erect Category 1 AESS to the tolerances specified in AISC 303 for steel that is designated AESS.
2. Erect Category 2 and Category 3 AESS to the tolerances specified in AISC 303 for steel that is not designated AESS.

B. Do not use thermal cutting during erection unless approved by Architect. Finish thermally cut sections within smoothness limits in AWS D1.1/D1.1M.

3.4 FIELD QUALITY CONTROL.

A. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to inspect AESS as specified in Division 5 Section "Structural Steel." The testing agency will not be responsible for enforcing requirements relating to aesthetic effect.

B. Architect will observe AESS in place to determine acceptability relating to aesthetic effect.

3.5 REPAIRS AND PROTECTION

A. Remove welded tabs that were used for attaching temporary bracing and safety cabling and that are exposed to view in the completed Work. Grind steel smooth.

B. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.

1. Clean and prepare surfaces by SSPC-SP 2 hand-tool cleaning or SSPC-SP 3 power-tool cleaning.

C. Touchup Painting: Cleaning and touchup painting are specified in Division 9 painting Sections.

END OF SECTION

SECTION 05500 - METAL HANDRAILS AND GUARDRAILS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Steel fabrications for Handrails, Guardrails, and all related fabrications.

B. Products furnished, but not installed, under this Section include the following:

1. Anchor bolts, steel pipe sleeves, and wedge-type inserts indicated to be cast into concrete or built into unit masonry.

C. Related Sections include the following:

1. Section 09900 – Paints and Coatings

1.3 SUBMITTALS

A. Shop Drawings: Show fabrication and installation details for metal fabrications.

1. Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items.

B. Provide templates for anchors and bolts specified for installation under other Sections.

C. Samples for Verification:

1. Paint color samples applied to same metal in Drawings.
2. Welding certificates.

1.4 QUALITY ASSURANCE

A. Welding: Qualify procedures and personnel according to the following:

1. AWS D1.1, "Structural Welding Code--Steel."
2. AWS D1.3, "Structural Welding Code--Sheet Steel."

1.5 COORDINATION

A. Coordinate installation of anchorages for metal fabrications. 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.

PART 2 - PRODUCTS

2.1 METALS, GENERAL

A. Metal Surfaces, General: Provide materials with smooth, flat surfaces, unless otherwise indicated. For metal fabrications exposed to view in the completed Work, provide materials without seam marks, roller marks, rolled trade names, or blemishes.

2.2 FERROUS METALS

A. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.

B. Steel Tubing: ASTM A 500, cold-formed steel tubing.

C. Steel Pipe: ASTM A 53/A 53M, standard weight (Schedule 40), unless another weight is indicated or required by structural loads.

2.3 FASTENERS

A. General: Unless otherwise indicated, provide Type 304 stainless-steel fasteners for exterior use. Provide stainless-steel fasteners for fastening aluminum. Select fasteners for type, grade, and class required.

B. Stainless-Steel Bolts and Nuts: Regular hexagon-head annealed stainless-steel bolts, nuts and, where indicated, flat washers; ASTM F 593 for bolts and ASTM F 594 for nuts, Alloy Group 1

C. Expansion Anchors: Anchor bolt and sleeve assembly with capability to sustain, without failure, a load equal to six times the load imposed when installed in unit masonry and four times the load imposed when installed in concrete, as determined by testing according to ASTM E 488, conducted by a qualified independent testing agency.

D. Material for Anchors in Exterior Locations: Alloy Group 1 stainless-steel bolts complying with ASTM F 593 and nuts complying with ASTM F 594.

2.4 MISCELLANEOUS MATERIALS

A. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.

2.5 FABRICATION, GENERAL

A. Shop Assembly: Preassemble items in the shop to greatest extent possible. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.

B. Metal Components: Form to required shapes and sizes with true, consistent curves, lines, and angles. Separate metals from dissimilar materials to prevent electrolytic action.

C. Welded Connections: Weld connections continuously. Weld solid members with full-length, full-penetration welds and hollow members with full-circumference welds. At exposed connections, finish surfaces smooth and blended so no roughness or unevenness shows after finishing and welded surface matches contours of adjoining surfaces.

D. Pipes and Tubes: Form simple and compound curves by bending members in jigs to produce uniform curvature for each repetitive configuration required; maintain cylindrical cross section of member throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces of handrail and railing components.

E. Steel and Iron Components: Galvanized, galvanized and color coated, or color coated. Bare metal steel or iron components are not permitted.

F. Exposed Surfaces: Polished, sanded, or otherwise finished; smooth all surfaces, free from burrs, barbs, splinters, and sharpness; all edges and ends rolled, rounded, or capped.

G. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch, unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.

H. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.

I. Form exposed work true to line and level with accurate angles and surfaces and straight edges.

J. Weld corners and seams continuously to comply with the following:

1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
2. Obtain fusion without undercut or overlap.
3. Remove welding flux immediately.
4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.

K. Fabricate seams and other connections that will be exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.

L. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.

M. Provide for anchorage of type indicated; coordinate with supporting structure. Space anchoring devices to secure metal fabrications rigidly in place and to support indicated loads.

2.6 MISCELLANEOUS FRAMING AND SUPPORTS

A. Fabricate units from steel shapes, plates, and bars of welded construction, unless otherwise indicated. Fabricate to sizes, shapes, and profiles indicated and as necessary to receive adjacent

construction retained by framing and supports. Cut, drill, and tap units to receive hardware, hangers, and similar items.

1. Furnish inserts if units are installed after concrete is placed.

2.7 FINISHES, GENERAL

A. Comply with NAAMM's "Metal Finishes Manual for Landscape Architectural and Metal Products" for recommendations for applying and designating finishes.

B. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

2.8 PAINTED FINISHES

A. Refer to the Drawings for colors of finish, or provide samples for approval if indicated on Drawings.

B. All preparation, priming, and painting shall be completed as indicated in Section 09900-Paints and Coatings.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Fastening to In-Place Construction: Provide anchorage devices and fasteners where metal fabrications are required to be fastened to in-place construction. Provide threaded fasteners for use with concrete and masonry inserts, toggle bolts, through bolts, lag bolts, wood screws, and other connectors.

B. Provide temporary bracing or anchors in formwork for items that are to be built into concrete, masonry, or similar construction.

3.2 CLEANING

A. After completing installation, inspect components. Remove spots, dirt, and debris. Repair damaged finishes to match original finish or replace component.

END OF SECTION 05500

SECTION 06200 - FINISH CARPENTRY

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Finish carpentry items.

B. Wood ceiling and soffits - concealed fasteners. Interior and exterior conditions.

E. Hardware and attachment accessories.

1.2 RELATED REQUIREMENTS

A. Section 05120 – Structural Steel: Siding, soffit,

B. Non-Loadbearing Metal Framing

C. Section 09900 - Paints and Coatings: Painting and finishing of finish carpentry items.

1.3 REFERENCE STANDARDS

A. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2008.

B. AWI/AWMAC (QSI) - Architectural Woodwork Quality Standards Illustrated; Architectural Woodwork Institute and Architectural Woodwork Manufacturers Association of Canada; 2005, 8th Ed., Version 2.0.

1.4 ADMINISTRATIVE REQUIREMENTS

A. Coordinate the work with plumbing rough-in, electrical rough-in, and installation of associated and adjacent components.

B. Sequence installation to ensure utility connections are achieved in an orderly and expeditious manner.

1.5 SUBMITTALS

A. See Section 01300 - Contractor Submittals for submittal procedures.

B. Product Data:

1. Provide data on fire retardant treatment materials and application instructions.

2. Provide instructions for attachment hardware and finish hardware.

C. Shop Drawings: Indicate materials, component profiles, fastening methods, jointing details, accessories, to a minimum scale of 1-1/2 inch to 1 ft.

D. Samples: Submit two samples of wood trim 10" long.

1.6 QUALITY ASSURANCE

A. Fabricator Qualifications: Company specializing in fabricating the products specified in this section with minimum three years of documented experience.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Protect work from moisture damage.

PART 2 - PRODUCTS

2.1 MATERIALS - GENERAL

A. Unless otherwise indicated provide products of quality specified by AWI Architectural Woodwork Quality Standards Illustrated for Premium grade.

B. Unless otherwise indicated provide products of quality specified by Woodwork Institute Manual of Millwork for Premium grade.

C. Provide materials having fire and smoke properties as required by applicable code.

2.2 WOOD-BASED COMPONENTS

A. Provide wood harvested within a 500 mile radius of the project site. This stipulation is specific to material used at exterior canopy soffits and interior ceilings and soffits indicated to be wood.

2.3 LUMBER MATERIALS

A. Softwood Lumber for use at exterior soffits: hemlock or spruce species, maximum moisture content of 6 percent; with vertical grain, of quality suitable for transparent finish.

2.4 ADHESIVE

A. Adhesive: Type recommended by laminate manufacturer to suit application.

2.5 FASTENERS

A. Fasteners: Of size and type to suit application; any finish in concealed locations and nickle finish in exposed locations.

B. Concealed Joint Fasteners: Threaded steel.

2.6 ACCESSORIES

A. Lumber for Shimming, Blocking, and backing: Softwood lumber of any species.

B. Primer: Alkyd primer sealer.

C. Wood Filler: Solvent base, tinted to match surface finish color.

2.7 WOOD TREATMENT

A. Fire Retardant Treatment (FR-S Type): Chemically treated and pressure impregnated; capable of providing flame spread index of 25, maximum, and smoke developed index of 450, maximum, when tested in accordance with ASTM E84.

B. Provide identification on fire retardant treated material.

C. Dry wood after pressure treatment to maximum 9 percent moisture content.

2.8 FABRICATION

A. Shop assemble work for delivery to site, permitting passage through building openings.

D. When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide trim for scribing and site cutting.

2.9 SHOP FINISHING

A. Sand work smooth and set exposed nails and screws.

B. Apply wood filler in exposed nail and screw indentations.

C. On items to receive transparent finishes, use wood filler that matches surrounding surfaces and is of type recommended for the applicable finish.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify adequacy of backing and support framing.

B. Verify mechanical, electrical, and building items affecting work of this section are placed and ready to receive this work.

3.2 INSTALLATION

A. Set and secure materials and components in place, plumb and level.

B. Carefully scribe work abutting other components, with maximum gaps of 1/32 inch, unless otherwise noted. Do not use additional overlay trim to conceal larger gaps.

3.3 TOLERANCES

A. Maximum Variation from True Position: 1/16 inch.

B. Maximum Offset from True Alignment with Abutting Materials: 1/32 inch.

3.4 SCHEDULE

A. Exterior:

1. Soffits: Clear finish on all surfaces prior to installation.

END OF SECTION

SECTION 08800 - GLAZING

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Glass.

B. Glazing compounds and accessories.

1.2 RELATED REQUIREMENTS

A. Section 05120, Section 05121

1.3 REFERENCE STANDARDS

A. 16 CFR 1201 - Safety Standard for Architectural Glazing Materials; current edition.

B. ANSI Z97.1 - American National Standard for Safety Glazing Materials Used in Buildings, Safety Performance Specifications and Methods of Test; 2004.

C. ASTM C 864 - Standard Specification for Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers; 2005.

D. ASTM C 920 - Standard Specification for Elastomeric Joint Sealants; 2005.

E. ASTM C 1036 - Standard Specification for Flat Glass; 2006.

F. ASTM C 1048 - Standard Specification for Heat-Treated Flat Glass--Kind HS, Kind FT Coated and Uncoated Glass; 2004.

G. ASTM C 1172 - Standard Specification for Laminated Architectural Flat Glass; 2003.

H. ASTM C 1193 - Standard Guide for Use of Joint Sealants; 2005a.

I. ASTM E 1300 - Standard Practice for Determining Load Resistance of Glass in Buildings; 2007.

J. GANA (GM) - GANA Glazing Manual; Glass Association of North America; 2004.

K. GANA (SM) - FGMA Sealant Manual; Glass Association of North America; 1990.

1.4 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Convene a preinstallation meeting one week before starting work of this section; require attendance by all affected installers.

1.5 SUBMITTALS

A. See Section 01300 - Contractor Submittals, for submittal procedures.

B. Product Data on Glass Types: Provide structural, physical and environmental characteristics, size limitations, special handling or installation requirements.

C. Product Data on Glazing Compounds: Provide chemical, functional, and environmental characteristics, limitations, special application requirements. Identify available colors.

D. Samples: Submit two samples 12X12 inch in size of glass units, showing coloration and design.

E. Shop Drawings: Specific to canopy glazing; Indicate assembly, dimensions, silkscreen pattern layout, structural calculations stamped and signed by engineer licensed to provide professional services in Alaska. Specifiic to Security winndow: Provide assembly details, dimensions, and performance documentation.

F. Samples: Submit 6 inch long bead of glazing sealant, color as selected.

G. Certificates: Certify that products meet or exceed specified requirements.

H. Maintenance Materials: Furnish the following for OWNER's use in maintenance of project.

1.6 QUALITY ASSURANCE

A. Perform Work in accordance with GANA Glazing Manual and FGMA Sealant Manual for glazing installation methods.

B. Installer Qualifications: Company specializing in performing the work of this section with minimum 10 years documented experience.

1.7 FIELD CONDITIONS

A. Do not install glazing when ambient temperature is less than 50 degrees F.

B. Maintain minimum ambient temperature before, during and 24 hours after installation of glazing compounds.

1.8 WARRANTY

A. See Section 01700 - Project Closeout, for additional warranty requirements.

B. Laminated Glass: Provide a five (5) year warranty to include coverage for delamination, including replacement of failed units.

PART 2 - PRODUCTS

2.1 GLAZING TYPES

A. Canopy Glazing: Glazing design for canopy spans to accomodate gravity loads in configuration illustrated, on AESS frame.

1. Application: Locations indicated on the drawings.

2. Type of glass: Laminated glass fabricated by bonding two or more glass panes with transparent, flexible interlayment material in accordance with ASTM C1172. Laminated glass shall meet requirements of ANSI Z97.1 and CPSC 16 CFR to qualify as safety glass.

3. Fabricate laminated glass for canopy components from either ASTM C1036 annealed, ASTM C1048 Kind HS heat strengthened, or ASTM C1048 Kind FT fully tempered glass as determined by manufacturer to accommodate Project design and performance requirements.

4. Glass thickness: Determined by glass canopy manufacturer to accommodate Project design and performance requirements.

5. Color: Blue-Green

6. Edge finishing: chamfer all edges 1/16", polish all exposed edges.

8. Performance: Panels to be provided to support 50psf live load in an exterior environment, and perform subjected to a seasonal temperature range of 120F.

9. Glazing Method: mount between continuous shims on bearing surfaces and under securement angle. Wet structural sealant joint with backing rod between glass edge and structural steel.

2.2 EXTERIOR GLAZING ASSEMBLIES

A. Structural Design Criteria: Select type and thickness to withstand dead loads and wind loads acting normal to plane of glass at design pressures calculated in accordance with ASCE 7.

1. Use the procedure specified in ASTM E 1300 to determine glass type and thickness.

2. Limit glass deflection to 1/200 or flexure limit of glass, whichever is less, with full recovery of glazing materials.

3. Thicknesses listed are minimum.

B. Air and Vapor Seals: Provide completed assemblies that maintain continuity of building enclosure vapor retarder and air barrier:

1. In conjunction with vapor retarder and joint sealer materials described in other sections.

2. To utilize the inner pane of multiple pane sealed units for the continuity of the air barrier and vapor retarder seal.

3. To maintain a continuous air barrier and vapor retarder throughout the glazed assembly from glass pane to heel bead of glazing sealant.

2.3 GLASS MATERIALS

A. Float Glass Manufacturers:

1. Zeledyne: www.versaluxglass.com.

2. AGC Flat Glass North America, Inc: www.afgglass.com.

3. Guardian Industries Corp: www.sunguardglass.com.

4. Pilkington North America Inc: www.pilkington.com.

5. PPG Industries, Inc: www.ppg.com.

6. Substitutions: See Section 01300 – CONTRACTOR Submittals.

B. Float Glass: All glazing is to be float glass unless otherwise indicated.

1. Annealed Type: ASTM C 1036, Type I, transparent flat, Class 1 clear, Quality Q3 (glazing select).

2. Heat-Strengthened and Fully Tempered Types: ASTM C 1048.

3. Tinted Types: Color and performance characteristics as indicated.

4. Thicknesses: 1/4 inch, typical; for exterior glazing comply with specified requirements for wind load design regardless of specified thickness.

2.4 SEALED INSULATING GLASS UNITS

A. Sealed Insulating Glass Units: Types as indicated above.

1. Durability: Certified by an independent testing agency to comply with ASTM E 2190.

2. Edge Spacers: nonmetalic, continuous and sealed corners. Basis of design: Super Spacer Premium Plus, by Edgetech, or Owner Approved Equal.

3. Edge Seal Construction: Glass to elastomer with supplementary silicone sealant.

4. Purge interpane space with dry Argon.

5. Unit thickness: 1 inch.

2.6 GLAZING COMPOUNDS

A. Manufacturers:

1. Bostik Inc: www.bostik-us.com.

2. Momentive Performance Materials, Inc (formerly GE Silicones): www.momentive.com.

3. Pecora Corporation: www.pecora.com.

4. BASF Construction Chemicals-Building Systems: www.chemrex.com.

5. Dow Corning: www.dowcorning.com .

6. Substitutions: Not permitted.

B. Structural Silicone Sealant: Type 9.

C. Silicone Sealant: Type 8. Single component; neutral curing; capable of water immersion without loss of properties; non-bleeding, non-staining; ASTM C 920, Type S, Grade NS, Class 25, Uses M, A, and G; cured Shore A hardness of 25-40; black color.

2.7 GLAZING ACCESSORIES

A. Setting Blocks: Neoprene, 80 to 90 Shore A durometer hardness, ASTM C 864 Option I. Length of 0.1 inch for each square foot of glazing or minimum 4 inch x width of glazing rabbet space minus 1/16 inch x height to suit glazing method and pane weight and area.

B. Spacer Shims: Neoprene, 50 to 60 Shore A durometer hardness, ASTM C 864 Option I. Minimum 3 inch long x one half the height of the glazing stop x thickness to suit application, self adhesive on one face.

C. Continuous Spacer Shims: Neoprene, 50 to 60 Shore A durometer hardness, ASTM C 864 Option I. Minimum length of bearing/pressure surface x one half the width of the glazing contact area x thickness to suit application (no less than 1/4"), self adhesive on one face.

D. Glazing Tape: Preformed butyl compound with integral resilient tube spacing device; 10 to 15 Shore A durometer hardness; coiled on release paper; 1/8x1/2 inch size; black color.

E. Glazing Gaskets: Resilient silicone extruded shape to suit glazing channel retaining slot; ASTM C 864 Option I; black color.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that openings for glazing are correctly sized and within tolerance.

B. Verify that surfaces of glazing channels or recesses are clean, free of obstructions that may impede moisture movement, weeps are clear, and ready to receive glazing.

3.2 PREPARATION

A. Clean contact surfaces with solvent and wipe dry.

B. Seal porous glazing channels or recesses with substrate compatible primer or sealer.

C. Prime surfaces scheduled to receive sealant.

D. Install sealants in accordance with ASTM C 1193 and FGMA Sealant Manual.

E. Install sealant in accordance with manufacturer's instructions.

3.3 INSTALLATION - EXTERIOR/INTERIOR DRY METHOD (GASKET GLAZING)

A. Place setting blocks at 1/4 points with edge block no more than 6 inches from corners.

B. Rest glazing on setting blocks and push against fixed stop with sufficient pressure on gasket to attain full contact.

C. Install removable stops without displacing glazing gasket; exert pressure for full continuous contact.

3.4 INSTALLATION - EXTERIOR WET METHOD (SEALANT AND SEALANT)

A. Place setting blocks at 1/4 points and install glazing pane or unit.

B. Install removable stops with glazing centered in space by inserting spacer shims both sides at 24 inch intervals, 1/4 inch below sight line.

C. Fill gaps between glazing and stops with structural silicone type sealant to depth of bite on glazing, but not more than 3/8" inch below sight line to ensure full contact with glazing and continue the air and vapor seal.

D. Apply sealant to uniform line, flush with sight line. Tool or wipe sealant surface smooth.

3.5 INSTALLATION - EXTERIOR BUTT GLAZED METHOD (SEALANT ONLY)

A. Temporarily brace glass in position for duration of glazing process. Mask edges of glass at adjoining glass edges and between glass edges and framing members.

B. Temporarily secure a small diameter non-adhering foamed rod on back side of joint.

C. Apply sealant to open side of joint in continuous operation; thoroughly fill the joint without displacing the foam rod. Tool the sealant surface smooth to concave profile.

D. Permit sealant to cure then remove foam backer rod. Apply sealant to opposite side, tool smooth to concave profile.

E. Remove masking tape.

3.6 CLEANING

A. Remove glazing materials from finish surfaces.

B. Remove labels after Work is complete.

C. Clean glass and adjacent surfaces.

3.7 PROTECTION

A. After installation, mark pane with an 'X' by using removable plastic tape or paste.

3.8 SCHEDULE

A. Metal-Framed Storefronts and Curtain Wall: Type [IG-1], thicknesses required to comply with performance requirements, exterior dry method and flush glaze exterior wet method.

B. Aluminum Entrances: Type IG-1 and IG-2 as indicated blue green tint, exterior dry method..

C. Canopy Glazing

1. Exterior engineered structural laminated glass plank units as described. Exterior wet method, as modified by details.

END OF SECTION

SECTION 09900 - PAINTS AND COATINGS

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Surface preparation.

B. Shop application of paints, varnishes, and other coatings.

C. Scope: Finish all exterior surfaces exposed to view, unless fully factory-finished and unless otherwise indicated, including the following:

1. All steel fabrication

2. All wood soffits

2. Electrical in finished areas, paint conduit, boxes, electrical equipment, unless otherwise indicated.

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, AAES, anodized aluminum, and bronze items.

7. Marble, granite, slate, and other natural stones.

8. Glass.

11. Structural and precast concrete, unless specifically so indicated.

12. Concealed conduits.

1.2 RELATED REQUIREMENTS

A. Section 05120, 05121 - Metal Fabrications: Shop-primed items.

B. Division 16 - Electrical Identification: Painted identification and Color-coding scheme for items to be painted under this section.

1.3 DEFINITIONS

A. Conform to ASTM D 16 for interpretation of terms used in this section.

1.4 REFERENCE STANDARDS

A. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency; current edition.

B. ASTM D 16 - Standard Terminology for Paint, Related Coatings, Materials, and Applications; 2007.

C. ASTM D 4442 - Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Base Materials; 1992 (Reapproved 2003).

D. GreenSeal GS-11 - Paints; 1993.

E. SSPC (PM1) - Good Painting Practice: SSPC Painting Manual, Vol. 1; Society for Protective Coatings; Fourth Edition.

1.5 SUBMITTALS

A. See Section 01300 - Contractor Submittals, for submittal procedures.

B. Product Data: Provide data on all finishing products, including VOC content.

C. Samples: Submit two painted samples, illustrating selected colors and textures for each color and system selected with specified coats cascaded. Submit on aluminum sheet, 6x8 inch in size.

D. Certification: By manufacturer that all paints and coatings comply with VOC limits specified.

E. Certification: By manufacturer that all paints and coatings do not contain any of the prohibited chemicals specified; GreenSeal GS-11 certification is not required but if provided shall constitute acceptable certification.

F. Schedule of proposed products, applications, and corresponding MPI numbers.

G. Manufacturer's Instructions: Indicate special surface preparation procedures.

H. Maintenance Data: Submit data on cleaning, touch-up, and repair of painted and coated surfaces.

I. Maintenance Materials: Furnish the following for OWNER's use in maintenance of project.

1. See Section 01600 - Materials and Equipment, 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.

1.6 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 10 years experience.

C. MPI Standards; www.paintinfo.com/mpi:

1. Products: complying with MPI standards indicated and listed in "MPI Approved Products List".

2. Preparation and workmanship: Comply with requirements in "MPI Architectural Painting Specification Manual"

1.7 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.

1.8 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

2.1 MANUFACTURERS

A. Provide all paint and coating products from the same manufacturer to the greatest extent possible.

B. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include, but are not limited to. the following:

1. Duron, Inc: www.duron.com.
2. ICI Paints: www.icipaintsinna.com.
3. Benjamin Moore & Co: www.benjaminmoore.com.
4. PPG Architectural Finishes, Inc: www.ppgaf.com.
5. Pratt & Lambert Paints: www.pratandlambert.com.

C. Substitutions: See section 01600 - Materials and Equipment

2.2 PAINTS AND COATINGS - GENERAL

A. Paints and Coatings: Ready mixed, unless intended to be a field-catalyzed coating.

1. 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.
2. Supply each coating material in quantity required to complete entire project's work from a single production run.
3. 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.

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. Colors: To be selected from manufacturer's full range of available colors.

1. Selection to be made by ENGINEER after award of contract.

2. Allow for minimum of three colors for each system, unless otherwise indicated, without additional cost to OWNER.

3. Extend colors to surface edges; colors may change at any edge as directed by ENGINEER.

4. In finished areas, finish pipes, ducts, conduit, and equipment the same color as the wall/ceiling/soffit they are mounted on/under.

2.3 STAINS AND TRANSPARENT FINISH SYSTEMS

2.4 PAINT SYSTEMS – WOOD SOFFITS

A. Wood, Transparent, Varnish, No Stain:

1. One coat sealer.

2. Satin: Two coats of varnish

2.5 PAINT SYSTEMS – EXTERIOR STEEL

A. METAL PRIMERS - Inorganic Zinc Primer: MPI #19. Shop Primed unless otherwise noted
1. Basis-of-Design Product: Subject to compliance with requirements, provide Ameron International; Dimetcote 302H, Reinforced Inorganic Zinc Primer, 302 Series, 1 coat, 4 mils dft or comparable product by one of the following:
   a. ICI Paints.
   b. Sherwin-Williams Company (The).
   c. Benjamin Moore

B. EPOXY PRIMER COATING - Epoxy Bonding Primer: Shop Primed unless otherwise noted

1. Basis-of-Design Product: Subject to compliance with requirements, provide 1 coat Americote Internatonal, Inc.; Ameriloc Series, Ameriloc 2, 5 mils dft or comparable product by one of the following:
   a. ICI Paints.
   b. Sherwin-Williams Company (The).
   c. Benjamin Moore

C. EPOXY FINISH COATING – Engineered Siloxane Coating: Shop Painted unless otherwise noted

1. Basis-of-Design Product: Subject to compliance with requirements, provide 2 coats Americote Internatonal, Inc.; Engineered Siloxane Coating, PSX 700FD, 3.5 mils, (7 mils dft total). or comparable product by one of the following:
   a. ICI Paints.
   b. Sherwin-Williams Company (The).
   c. Benjamin Moore

2.6 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: Bonding Epoxy filler.

C. Fastener Head Cover Material: As described under 2.5 Exterior Steel.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of work.

1. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:

   c. Wood: 10 percent.

2. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
3. Begin coating application only after unsatisfactory conditions have been corrected and surfaces are dry.
4. Coating application indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates indicated.

B. Remove plates, machined surfaces, and similar items already in place that are not to be coated. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and coating.

1. After completing coating operations, reinstall items that were removed; use workers skilled in the trades involved.

C. Clean substrates of substances that could impair bond of coatings, including dirt, oil, grease, and incompatible paints and encapsulants.

1. Remove incompatible primers and reprime substrate with compatible primers as required to produce coating systems indicated.

D. Steel Substrates: Remove rust and loose mill scale.

1. Clean using methods recommended in writing by coating manufacturer.
2. Blast clean according to SSPC – SP6, with 4 hours on blasting, apply one coat of factory primer.

E. Wood Substrates:

1. Exterior Wood to Receive Transparent Finish: Remove dust, grit, and foreign matter; seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes with tinted exterior calking compound after sealer has been applied. Prime concealed surfaces

3.3 APPLICATION

A. Apply high-performance coatings according to manufacturer's written instructions.

1. Use applicators and techniques suited for coating and substrate indicated.
2. Coat surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, coat surfaces behind permanently fixed equipment or furniture with prime coat only.
3. Coat back sides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.

B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of the same material are to be applied. Tint undercoats to match color of finish coat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.

C. If undercoats or other conditions show through final coat, apply additional coats until cured film has a uniform coating finish, color, and appearance.

D. Apply coatings to produce surface films without cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections. Produce sharp glass lines and color breaks.

3.4 FIELD QUALITY CONTROL

A. Owner reserves the right to invoke the following procedure at any time and as often as Owner deems necessary during the period when coatings are being applied:

1. Owner will engage the services of a qualified testing agency to sample coating material being used. Samples of material delivered to Project site will be taken, identified, sealed, and certified in presence of Contractor.
2. Testing agency will perform tests for compliance with specified requirements.
3. Owner may direct Contractor to stop applying coatings if test results show materials being used do not comply with specified requirements. Contractor shall remove noncomplying coating materials from Project site, pay for testing, and recoat surfaces coated with rejected materials. Contractor will be required to remove rejected materials from previously coated surfaces if, on recoating with complying materials, the two coatings are incompatible.

3.5 CLEANING AND PROTECTION

A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.

B. After completing coating application, clean spattered surfaces. Remove spattered coatings by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

C. Protect work of other trades against damage from coating operation. Correct damage by cleaning, repairing, replacing, and recoating, as approved by Architect, and leave in an undamaged condition.

D. At completion of construction activities of other trades, touch up and restore damaged or defaced coated surfaces.

3.6 EXTERIOR HIGH-PERFORMANCE COATING SCHEDULE

E. Steel Substrates: Shop Primed and Painted

1. High-Build Epoxy Coating System:

a. Prime Coat: Cold-curing epoxy primer, MPI #101.
b. Intermediate Coat: High-build epoxy marine coating, low gloss, MPI #108.
c. Topcoat: Epoxy, cold-cured, gloss, MPI #77.

END OF SECTION 09900

SECTION 16060 - GROUNDING AND BONDING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes: Grounding systems and equipment.

B. Section includes grounding systems and equipment, plus the following special applications:

1. Underground distribution grounding.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

1.4 INFORMATIONAL SUBMITTALS

A. Informational Submittals: Plans showing dimensioned as-built locations of grounding features specified in "Field Quality Control" Article, including the following:

1. Ground rods.

B. Field quality-control reports.

1.5 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with UL 467 for grounding and bonding materials and equipment.

PART 2 - PRODUCTS

2.1 CONDUCTORS

A. Insulated Conductors: Copper wire or cable insulated for 600 V unless otherwise required by applicable Code or authorities having jurisdiction.

B. Bare Copper Conductors:

1. Solid Conductors: ASTM B 3.
2. Stranded Conductors: ASTM B 8.
3. Tinned Conductors: ASTM B 33.
4. Bonding Cable: 28 kcmil, 14 strands of No. 17 AWG conductor, 1/4 inch (6 mm) in diameter.
5. Bonding Conductor: No. 4 or No. 6 AWG, stranded conductor.
6. Bonding Jumper: Copper tape, braided conductors terminated with copper ferrules; 1-5/8 inches (41 mm) wide and 1/16 inch (1.6 mm) thick.
7. Tinned Bonding Jumper: Tinned-copper tape, braided conductors terminated with copper ferrules; 1-5/8 inches (41 mm) wide and 1/16 inch (1.6 mm) thick.

2.2 CONNECTORS

A. Listed and labeled by an NRTL acceptable to authorities having jurisdiction for applications in which used and for specific types, sizes, and combinations of conductors and other items connected.

B. Welded Connectors: Exothermic-welding kits of types recommended by kit manufacturer for materials being joined and installation conditions.

2.3 GROUNDING ELECTRODES

A. Ground Rods: Copper-clad; 5/8 by 96 inches (16 by 2400 mm) in diameter.

PART 3 - EXECUTION

3.1 APPLICATIONS

A. Conductors: Install solid conductor for No. 8 AWG and smaller, and stranded conductors for No. 6 AWG and larger unless otherwise indicated.

B. Underground Grounding Conductors: Install copper conductor, No. 2/0 AWG minimum.

1. Bury at least 24 inches (600 mm) below grade.

2. Duct-Bank Grounding Conductor: Bury 12 inches (300 mm) above duct bank when indicated as part of duct-bank installation.

C. Conductor Terminations and Connections:

1. Connections to Ground Rods: Bolted connectors.

3.2 GROUNDING UNDERGROUND DISTRIBUTION SYSTEM COMPONENTS

A. Comply with IEEE C2 grounding requirements.

B. Grounding Handholes: Install a driven ground rod through handhole base, close to wall, and set rod depth so 4 inches (100 mm) will extend above finished floor.

C. Grounding Connections to Handhole Components: Bond exposed-metal parts such as inserts, cable racks, and pulling irons within each handhole, to ground rod or grounding conductor. Make connections with No. 4 AWG minimum, stranded, hard-drawn copper bonding conductor. Train conductors level or plumb around corners and fasten to handhole walls.

3.3 EQUIPMENT GROUNDING

A. Install insulated equipment grounding conductors with all feeders and branch circuits.

3.4 INSTALLATION

A. Grounding Conductors: Route along shortest and straightest paths possible unless otherwise indicated or required by Code. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.

B. Ground Rods: Drive rods until tops are 2 inches (50 mm) below finished floor or final grade unless otherwise indicated.

1. Interconnect ground rods with grounding electrode conductor below grade and as otherwise indicated. Make connections without exposing steel or damaging coating if any.

C. Bonding Straps and Jumpers: Install in locations accessible for inspection and maintenance except where routed through short lengths of conduit.

1. Bonding to Structure: Bond straps directly to basic structure, taking care not to penetrate any adjacent parts.
2. Use exothermic-welded connectors for outdoor locations.

3.5 FIELD QUALITY CONTROL

A. Tests and Inspections:

1. After installing grounding system but before permanent electrical circuits have been energized, test for compliance with requirements.
2. Inspect physical and mechanical condition. Verify tightness of accessible, bolted, electrical connections with a calibrated torque wrench according to manufacturer's written instructions.
3. Test completed grounding system at each location where a maximum ground-resistance level is specified at individual ground rods. Make tests at ground rods before any conductors are connected.

    a. Measure ground resistance no fewer than two full days after last trace of precipitation and without soil being moistened by any means other than natural drainage or seepage and without chemical treatment or other artificial means of reducing natural ground resistance.
    b. Perform tests by fall-of-potential method according to IEEE 81.

4. Prepare dimensioned Drawings locating each test well, ground rod and ground-rod assembly,

B. Grounding system will be considered defective if it does not pass tests and inspections.

C. Prepare test and inspection reports.

D. Report measured ground resistances that exceed the following values:

1. Handhole Grounds: 25 ohms.

E. Excessive Ground Resistance: If resistance to ground exceeds specified values, notify ENGINEER promptly and include recommendations to reduce ground resistance.

END OF SECTION

SECTION 16120 - CONDUCTORS AND CABLES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Building wires and cables rated 600 V and less.
2. Connectors, splices, and terminations rated 600 V and less.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

PART 2 - PRODUCTS

2.1 CONDUCTORS AND CABLES

A. Manufacturers: Subject to compliance with requirements: available manufacturers offering products that may be incorporated into the WORK include, but are not limited to, the following:

1. Alcan Products Corporation; Alcan Cable Division.
2. Alpha Wire.
3. Belden Inc.
4. Encore Wire Corporation.
5. General Cable Technologies Corporation.
6. Southwire Incorporated.

B. Copper Conductors: Comply with NEMA WC 70/ICEA S-95-658.

C. Conductor Insulation: Comply with NEMA WC 70/ICEA S-95-658 for Type XHHW-2.

2.2 CONNECTORS AND SPLICES

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the WORK include, but are not limited to, the following:

1. AFC Cable Systems, Inc.

2. Gardner Bender.
3. Hubbell Power Systems, Inc.
4. Ideal Industries, Inc.
5. Ilsco; a branch of Bardes Corporation.
6. NSi Industries LLC.
7. O-Z/Gedney; a brand of the EGS Electrical Group.
8. 3M; Electrical Markets Division.
9. Tyco Electronics.

B. Description: Factory-fabricated connectors and splices of size, ampacity rating, material, type, and class for application and service indicated.

2.3 SYSTEM DESCRIPTION

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with NFPA 70.

PART 3 - EXECUTION

3.1 CONDUCTOR MATERIAL APPLICATIONS

A. Feeders: Copper. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.

B. Branch Circuits: Copper. Stranded for No. 10 AWG and larger,

3.2 CONDUCTOR INSULATION AND MULTICONDUCTOR CABLE APPLICATIONS AND WIRING METHODS

A. Feeders Concealed Underground: Type XHHW-2, single conductors in raceway.

B. Branch Circuits Concealed Underground: Type XHHW-2, single conductors in raceway.

3.3 INSTALLATION OF CONDUCTORS AND CABLES

A. Complete raceway installation between conductor termination points according to Section 16130 "Raceways and Boxes" prior to pulling conductors and cables.

B. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.

C. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.

3.4 CONNECTIONS

A. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A-486B.

B. Make splices, terminations, and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.

1. Use oxide inhibitor in each splice, termination, and tap for all conductors.

3.5 FIELD QUALITY CONTROL

A. Perform the following tests and inspections:

1. After installing conductors and cables and before electrical circuitry has been energized, test for compliance with requirements.
2. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.

B. Test and Inspection Reports: Prepare a written report to record the following:

1. Procedures used.
2. Results that comply with requirements.
3. Results that do not comply with requirements and corrective action taken to achieve compliance with requirements.

C. Conductors will be considered defective if they do not pass tests and inspections.

END OF SECTION

SECTION 16131 - UNDERGROUND DUCTS AND UTILITY STRUCTURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Conduit, ducts, and duct accessories for direct-buried duct banks, and in single duct runs.
2. Handholes and boxes.

1.3 DEFINITION

A. RNC: Rigid nonmetallic conduit.

1.4 ACTION SUBMITTALS

A. Product Data: For the following:

1. Duct-bank materials, including separators and miscellaneous components.
2. Ducts and conduits and their accessories, including elbows, end bells, bends, fittings, and solvent cement.
3. Accessories for handholes, boxes.
4. Warning tape.

B. Shop Drawings for Precast or Factory-Fabricated Underground Utility Structures: Include plans, elevations, sections, details, attachments to other WORK, and accessories, including the following:

1. Duct entry provisions, including locations and duct sizes.
2. Reinforcement details.
3. Frame and cover design and manhole frame support rings.
4. Grounding details.

1.5 INFORMATIONAL SUBMITTALS

A. Field quality-control test reports.

1.6 QUALITY ASSURANCE

A. Comply with ANSI C2.

B. Comply with NFPA 70.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver ducts to Project site with ends capped. Store nonmetallic ducts with supports to prevent bending, warping, and deforming.

B. Store precast concrete underground utility structures at Project site as recommended by manufacturer to prevent physical damage. Arrange so identification markings are visible.

C. Lift and support precast concrete units only at designated lifting or supporting points.

1.8 PROJECT CONDITIONS

A. Interruption of Existing Electrical Service: Do not interrupt electrical service to facilities occupied by OWNER or others unless permitted under the following conditions and then only after arranging to provide temporary electrical service according to requirements indicated:

1. Notify Engineer no fewer than two days in advance of proposed interruption of electrical service.
2. Do not proceed with interruption of electrical service without Engineer's written permission.

1.9 COORDINATION

A. Coordinate layout and installation of ducts, handholes, and boxes with final arrangement of other utilities, site grading, and surface features as determined in the field.

B. Coordinate elevations of ducts and duct-bank entrances into manholes, handholes, and boxes with final locations and profiles of ducts and duct banks as determined by coordination with other utilities, underground obstructions, and surface features. Revise locations and elevations from those indicated as required to suit field conditions and to ensure that duct runs drain to manholes and handholes, and as approved by Engineer.

PART 2 - PRODUCTS

2.1 CONDUIT

A. Rigid Steel Conduit: Galvanized. Comply with ANSI C80.1.

B. RNC: NEMA TC 2, Type EPC-40-PVC, UL 651, with matching fittings by same manufacturer as the conduit, complying with NEMA TC 3 and UL 514B.

2.2 NONMETALLIC DUCTS AND DUCT ACCESSORIES

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the WORK include, but are not limited to, the following:

1. ARNCO Corp.
2. Beck Manufacturing.
3. Cantex, Inc.
4. CertainTeed Corp.; Pipe & Plastics Group.
5. Condux International, Inc.
6. ElecSys, Inc.
7. Electri-Flex Company.
8. IPEX Inc.
9. Lamson & Sessions; Carlon Electrical Products.
10. Manhattan/CDT; a division of Cable Design Technologies.
11. Spiraduct/AFC Cable Systems, Inc.

B. Duct Accessories:

1. Duct Separators: Factory-fabricated rigid PVC interlocking spacers, sized for type and sizes of ducts with which used, and selected to provide minimum duct spacings indicated while supporting ducts during concreting or backfilling.
2. Warning Tape: Recommended by manufacturer for the method of installation and suitable to identify and locate underground electrical and communications utility lines.

a. Printing on tape shall be permanent and shall not be damaged by burial operations.
b. Tape material and ink shall be chemically inert, and not subject to degrading when exposed to acids, alkalis, and other destructive substances commonly found in soils.
c. Color and Printing: Comply with ANSI Z535.1 through ANSI Z535.5.
d. Inscriptions for Red-Colored Tapes: ELECTRIC LINE, HIGH VOLTAGE,
e. Inscriptions for Orange-Colored Tapes: TELEPHONE CABLE, CATV CABLE, COMMUNICATIONS CABLE, OPTICAL FIBER CABLE,

2.3 PRECAST CONCRETE HANDHOLES AND BOXES

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the WORK include, but are not limited to, the following:

1. Carder Concrete Products.
2. Christy Concrete Products.
3. Elmhurst-Chicago Stone Co.
4. Oldcastle Precast Group.
5. Riverton Concrete Products; a division of Cretex Companies, Inc.
6. Utility Concrete Products, LLC.
7. Utility Vault Co.
8. Wausau Tile, Inc.

B. Comply with ASTM C 858 for design and manufacturing processes.

C. Description: Factory-fabricated, reinforced-concrete, monolithically poured walls and bottom unless open-bottom enclosures are indicated. Frame and cover shall form top of enclosure and shall have load rating consistent with that of handhole or box.

1. Frame and Cover: Weatherproof cast-iron frame, with cast-iron cover with recessed cover hook eyes and tamper-resistant, captive, cover-securing bolts.
2. Cover Finish: Nonskid finish shall have a minimum coefficient of friction of 0.50.
3. Cover Legend: Molded lettering, “LIGHTING”
4. Configuration: Units shall be designed for flush burial and have open bottom, unless otherwise indicated.
5. Extensions: Designed to mate with bottom of enclosure. Same material as enclosure.

    a. Extension shall provide increased depth of 12 inches (300 mm).

6. Duct Entrances in Handhole Walls: Cast end-bell or duct-terminating fitting in wall for each entering duct.

    a. Type and size shall match fittings to duct or conduit to be terminated.
    b. Fittings shall align with elevations of approaching ducts and be located near interior corners of handholes to facilitate racking of cable.

2.4 UTILITY STRUCTURE ACCESSORIES

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the WORK include, but are not limited to, the following:

1. Bilco Company (The).

2. Campbell Foundry Company.
3. Carder Concrete Products.
4. Christy Concrete Products.
5. East Jordan Iron Works, Inc.
6. Elmhurst-Chicago Stone Co.
7. McKinley Iron Works, Inc.
8. Neenah Foundry Company.
9. NewBasis.
10. Oldcastle Precast Group.
11. Osburn Associates, Inc.
12. Pennsylvania Insert Corporation.
13. Riverton Concrete Products; a division of Cretex Companies, Inc..
14. Strongwell Corporation; Lenoir City Division.
15. Underground Devices, Inc.
16. Utility Concrete Products, LLC.
17. Utility Vault Co.
18. Wausau Tile, Inc.

B. Pulling Eyes in Concrete Walls: Eyebolt with reinforcing-bar fastening insert, 2-inch- (50-mm-) diameter eye, and 1-by-4-inch (25-by-100-mm) bolt.

1. Working Load Embedded in 6-Inch (150-mm), 4000-psi (27.6-MPa) Concrete: 13,000-lbf (58-kN) minimum tension.

C. Expansion Anchors for Installation after Concrete Is Cast: Zinc-plated, carbon-steel-wedge type with stainless-steel expander clip with 1/2-inch (13-mm) bolt, 5300-lbf (24-kN) rated pullout strength, and minimum 6800-lbf (30-kN) rated shear strength.

D. Duct-Sealing Compound: Nonhardening, safe for contact with human skin, not deleterious to cable insulation, and workable at temperatures as low as 35 deg F (2 deg C). Capable of withstanding temperature of 300 deg F (150 deg C) without slump and adhering to clean surfaces of plastic ducts, metallic conduits, conduit coatings, concrete, masonry, lead, cable sheaths, cable jackets, insulation materials, and common metals.

2.5 SOURCE QUALITY CONTROL

A. Test and inspect precast concrete utility structures according to ASTM C 1037.

PART 3 - EXECUTION

3.1 UNDERGROUND DUCT APPLICATION

A. Ducts for Electrical Cables Over 600 V: RNC, NEMA Type EPC-40-PVC, in direct-buried duct bank, unless otherwise indicated.

B. Ducts for Electrical Feeders 600 V and Less: RNC**,** NEMA EPC-40-PVC, in direct-buried duct bank, unless otherwise indicated.

C. Underground Ducts for Telephone, Communications, or Data Utility Service Cables: RNC, NEMA Type EPC-40-PVC, in direct-buried duct bank, unless otherwise indicated.

D. Underground Ducts Crossing Roadways: RNC, NEMA Type EPC-40-PVC, encased in reinforced concrete.

3.2 UNDERGROUND ENCLOSURE APPLICATION

A. Handholes and Boxes for 600 V and Less:

1. Units in Sidewalk and Similar Applications with a Safety Factor for Nondeliberate Loading by Vehicles: Precast concrete, AASHTO HB 17, H-10 structural load rating.

3.3 EARTHWORK

A. Excavation and Backfill: Comply with Sections 02202 "Excavation and Embankment," and 02203 “Trenching,” but do not use heavy-duty, hydraulic-operated, compaction equipment.

B. Restore surface features at areas disturbed by excavation and reestablish original grades, unless otherwise indicated. Replace removed sod immediately after backfilling is completed.

3.4 DUCT INSTALLATION

A. Slope: Pitch ducts a minimum slope of 1:300 down toward manholes and handholes and away from buildings and equipment. Slope ducts from a high point in runs between two manholes to drain in both directions.

B. Curves and Bends: Use 5-degree angle couplings for small changes in direction. Use manufactured long sweep bends with a minimum radius of 48 inches (1220 mm) oth horizontally and vertically, at other locations, unless otherwise indicated.

C. Joints: Use solvent-cemented joints in ducts and fittings and make watertight according to manufacturer's written instructions. Stagger couplings so those of adjacent ducts do not lie in same plane.

D. Duct Entrances to Concrete Handholes: Use end bells, spaced approximately 10 inches (250 mm) o.c. for 5-inch (125-mm) ducts, and vary proportionately for other duct sizes.

1. Begin change from regular spacing to end-bell spacing 10 feet (3 m) from the end bell without reducing duct line slope and without forming a trap in the line.
2. Direct-Buried Duct Banks: Install an expansion and deflection fitting in each conduit in the area of disturbed earth adjacent to manhole or handhole.

3. Grout end bells into structure walls from both sides to provide watertight entrances.

E. Sealing: Provide temporary closure at terminations of ducts that have cables pulled. Seal spare ducts at terminations. Use sealing compound and plugs to withstand at least 15-psig (1.03-MPa) hydrostatic pressure.

F. Pulling Cord: Install 100-lbf- (445-N-) test nylon cord in ducts, including spares.

G. Direct-Buried Duct Banks:

1. Support ducts on duct separators coordinated with duct size, duct spacing, and outdoor temperature.
2. Space separators close enough to prevent sagging and deforming of ducts, with not less than 5 spacers per 20 feet (6 m) of duct. Secure separators to earth and to ducts to prevent displacement during backfill and yet permit linear duct movement due to expansion and contraction as temperature changes. Stagger spacers approximately 6 inches (150 mm) between tiers.
3. Excavate trench bottom to provide firm and uniform support for duct bank. Prepare trench bottoms as specified in Section 02203 “Trenching,” for pipes less than 6 inches (150 mm) in nominal diameter.
4. Install backfill as specified in Section Section 02203 “Trenching.”
5. After installing first tier of ducts, backfill and compact. Start at tie-in point and work toward end of duct run, leaving ducts at end of run free to move with expansion and contraction as temperature changes during this process. Repeat procedure after placing each tier. After placing last tier, hand-place backfill to 4 inches (100 mm) over ducts and hand tamp. Firmly tamp backfill around ducts to provide maximum supporting strength. Use hand tamper only. After placing controlled backfill over final tier, make final duct connections at end of run and complete backfilling with normal compaction as specified in Section 02203 “Trenching.”
6. Install ducts with a minimum of 3 inches (75 mm) between ducts for like services and 6 inches (150 mm) between power and signal ducts, unless otherwise noted.
7. Depth: Install top of duct bank at least 36 inches (900 mm) below finished grade, unless otherwise indicated.

3.5 INSTALLATION OF HANDHOLES AND BOXES

A. Precast Concrete Handhole Installation:

1. Comply with ASTM C 891, unless otherwise indicated.
2. Install units level and plumb and with orientation and depth coordinated with connecting ducts to minimize bends and deflections required for proper entrances.
3. Unless otherwise indicated, support units on a level bed of crushed stone or gravel, graded from 1-inch (25-mm) sieve to No. 4 (4.75-mm) sieve and compacted to same density as adjacent undisturbed earth.

B. Elevations:

1. Handhole Covers: In paved areas and trafficways, set surface flush with finished grade. Set covers of other handholes 1 inch (25 mm) above finished grade.

C. Hardware: Install removable hardware, including pulling eyes, cable stanchions, and cable arms,as required for installation and support of cables and conductors and as indicated.

3.6 GROUNDING

A. Ground underground ducts and utility structures according to Section 16060 "Grounding and Bonding."

3.7 FIELD QUALITY CONTROL

A. Perform the following tests and inspections and prepare test reports:

1. Demonstrate capability and compliance with requirements on completion of installation of underground ducts and utility structures.
2. Pull aluminum or wood test mandrel through duct to prove joint integrity and test for out-of-round duct. Provide mandrel equal to 80 percent fill of duct. If obstructions are indicated, remove obstructions and retest.
3. Test handhole]grounding to ensure electrical continuity of grounding and bonding connections. Measure and report ground resistance as specified in Section 16060 "Grounding and Bonding."

B. Correct deficiencies and retest as specified above to demonstrate compliance.

3.8 CLEANING

A. Pull leather-washer-type duct cleaner, with graduated washer sizes, through full length of ducts. Follow with rubber duct swab for final cleaning and to assist in spreading lubricant throughout ducts.

B. Clean internal surfaces of manholes, including sump. Remove foreign material.

END OF SECTION

SECTION 16140 - WIRING DEVICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Receptacles, receptacles with integral GFCI, and associated device plates.
2. Twist-locking receptacles.

1.3 DEFINITIONS

A. EMI: Electromagnetic interference.

B. GFCI: Ground-fault circuit interrupter.

C. Pigtail: Short lead used to connect a device to a branch-circuit conductor.

D. RFI: Radio-frequency interference.

E. TVSS: Transient voltage surge suppressor.

F. UTP: Unshielded twisted pair.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers' Names: Shortened versions (shown in parentheses) of the following manufacturers' names are used in other Part 2 articles:

1. Cooper Wiring Devices; Division of Cooper Industries, Inc. (Cooper).
2. Hubbell Incorporated; Wiring Device-Kellems (Hubbell).
3. Leviton Mfg. Company Inc. (Leviton).
4. Pass & Seymour/Legrand (Pass & Seymour).

B. Source Limitations: Obtain each type of wiring device and associated wall plate from single source from single manufacturer.

2.2 GENERAL WIRING-DEVICE REQUIREMENTS

A. Wiring Devices, Components, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with NFPA 70.

2.3 STRAIGHT-BLADE RECEPTACLES

A. Convenience Receptacles, 125 V, 20 A: Comply with NEMA WD 1, NEMA WD 6 Configuration 5-20R, UL 498, and FS W-C-596.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the WORK include, but are not limited to, the following:

a. Cooper; 5351 (single), CR5362 (duplex).
b. Hubbell; HBL5351 (single), HBL5352 (duplex).
c. Leviton; 5891 (single), 5352 (duplex).
d. Pass & Seymour; 5361 (single), 5362 (duplex).

2.4 GFCI RECEPTACLES

A. General Description:

1. Straight blade, feed-through type.
2. Comply with NEMA WD 1, NEMA WD 6, UL 498, UL 943 Class A, and FS W-C-596.
3. Include indicator light that shows when the GFCI has malfunctioned and no longer provides proper GFCI protection.

B. Duplex GFCI Convenience Receptacles, 125 V, 20 A:

1. Products: Subject to compliance with requirements, available products that may be incorporated into the WORK include, but are not limited to, the following:

a. Hubbell; GFR5352L.
b. Pass & Seymour; 2095.
c. Leviton; 7590.

2.5 TWIST-LOCKING RECEPTACLES

A. Single Convenience Receptacles, 125 V, 20 A: Comply with NEMA WD 1, NEMA WD 6 Configuration L5-20R, and UL 498.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the WORK include, but are not limited to, the following:

a. Cooper; CWL520R.
b. Hubbell; HBL2310.
c. Leviton; 2310.
d. Pass & Seymour; L520-R.

B. GFCI, Feed]Through Type, Convenience Receptacles: Square face, 125 V, 15 A; comply with NEMA WD 1, NEMA WD 6 Configuration 5-15R, UL 498, and UL 943 Class A.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the WORK include, but are not limited to, the following:

a. Cooper; VGF15.
b. Hubbell; GF15LA.
c. Leviton; 8599.
d. Pass & Seymour; 1594.

2.6 FINISHES

A. Device Color:

1. Wiring Devices Connected to Normal Power System: Gray unless otherwise indicated or required by NFPA 70 or device listing.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with NECA 1, including mounting heights listed in that standard, unless otherwise indicated.

B. Coordination with Other Trades:

1. Protect installed devices and their boxes

C. Conductors:

1. Do not strip insulation from conductors until right before they are spliced or terminated on devices.

2. Strip insulation evenly around the conductor using tools designed for the purpose. Avoid scoring or nicking of solid wire or cutting strands from stranded wire.
3. The length of free conductors at outlets for devices shall meet provisions of NFPA 70, Article 300, without pigtails.

D. Device Installation:

1. Replace devices that have been in temporary use during construction and that were installed before building finishing operations were complete.
2. Keep each wiring device in its package or otherwise protected until it is time to connect conductors.
3. Do not remove surface protection, such as plastic film and smudge covers, until the last possible moment.
4. Connect devices to branch circuits using pigtails that are not less than 6 inches (152 mm) in length.
5. When there is a choice, use side wiring with binding-head screw terminals. Wrap solid conductor tightly clockwise, two-thirds to three-fourths of the way around terminal screw.
6. Use a torque screwdriver when a torque is recommended or required by manufacturer.
7. When conductors larger than No. 12 AWG are installed on 15- or 20-A circuits, splice No. 12 AWG pigtails for device connections.
8. Tighten unused terminal screws on the device.
9. When mounting into metal boxes, remove the fiber or plastic washers used to hold device-mounting screws in yokes, allowing metal-to-metal contact.

3.2 FIELD QUALITY CONTROL

A. Perform the following tests and inspections:

1. Test Instruments: Use instruments that comply with UL 1436.
2. Test Instrument for Convenience Receptacles: Digital wiring analyzer with digital readout or illuminated digital-display indicators of measurement.

B. Tests for Convenience Receptacles:

1. Line Voltage: Acceptable range is 105 to 132 V.
2. Percent Voltage Drop under 15-A Load: A value of 6 percent or higher is unacceptable.
3. Ground Impedance: Values of up to 2 ohms are acceptable.
4. GFCI Trip: Test for tripping values specified in UL 1436 and UL 943.
5. Using the test plug, verify that the device and its outlet box are securely mounted.
6. Tests shall be diagnostic, indicating damaged conductors, high resistance at the circuit breaker, poor connections, inadequate fault current path, defective devices, or similar problems. Correct circuit conditions, remove malfunctioning units and replace with new ones, and retest as specified above.

C. Wiring device will be considered defective if it does not pass tests and inspections.

D. Prepare test and inspection reports.

END OF SECTION

SECTION 16521 - EXTERIOR LIGHTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Exterior luminaires with lamps and ballasts.
2. Luminaire-mounted photoelectric relays.
3. Poles and accessories.

1.3 DEFINITIONS

A. CCT: Correlated color temperature.

B. CRI: Color-rendering index.

C. HID: High-intensity discharge.

D. LER: Luminaire efficacy rating.

E. Luminaire: Complete lighting fixture, including ballast housing if provided.

F. Pole: Luminaire support structure, including tower used for large area illumination.

G. Standard: Same definition as "Pole" above.

1.4 STRUCTURAL ANALYSIS CRITERIA FOR POLE SELECTION

A. Dead Load: Weight of luminaire and its horizontal and vertical supports, applied as stated in AASHTO LTS-4-M.

B. Live Load: Single load of 500 lbf (2224 N), distributed as stated in AASHTO LTS-4-M.

C. Ice Load: Load of 3 lbf/sq. ft. (145 Pa), applied as stated in AASHTO LTS-4-M Ice Load Map.

D. Wind Load: Pressure of wind on pole and luminaire and banners and banner arms, calculated and applied as stated in AASHTO LTS-4-M.

1. Basic wind speed for calculating wind load for poles 50 feet (15 m) high or less is 100 mph (45 m/s).

a. Wind Importance Factor: 1.0 .

b. Minimum Design Life: 25 years.
c. Velocity Conversion Factors: 1.0.

1.5 ACTION SUBMITTALS

A. Product Data: For each luminaire, pole, and support component, arranged in order of lighting unit designation. Include data on features, accessories, finishes, and the following:

1. Physical description of luminaire, including materials, dimensions, effective projected area, and verification of indicated parameters.
2. Details of attaching luminaires and accessories.
3. Details of installation and construction.
4. Luminaire materials.
5. Photometric data based on laboratory tests of each luminaire type, complete with indicated lamps, ballasts, and accessories.

a. Testing Agency Certified Data: For indicated luminaires, photometric data shall be certified by a qualified independent testing agency. Photometric data for remaining luminaires shall be certified by manufacturer.
b. Manufacturer Certified Data: Photometric data shall be certified by manufacturer's laboratory with a current accreditation under the National Voluntary Laboratory Accreditation Program for Energy Efficient Lighting Products.

6. Photoelectric relays.
7. Drivers, including energy-efficiency data.
8. LEDs, including life, output, CCT, CRI, lumens, and energy-efficiency data.
9. Materials, dimensions, and finishes of poles.
10. Means of attaching luminaires to supports, and indication that attachment is suitable for components involved.
11. Anchor bolts for poles.
12. Manufactured pole foundations.

B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other WORK.

1. Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
2. Anchor-bolt templates keyed to specific poles and certified by manufacturer.

1.6 INFORMATIONAL SUBMITTALS

A. Warranty: Sample of special warranty.

1.7 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For luminaires and poles to include in emergency, operation, and maintenance manuals.

1.8 QUALITY ASSURANCE

A. Luminaire Photometric Data Testing Laboratory Qualifications: Provided by an independent agency, with the experience and capability to conduct the testing indicated, that is an NRTL as defined by OSHA in 29 CFR 1910.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

C. Comply with IEEE C2, "National Electrical Safety Code."

D. Comply with NFPA 70.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Package aluminum poles for shipping according to ASTM B 660.

B. Store poles on decay-resistant-treated skids at least 12 inches (300 mm) above grade and vegetation. Support poles to prevent distortion and arrange to provide free air circulation.

C. Retain factory-applied pole wrappings on metal poles until right before pole installation. For poles with nonmetallic finishes, handle with web fabric straps.

1.10 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace products that fail in materials or workmanship; that corrode; or that fade, stain, perforate, erode, or chalk due to effects of weather or solar radiation within specified warranty period. Manufacturer may exclude lightning damage, hail damage, vandalism, abuse, or unauthorized repairs or alterations from special warranty coverage.

1. Warranty Period for Luminaires: Five years from date of Substantial Completion.
2. Warranty Period for Metal Corrosion: Five years from date of Substantial Completion.
3. Warranty Period for Poles: Repair or replace lighting poles and standards that fail in finish, materials, and workmanship within manufacturer's standard warranty period, but not less than three years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Products: Subject to compliance with requirements, provide product indicated on Drawings.

2.2 GENERAL REQUIREMENTS FOR LUMINAIRES

A. Luminaires shall comply with UL 1598 and be listed and labeled for installation in wet locations by an NRTL acceptable to authorities having jurisdiction.

B. Lateral Light Distribution Patterns: Comply with IESNA RP-8 for parameters of lateral light distribution patterns indicated for luminaires.

C. Metal Parts: Free of burrs and sharp corners and edges.

D. Sheet Metal Components: Corrosion-resistant aluminum unless otherwise indicated. Form and support to prevent warping and sagging.

E. Housings: Rigidly formed, weather- and light-tight enclosures that will not warp, sag, or deform in use.

F. Exposed Hardware Material: Stainless steel.

G. Plastic Parts: High resistance to yellowing and other changes due to aging, exposure to heat, and UV radiation.

H. Light Shields: Metal baffles, factory installed and field adjustable, arranged to block light distribution to indicated portion of normally illuminated area or field.

I. Reflecting surfaces shall have minimum reflectance as follows unless otherwise indicated:

1. White Surfaces: 85 percent.
2. Specular Surfaces: 83 percent.
3. Diffusing Specular Surfaces: 75 percent.

J. Lenses and Refractors Gaskets: Use heat- and aging-resistant resilient gaskets to seal and cushion lenses and refractors in luminaire doors.

K. Luminaire Finish: Manufacturer's standard paint applied to factory-assembled and -tested luminaire before shipping. Where indicated, match finish process and color of pole or support materials.

L. Factory-Applied Finish for Steel Luminaires: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

1. Surface Preparation: Clean surfaces to comply with SSPC-SP 1, "Solvent Cleaning," to remove dirt, oil, grease, and other contaminants

that could impair paint bond. Grind welds and polish surfaces to a smooth, even finish. Remove mill scale and rust, if present, from uncoated steel, complying with SSPC-SP 5/NACE No. 1, "White Metal Blast Cleaning," or SSPC-SP 8, "Pickling."

2. Exterior Surfaces: Manufacturer's standard finish consisting of one or more coats of primer and two finish coats of high-gloss, high-build polyurethane enamel.

   a. Color: As selected from manufacturer's standard catalog of colors.

M. Factory-Applied Finish for Aluminum Luminaires: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

1. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.
2. Natural Satin Finish: Provide fine, directional, medium satin polish (AA-M32); buff complying with AA-M20; and seal aluminum surfaces with clear, hard-coat wax.
3. Class I, Clear Anodic Finish: AA-M32C22A41 (Mechanical Finish: medium satin; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class I, clear coating 0.018 mm or thicker) complying with AAMA 611.

2.3 LUMINAIRE-MOUNTED PHOTOELECTRIC RELAYS

A. Comply with UL 773 or UL 773A.

B. Contact Relays: Factory mounted, single throw, designed to fail in the on position, and factory set to turn light unit on at 1.5 to 3 fc (16 to 32 lx) and off at 4.5 to 10 fc (48 to 108 lx) with 15-second minimum time delay.

1. Relay with locking-type receptacle shall comply with ANSI C136.10.
2. Adjustable window slide for adjusting on-off set points.

2.4 DRIVERS FOR LED'S

A. General Requirements for Electronic Drivers::
1. Comply with UL and ANSI C82.11
2. Designed for type and quantity of lamps served.
3. Drivers shall be designed for full light output unless dimmer control is indicated.
4. Drivers shall operate at 60 Hz.
5. Sound Rating: Class A.
6. Total Harmonic Distortion Rating: Less than 20 percent.
7. Transient Voltage Protection: IEEE C62.41.1 and IEEE C62.41.2, Category A or better.
8. BF: 0.90, or higher.
9. Power Factor: 0.95, or higher.

2.5 GENERAL REQUIREMENTS FOR POLES AND SUPPORT COMPONENTS

A. Structural Characteristics: Comply with AASHTO LTS-4-M.

1. Wind-Load Strength of Poles: Adequate at indicated heights above grade without failure, permanent deflection, or whipping in steady winds of speed indicated in "Structural Analysis Criteria for Pole Selection" Article.

2. Strength Analysis: For each pole, multiply the actual equivalent projected area of luminaires and brackets by a factor of 1.1 to obtain the equivalent projected area to be used in pole selection strength analysis.

B. Luminaire Attachment Provisions: Comply with luminaire manufacturers' mounting requirements. Use stainless-steel fasteners and mounting bolts unless otherwise indicated.

C. Mountings, Fasteners, and Appurtenances: Corrosion-resistant items compatible with support components.

1. Materials: Shall not cause galvanic action at contact points.
2. Anchor Bolts, Leveling Nuts, Bolt Caps, and Washers: Hot-dip galvanized after fabrication unless otherwise indicated.
3. Anchor-Bolt Template: Plywood or steel.

D. Handhole: Oval-shaped, with minimum clear opening of 2-1/2 by 5 inches (65 by 130 mm), with cover secured by stainless-steel captive screws

E. Concrete Pole Foundations: Cast in place, with anchor bolts to match pole-base flange. If using support structures other than poles, insert an article here to specify structure materials.

2.6 STEEL POLES

A. Poles: Comply with ASTM A 500, Grade B, carbon steel with a minimum yield of 46,000 psig (317 MPa); one-piece construction up to 40 feet (12 m) in height with access handhole in pole wall.

1. Shape: Round, tapered.
2. Mounting Provisions: Butt flange for bolted mounting on foundation or breakaway support.

B. Steel Mast Arms: Single-arm type, continuously welded to pole attachment plate. Material and finish same as pole.

C. Brackets for Luminaires: Detachable, cantilever, without underbrace.

1. Adapter fitting welded to pole, allowing the bracket to be bolted to the pole mounted adapter, then bolted together with stainless-steel bolts.
2. Cross Section: Tapered oval, with straight tubular end section to accommodate luminaire.

3. Match pole material and finish.

D. Grounding and Bonding Lugs: Welded 1/2-inch (13-mm) threaded lug, complying with requirements in Section 16060 "Grounding and Bonding," listed for attaching grounding and bonding conductors of type and size listed in that Section, and accessible through handhole.

E. Cable Support Grip: Wire-mesh type with rotating attachment eye, sized for diameter of cable and rated for a minimum load equal to weight of supported cable times a 5.0 safety factor.

F. Galvanized Finish: After fabrication, hot-dip galvanize complying with ASTM A 123/A 123M.

2.7 POLE ACCESSORIES

A. Base Covers: Manufacturers' standard metal units, arranged to cover pole's mounting bolts and nuts. Finish same as pole.

PART 3 - EXECUTION

3.1 LUMINAIRE INSTALLATION

A. Fasten luminaire to indicated structural supports.

1. Use fastening methods and materials selected to resist seismic forces defined for the application and approved by manufacturer.

B. Adjust luminaires that require field adjustment or aiming. Include adjustment of photoelectric device to prevent false operation of relay by artificial light sources, favoring a north orientation.

3.2 POLE INSTALLATION

A. Alignment: Align pole foundations and poles for optimum directional alignment of luminaires and their mounting provisions on the pole.

B. Clearances: Maintain the following minimum horizontal distances of poles from surface and underground features unless otherwise indicated on Drawings:

1. Fire Hydrants and Storm Drainage Piping: 60 inches (1520 mm).
2. Electric, Communication and Sewer Lines**: 3 feet (900 mm)**
3. Trees: 15 feet (5 m**)** from tree trunk.

C. Concrete Pole Foundations: Set anchor bolts according to anchor-bolt templates furnished by pole manufacturer. Concrete materials, installation, and finishing requirements are specified in Section 03300 "Cast-in-Place Concrete."

D. Foundation-Mounted Poles: Mount pole with leveling nuts, and tighten top nuts to torque level recommended by pole manufacturer.

1. Use anchor bolts and nuts selected to resist seismic forces defined for the application and approved by manufacturer.
2. Grout void between pole base and foundation. Use nonshrink or expanding concrete grout firmly packed to fill space.
3. Install base covers unless otherwise indicated.
4. Use a short piece of 1/2-inch- (13-mm-) diameter pipe to make a drain hole through grout. Arrange to drain condensation from interior of pole.

E. Raise and set poles using web fabric slings (not chain or cable).

3.3 CORROSION PREVENTION

A. Steel Conduits: Comply with Section 16130 "Raceways and Boxes." In concrete foundations, wrap conduit with 0.010-inch- (0.254-mm-) thick, pipe-wrapping plastic tape applied with a 50 percent overlap.

3.4 GROUNDING

A. Ground metal poles and support structures according to Section 16060 "Grounding and Bonding."

1. Install grounding electrode for each pole unless otherwise indicated.
2. Install grounding conductor pigtail in the base for connecting luminaire to grounding system.

3.5 FIELD QUALITY CONTROL

A. Inspect each installed fixture for damage. Replace damaged fixtures and components.

B. Illumination Observations: Verify normal operation of lighting units after installing luminaires and energizing circuits with normal power source.

1. Verify operation of photoelectric controls.

C. Illumination Tests:

1. Measure light intensities at night. Use photometers with calibration referenced to NIST standards. Comply with the following IESNA testing guide(s):

a. IESNA LM-50, "Photometric Measurements of Roadway Lighting Installations."

D. Prepare a written report of tests, inspections, observations, and verifications indicating and interpreting results. If adjustments are made to lighting system, retest to demonstrate compliance with standards.

END OF SECTION